

Ramp-UP: A Study on the Status of Women in Canada's Mining and Exploration Sector



Final Report

February, 2010

Women
IN
Mining
CANADA

Preface

The concept of **Ramp-UP** implies a call to action. This study originated thanks to the considerable mobilized efforts of Women in Mining (WIM) Canada and partners in the project, Mining Industry Human Resources Council (MiHR). As a national voice, WIM Canada is a proud ambassador for women and the mining and exploration industry. With established international knowledge and experience, and connections with WIM groups globally, WIM Canada is cognizant that the sector represents a broad spectrum of talent, including environmental and social leaders who promote and work in a safe and innovative high tech industry. An industry that Canadians can be proud of. However, industry myths continue to pervade public perception. **Ramp-UP** is one tool that has abounding potential to address this important matter.

In 2009, WIM Canada incorporated to strengthen policy and practice to increase women's recruitment, retention and advancement in exploration and mining sectors in Canada. Achieving this mission over time will strengthen Canada's economic position in a global economy by capitalizing on the industry's full human resource potential.

Ramp-UP broadens the existing base of descriptive statistics and more crucially provides easy access to data because of the participation of hundreds of women who are employees and students at all levels in the mining and exploration sectors.

WIM Canada discovered through the study what had already been known anecdotally: women are experienced, prepared and willing to participate fully in all aspects of the sectors, from the office and laboratory, to heavy equipment operators and remote exploration camps, as well as at management, executive and boardroom levels. An increase in women's participation in the mining and exploration sectors is integral to the industry's success. The benefits include:

- solutions for skilled worker shortages through access to a broader base of talent;
- increased innovation potential and enhanced market development; and
- stronger financial performance and improved governance.

Yet findings of the study indicate that employee diversity remains an elusive goal for many companies and organizations in mining and exploration fields. Particularly underlined was the under-representation of women in decision-making roles.

WIM Canada believes it is vital for our members and other groups in the mining community to advocate for improvements, build on progress, and to actively enhance efforts in gender mainstreaming and monitoring, for the benefit and future of the mining and exploration sector.

Our partnership with MiHR, generous support from industry sponsors and the responses from hundreds of survey participants made this report possible, and created the catalyst for raising awareness. WIM Canada is inspired and ready to take action and **Ramp-UP** the mining and exploration sector resulting in sustainable approaches that develop and grow our vibrant industry.

Acknowledgements

Ramp-UP is the outcome of a coordinated effort, benefiting from the expertise of organizations with membership across Canada. I particularly wish to extend thanks to our partner MiHR and our sponsors. Special recognition is due to the following individuals for their valuable contributions: Louise Chénier and Ruth Wright, The Conference Board of Canada; Lisa McDonald, Prospectors & Developers Association of Canada (PDAC); Jean Lucas, Catharine Shaw and Marilyn Spink, WIM Canada; Jane Werniuk, WIM Toronto, Barbara Caelles, WIM Vancouver, Melanie Sturk, MiHR; Christiane Villemure, Natural Resources Canada (NRCAN); and the Ramp-UP Steering Committee members, Sean Junor, Cameco, and Heather Bruce-Veitch, Iron Ore Company of Canada. We would also like to thank the external reviewers of this report: Ms. Norma Dubé, Assistant Deputy Minister, Women's Issues Branch, New Brunswick Executive Council Office, Ms. Katherine Bruce Professor, Mining Technology, Cambrian College and , Barbara Sherriff, Geology department, University of Manitoba.

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Executive Summary

Canadian women in mining and exploration represent a highly-skilled talent pool in a range of occupations, from CEOs, engineers, and geologists, to heavy equipment operators, and related industry workers. Recognizing the value of this resource to the sector, and concerned about women's under-representation and underemployment, Women in Mining (WIM) Canada initiated the **Ramp-UP** study. Its purpose is to gather data on the issue and establish a baseline for measuring improvements.

The study gathered baseline statistical data on the representation of women as well as the perspectives of four key stakeholders, Female Employees, Employers, Female Students, and Educators on issues such as:

- working conditions and retention
- work-life support
- opportunities for advancement
- school-to-work transition
- degree of awareness and long-term appeal of mineral sector career opportunities

Study Highlights

Key messages emerged from the study, which will elevate the priority of issues related to women in the mineral sector, and provide direction on industry practices that will make a difference:

- **At 14.4 per cent**, the representation of women in mining and exploration is the lowest among primary industry categories in Canada. Steady improvements over the last decade have closed the gap, but this percentage remains well below the overall labour force average of 47.4 per cent. The wage gap between men and women is well above the national average.
- **A critical mass of women** at all levels of an organization including senior management has been linked to higher organizational performance. With business forecasts pointing to a re-emergence of skill shortages and building towards generalized labour shortages by 2017, attracting and retaining under-utilized sources of talent, including women, will enhance performance of the mineral sector.
- **Numerous barriers to career success** were identified by two-thirds of Women working or previously employed in the sector and by one-third of industry Employers. Barriers reported by Employers as 'most critical' were also noted by Women respondents. However women differed about which barriers were most critical.
- **Flexible work practices** were identified by Women respondents as a primary working condition that needed to be addressed. Provided they receive sufficient flexibility and support, women are ready, able, and willing to fulfill the rigorous demands of mining and exploration occupations.
- **Work culture** was the second-ranked challenging work condition for Women respondents, but was identified by only 3 out of 67 Employers. For women, the "male-dominated" environment was also identified as the foremost issue at all phases of their career, from their successful transition to careers in the sector through to their career development and advancement.
- **Gender-specific challenges to career advancement** were identified as a barrier by two-thirds of Women respondents. Less than 30 per cent of Employer respondents agreed. Women reported that career advancement was most difficult in technical occupations, skilled trades and senior leadership roles. They also reported that having female executive role models helped.
- **The number of women choosing to enter** into exploration and mining remains low. Fewer women are entering new careers in the sector. Students who intended pursuing careers in the sector indicated they were influenced by career opportunities and competitive pay and benefits.



Courtesy of MIHR

Recommendations

Based on this study and WIM Canada's experience the following recommendations are provided:

- **Training and career development** of women within mineral organizations should have stronger emphasis. Industry associations could assist employers to access available funds, including programs for Outreach, Training, Mentorship and Career and Leadership Development.
- **More flexibility** and time is needed for all employees to arrange remote/international assignments.
- **Eliminating assumptions** about women's ability to manage field work is vital. In addition there is a need to address practices that collectively contribute to perceptions of a male-dominated culture, including awareness training, closing the wage gap, and implementing mentorship programs.
- **Reporting diversity measures** in organizations' sustainability/annual reports should be encouraged.
- **Encouraging women** to pursue careers in the sector. Post-secondary alumni groups, women's networks and industry associations should be supported to build awareness of the sector among mature skilled women and Aboriginal women, and to help organize work placement of youth and post-secondary students.
- **Promoting a positive image** of the sector is essential. Women's professional associations should be encouraged to advocate for the exploration and mining industry through testimonials and to speak to groups to heighten awareness and dispel public misconceptions about the sector.
- **Industry's sponsorship of awards programs** will enhance profile and celebrate progress. Such events recognize and encourage world class practices, and identify and applaud organizations' milestone achievements, while promoting women's accomplishments from operational and trades levels to senior leadership.

Tackling gender diversity provides the mining and exploration sector with an opportunity to show leadership on a pressing social and economic issue. Increasing the representation of women across all occupational areas and levels will improve business performance and ensure that the mineral sector has the flexibility, adaptability, and focus to meet the needs of tomorrow in a highly-competitive global industry.

Women in Mining (WIM) Canada is a non-profit, industry-led group tasked with advancing the interests of women in the metals and minerals sectors. WIM Canada seeks to provide Employers, Employees, and Educators with tools and resources to break down barriers to employment, improve advancement opportunities, and ultimately increase the representation of Women in leadership positions.

WIM Canada, in partnership with the Mining Industry Human Resources Council (MiHR), would like to thank the following organizations for support in making this project possible:



The Mining Association of Canada | L'Association minière du Canada



Natural Resources Canada

Ressources naturelles Canada

Canada

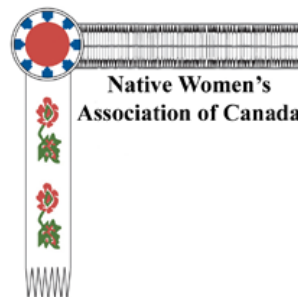


MINING INDUSTRY HUMAN RESOURCES COUNCIL
CONSEIL DES RESSOURCES HUMAINES DE L'INDUSTRIE MINIÈRE

Deloitte.



Prospectors & Developers Association of Canada
Association canadienne des prospecteurs et entrepreneurs



Native Women's Association of Canada



RioTinto



Cameco

NUCLEAR. The Clean Air Energy.

Introduction

Canada is a global leader in the exploration, extraction, and export of minerals and metals.¹ (See *References*, p. 32) Despite its boom and bust nature, mining and exploration remains a proven and long time pillar of the economy, consistently contributing 3.5 per cent to 4.5 per cent of Canada's GDP over the past two decades.² It is also a major national employer, representing approximately 350,000 employees or two per cent of the national workforce.

Beyond variable demand and erratic commodity prices associated with business cycles, the sector faces several human resources challenges to remain globally competitive. First, regardless of recent industry contraction due to the global recession, it is estimated there will be a serious labour-skills shortage by 2017.^{3,4} Women will be an important source of talent as labour force growth contracts and aging baby boomers depart the workforce.

Perhaps equally important are inherent business costs accrued from a lack of gender diversity. Women are under-represented in most occupations and roles in mining and exploration.⁵ The research is compelling. Organizations with a critical mass of women on their boards of directors, in leadership positions, and in the workforce, have better financial performance and governance.^{6,7} The lack of gender diversity found in mining and exploration could negatively impact the sector's productivity and performance.

Research Purpose

The purpose of this study is to establish a baseline for measuring improvements to the current status of women in mining and exploration. Via secondary research, the study presents the representation of women in programs of study related to the sector and at various occupational levels in the industry. It also gathers perspectives on how the sector might best attract and retain women from four key stakeholder groups:

- Women currently, formerly, and self-employed in the sector
- Employers in the sector
- Female Students currently enrolled in post-secondary mining and exploration-related programs
- Educators teaching in post-secondary mining and exploration-related programs of study

The study is designed to:

- provide a baseline for measuring improvements to the current status of women in the sector
- identify barriers and inequities faced by women in the industry from enrolment in post-secondary training institutions to employment and advancement
- collect, at a high-level, practices and programs to attract, recruit, and retain women in the sector
- assist employers in the sector to address the under-representation of women in the mining industry

The study's key focal points are:

- retention and career advancement of women actively employed in the sector
- attraction and recruitment of female students from post-secondary educational institutions
- transition to a mining and exploration career track

Research Methodology

A profile of women in the mining and exploration sector was compiled from Statistics Canada highlighting:

- educational background
- history in mining and exploration
- overall representation in the sector and other primary industries

Surveys of the four key stakeholders were conducted to view a representation of women in:⁸

- mining and exploration-related departments at educational or training institutions
- various occupations in the sector
- senior roles in organizations involved in mining and exploration

A representative cross-section of Female Students enrolled in mining and exploration-related programs of study were questioned regarding:

- future career choice
- awareness of the mining and exploration sector
- educational experience
- experience transitioning to employment



Courtesy of MiHR

Educators in mining and exploration-related programs were asked about:

- challenges and barriers to female students in post-secondary education and careers in the sector
- existing supports to assist women with completing studies and effectively transitioning into mining and exploration-related occupations

Employers and Female Employees were surveyed to gain their perspectives on:

- systemic and apparent barriers faced by women beginning and advancing careers in the sector
- strategies, practices, or programs supporting women in their careers in mining and exploration

Respondent Profiles

(See Appendix A for a full profile of the respondents).

Students

100 Female Students currently enrolled in post-secondary programs of study in business and administration, engineering, sciences, and the trades were polled through an online questionnaire to gain their insights about the mining and exploration sector. Attention was given to ensure the sample reflected Canada's geographic, linguistic, and demographic diversity.

Women

385 Women from the mining and exploration sector answered the survey. They reflected the national industry demographic profile. Drawn from a list of 1,355 women from various associations, a significantly higher representation of women in the demographic worked in professional occupations, mid-and-line management, or as consultants.

Educators

139 Educators were approached to provide perspectives on the experience of female students and graduates in mining and exploration sectors. 10 educators responded to the survey with detailed and informative responses. Interviews were conducted to supplement the survey information. Five taught at community colleges, four at universities, and one at a post-secondary training institution, with locations in Ontario, Saskatchewan, and British Columbia. All mining and exploration-related programs of study were offered by at least one of the surveyed organizations.

Employers

446 organizations were contacted, 67 Employers provided perspectives on the experience of women in the mining and exploration sector. Respondent organization workforces reflected the national industry demographic profile. An over-representation of female-owned consultancies among the respondents made the average overall representation of women in the organizations and their representation at various roles and occupations appear higher than the national industry profile. When consultancies were filtered out, the Respondent Profile resembled the National Industry Profile.

Background and Context

The Mining and Exploration Sector in Canada

Canada is a global leader in exploration and mining.⁹ There are roughly 840 mines in Canada and over 1,400 exploration and mining companies listed on the TSX and the TSX Venture Exchange.^{10,11} In 2008, total Canadian exploration and deposit appraisal expenditures were 3.3 billion dollars.¹² While the mining and exploration industry brings employment and economic growth to rural, remote and Northern communities across Canada, some of the largest organizations are situated in major urban areas. Toronto is recognized globally as a financial hub for mining and exploration.¹³ Vancouver is a world centre for exploration company headquarters.¹⁴

With the beginning of the global recession at the end of 2008, the price of many commodities collapsed in response to declining demand. An estimated 32 mines were closed temporarily in Canada and mine expansions and investments were deferred.¹⁵ However, while the industry has been strongly impacted by the financial crisis, mid-to-long-term prospects remain positive.¹⁶

Human Resources in Mining and Exploration

The mining and exploration sector is a major employer in Canada, directly employing approximately 150,000 workers.¹⁷ When mineral and metal manufacturing is included, these numbers rise to over 350,000 workers or 2 per cent of the Canadian labour force.¹⁸

The sector is technologically rich, dynamic, and careers can be lucrative. In 2008, average earnings in the Canadian mining

industry were \$1,347 per week which was 33, 35, 42, and 44 per cent higher than in the construction, finance, manufacturing or forestry sectors, respectively.¹⁹ Benefits are also very competitive in mining and exploration. Many employers offer production bonuses, stock options, educational reimbursement programs, and relocation funding to their employees, and most provide comprehensive medical benefits.²⁰

Working conditions inherent in some mining and exploration occupations may present work-life challenges for some employees. While occupations in administration and corporate services are often located in urban areas with significant community support, others require extensive travel, relocation to isolated mining communities, and fly-in or fly-out mining arrangements.²¹

Projected Labour and Skills Shortage

The mining and exploration sector is projected to experience a severe labour shortage by 2017. As shown in **Table 1**, the Mining Industry Human Resources Council (MiHR) has estimated (based upon a number of assumptions fluctuating in response to the market), that the sector will face a total potential hiring requirement of close to 60,000 workers within the next decade. Only 850 to 950 of these positions are projected to be filled annually by post-secondary graduates and immigration.²² To fill this shortfall, employers will need to attract, recruit, and retain workers historically under-represented in their workforce, including women.

Table 1
Hiring Requirements in the Mining Industry 2007–2016
(Number of workers)

Year	Total Employment	New Job Growth	Replacement Requirements		Total Hiring Requirements
			Non-Retirement	Retirement	
2007	145,228	2,324	2,905	2,905	8,133
2008	147,552	-1,549	2,951	2,951	4,353
2009	146,002	-3,650	2,920	3,285	2,555
2010	142,352	-3,132	2,847	3,559	3,274
2011	139,221	-2,088	2,785	3,481	4,177
2012	137,132	-1,371	2,743	3,428	4,800
2013	135,761	0	2,715	4,073	6,788
2014	135,761	679	2,715	4,209	7,602
2015	136,440	1,364	2,739	5,185	9,278
2016	137,804	1,378	2,756	5,374	9,508
Total		-6,046	28,066	38,449	60,469

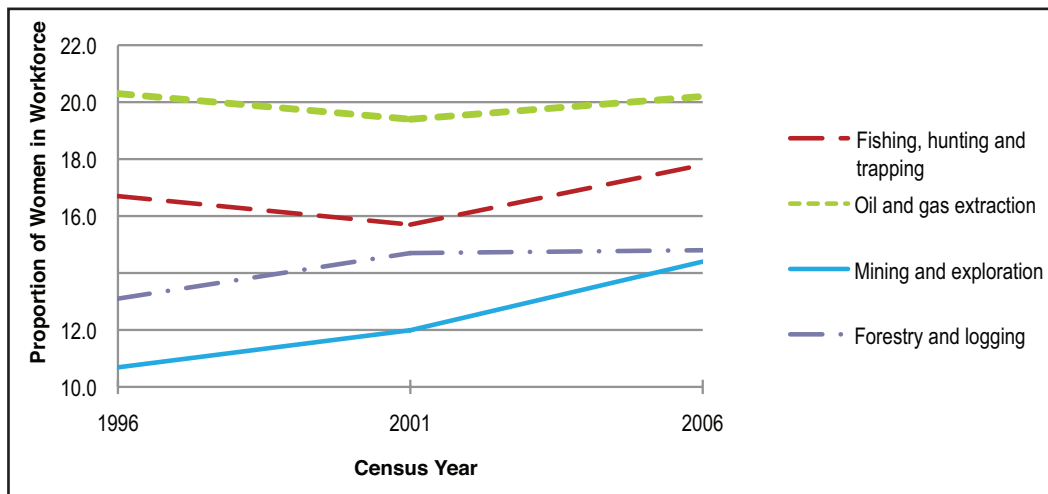
Source: Mining Industry Human Resources Council, 2008

Women in Mining and Exploration

While the representation of women in mining and exploration has increased from less than 11 per cent in 1996 to over 14 percent in 2006, their representation in the sector is significantly lower than the overall workforce at 47.4 per cent.²³ It is also lower than in other primary industries, including oil and gas, fishing, hunting and

trapping, and forestry and logging, where women represent 20.2, 17.8 and 14.8 per cent of their workforces, respectively.²⁴ The gap has closed in recent years. In **Chart 1**, the representation of women in these primary industries is plotted for the 10-year period to 2006 so that women's representation can be compared.

Chart 1
Representation of Women in Selected Primary Industries, 1996–2006
(Per cent)



Sources: The Conference Board of Canada; Statistics Canada

Wage Gap between Male and Female Employees

While compensation and benefits are attractive in mining and exploration, a wage gap exists between average salaries earned by male and female employees. **Table 2** illustrates that women in mining earn an average of roughly 32 per cent less than their

male counterparts. This compares to an average Canadian gender-income gap of 21 per cent or about 11 per cent higher than the national norm.²⁵ This salary differential is present at all age groups and in most occupations and roles in mining and exploration.

Table 2
Wage Gap between Men and Women in the Mining and Exploration Sector
(Salaries per mining and exploration area)

	Average Salaries		Salary Differential	
	Men	Woman	Dollar Amount	Per cent
Coal mining	\$71,363	\$55,139	\$16,224	22.7
Metal ore mining	\$81,196	\$55,278	\$25,918	31.9
Non-metallic mineral mining and quarrying	\$56,878	\$38,203	\$18,676	32.8
Support activities for mining	\$71,233	\$40,634	\$30,599	43.0
Iron and steel mills and ferro-alloy manufacturing	\$67,041	\$47,367	\$19,674	29.3
Alumina and aluminum production and processing	\$67,761	\$50,705	\$17,056	25.2
Non-ferrous metal (except aluminum) production and processing	\$71,562	\$44,507	\$27,055	37.8

Sources: The Conference Board of Canada; Statistics Canada

Women's Perceptions of Mining and Exploration

A stereotypical image of a sector unfriendly to women may be influencing the educational and career choices of young women as much today as in the past with the mining and exploration sector. There is historic truth to the pervasive viewpoint that mining and exploration organizations are traditionally male-dominated workplaces. In the late 19th century, laws were introduced prohibiting mining companies from hiring women. This remained unchanged until the 1970s. When women first entered the mining industry as permanent workers they encountered opposition from some male employees about women being hired. Some female employees faced crude jokes and harassment, a struggle for acceptance which has been described in reports, media, books, and film. As a result, past struggles may continue to influence the perception women have about today's mining sector, although most women working in the modern mining and exploration sector don't share this outlook.

As with most large-scale industrial settings, mining and exploration is perhaps often perceived as extremely physical

work within a noisy, dirty, and harmful environment.²⁸ This is not true of all occupations in mining and exploration. Technology has resolved many challenges. However, this potentially negative perception represents a barrier that may continue to deter some women from considering a career in the industry.

Educational Pathways Chosen by Women

The under-representation of women in mining and exploration is also an outcome of educational pathways women select for post-secondary education or training. Young women are not choosing the industry as a career destination. Fewer students, both male and female, are pursuing certifications in the trades. Those doing so account for 10 per cent of the total population between the ages of 25 to 34.²⁹ Of these, women hold less than 37 per cent of certifications, one-third in personal and culinary services.³⁰ Most common fields of study chosen by female and male post-secondary graduates are listed in **Table 3**. Trades rank with the last fields of study for women. For example, mechanic and repair, precision production, and construction trades are ranked 13, 14, and 15, respectively, by women.

Table 3
Common Fields of Study Chosen by Canadian Female and Male Post-Secondary Graduates, 2006
(Rank)

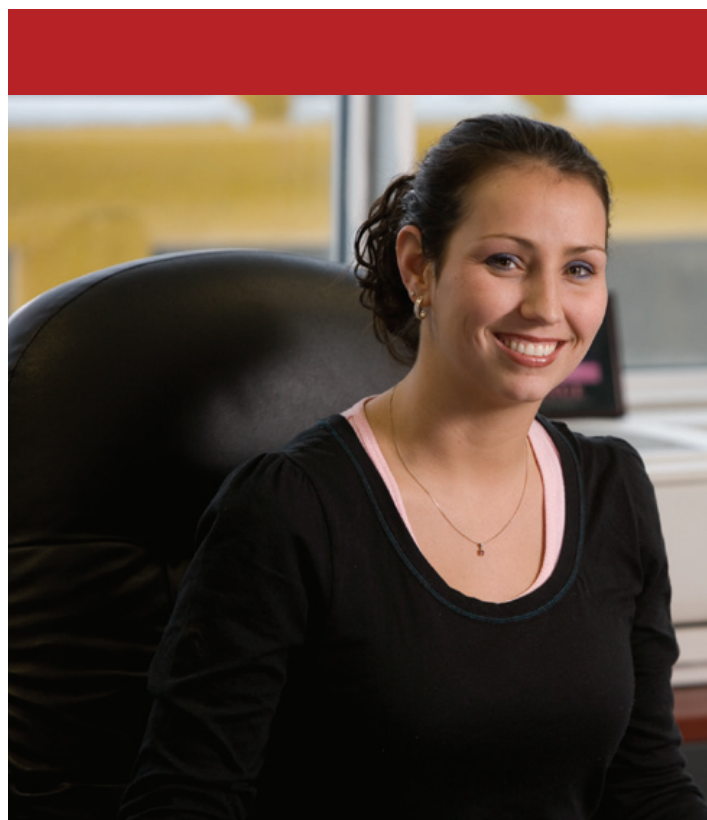
Fields of Study	Rank for Women	Rank for Men
Business, management and public administration	1	4
Health, parks, recreation, and fitness	2	10
Personal, protective, and transportation services	3	5
Social and behavioral sciences and law	4	13
Education	5	15
Visual and performing arts, and communications technologies	6	8
Mathematics, computer, and information sciences	7	7
Architecture, engineering, and related technologies	8	1
Humanities	9	11
Agriculture, natural resources, and conservation	10	9
Physical and life sciences and technologies	11	14
Communications technologies/technicians and support services	12	12
Mechanic and repair technologies/technicians	13	1
Precision production	14	6
Construction trades	15	3

Sources: The Conference Board of Canada; Statistics Canada

This situation mirrors what can be observed within the mining and exploration sector. **Table 4** shows the representation of women in selected occupations in mining and exploration. Women are under-represented in trades occupations such as industrial and heavy equipment mechanics and millwrights, heavy equipment and crane operators, and underground and surface miners, and related occupations. On the other hand, culinary services, classified with the personal, protective, and transportation services, is the third most common field of study for women graduates from post-secondary education. In the mining and exploration sector, women also comprise over 72 per cent of workers employed in culinary services.

The most common field of study for women is business, management, and public administration. (See **Table 3**) This result explains in part a high representation of women in these same occupations within the mining and exploration sector. As shown in **Table 4**, over 70 per cent of administrative and corporate services positions in mining and exploration are held by women.

The boom and bust nature of the mining industry poses additional challenges for students and short-tenure employees, who make career choices during boom markets only to lose opportunities during the busts. This suggests that there is a reservoir of skilled individuals who have migrated to other sectors.



Courtesy of MiHR

Table 4
Representation of Women in Selected Occupations in Mining and Exploration, 2006
(Per cent)

Selected Occupations	Proportion of Occupations	
	Held by Women	Held by Men
Natural, geological, and earth sciences professionals	16.3	83.7
Other sciences professionals (e.g., chemists, biologists)	21.8	78.2
Non-geological engineers	12.2	87.8
Geological and environmental technologists and technicians	14.9	85.1
Production and processing technologists and technicians	15.7	84.3
Industrial and heavy equipment mechanics, millwrights	1.3	98.7
Heavy equipment and crane operators	3.6	96.4
Underground/surface miners and related occupations	4.0	96.0
Culinary services	72.7	22.7
Other trade occupations	3.1	96.9
Administration and corporate services occupations	72.4	27.6
Total Labour Force	14.4	85.6

Sources: The Conference Board of Canada; Statistics Canada



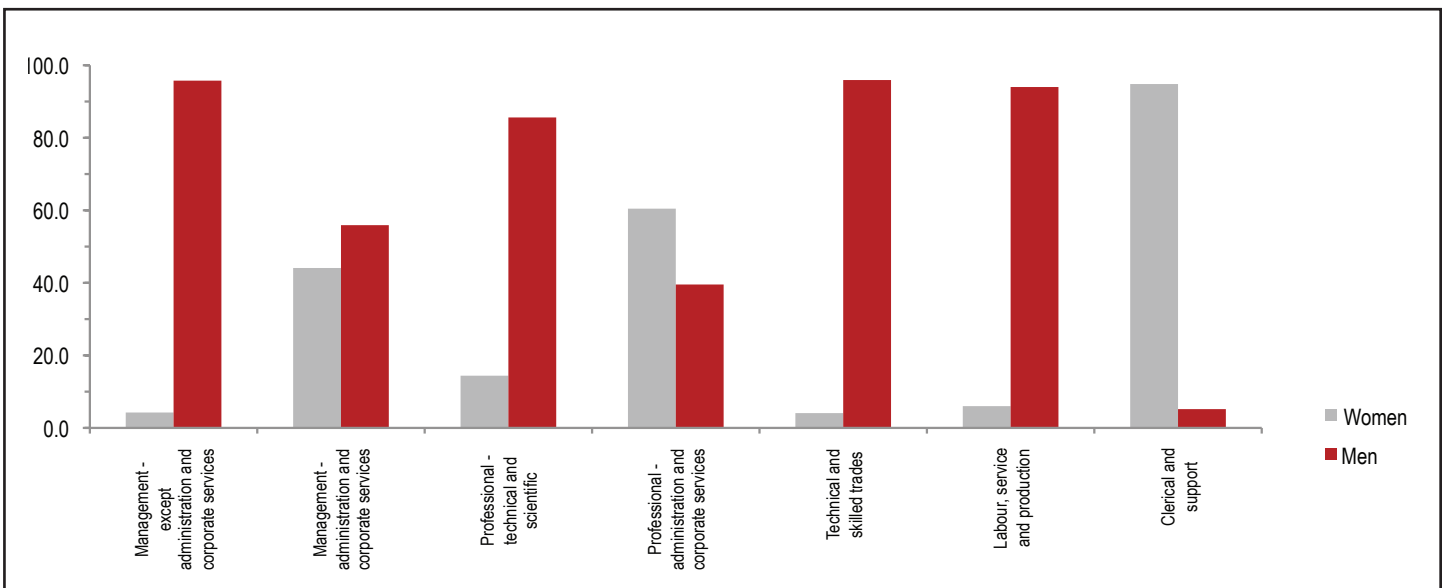
Courtesy of MiHR

Women in Management Roles

In mining and exploration occupations where women are well-represented, they nonetheless do not hold a proportionate number of management positions. For example, the latest Statistics Canada census indicates that while women hold over 60 per cent

of professional roles in administration and corporate services in the mining and exploration sector, they hold only 44 per cent of management positions in these occupations. The representation of women in selected roles in mining and exploration is shown in **Chart 2.**³¹

Chart 2
Representation of Women and Men in Roles in Mining and Exploration, 2006
(Per cent)



Sources: The Conference Board of Canada; Statistics Canada

Findings and Discussion

Working Conditions in Mining and Exploration

Perspectives of Women, Sector Employers, and Educators Differ

Women, Employers, and Educators were asked if working conditions needed to be addressed in order for women to be successful in mining and exploration. The perceptions of these three stakeholders differed markedly.

- One-third of Educators and fewer than 30 per cent of Employers believe that working conditions need to be addressed. In fact, with the exception of the need for flexible work arrangements, Employers were more likely to report that no barriers exist than to identify a single challenging working condition.
- By contrast, nearly two-thirds of past and current Female Employees believe that some working conditions in the sector need to be addressed for women to succeed.

Inflexible Work Arrangements Pose Challenges

For Employers and Female Worker respondents who agreed that working conditions pose challenges, the major issue identified was “flexible work arrangements.” (See Table 5)

The second most important challenge reported by Women participants was “workplace culture” which in contrast was addressed by only two Employer respondents. Culture was closely followed by the need to travel and work in remote locations. The issue was not that women cannot travel as some participants explained. However, receiving ample notice of assignments and flexibility to assist them with coordinating home and work responsibilities were identified as important.

“For an industry that can cope with the vagaries of metal prices and supply and demand through advanced schedule optimization, it seems we should be better able to cope with more variability in the workforce schedule (this goes for Aboriginal employees who want time off for trapping too).”

Female employee

Child care and parental leave was the fourth issue for Women, and identified as second in importance by Employer respondents. With appropriate support from employers, some Women respondents felt child-rearing did not need to impede their career in the sector. As one respondent observed:

“The mining industry has treated me very well. I took off maximum amount of leave for two children and returned to promotions and pay increases both times!”

Female mining executive

Table 5
Challenging Working Conditions Identified by Women and Employers, Impeding Success of Women (Per cent)

Top Working Conditions	Women (n=385)	Top Working Conditions	Employers (n=67)
Flexible work arrangements	30.4	Flexible work arrangements	10.5
Workplace culture	14.3	Child care/parental leave practices	7.5
Travel/remote locations	14.0	Infrastructure/equipment design	3.0
Child care/parental leave practices	12.2	Mentorship programs	3.0
Workload	8.1	Workplace culture	3.0
Infrastructure/equipment design	5.7	Travel/remote locations	1.5
Training and development, field experience	3.9	Training and development/field experience	1.5
Mentorship programs	3.1	Workload	1.5
No changes required	4.2	No changes required	7.5

Source: The Conference Board of Canada

Lack of Field Experience a Challenge for Women in Certain Occupations

In certain occupations field experience and training and development are essential for career advancement. This was an obvious concern voiced by a small number of women in natural, geological, and earth sciences professions, non-geological engineers, and geological technologists and technicians. As one mining and exploration Employer commented:

“Supervisory roles in the field are currently occupied almost exclusively by men. This creates two problems. 1) Female workers do not have any women on the front line of leadership that they can speak to or mentor under. 2) These field roles are also viewed as an essential experience for individuals developing into more senior roles. While the senior roles, engineering roles, and middle management are currently occupied by a respectable representation of women, the bench strength of women with field experience is low.”

Several of the Women respondents stated that supervisors as a matter of course do not offer site experiences to women who have children or women they believe plan to have children. It is assumed field work will conflict with a mother's caring responsibilities and eventually lead the employee to search for alternate employment. This practice creates a secondary career path, limits opportunities for women's advancement in these occupations, and is a source of significant career frustration.

Career Advancement of Women in the Sector

A Disconnect Between Perceptions of Employers and Female Workers

Employers and Female Workers were both asked to identify gender-related barriers to career advancement. Apparent differences in perception emerged. While two-thirds of Women

Working Conditions

- **2/3 of Female Workers identified challenging working conditions**
- **1/3 of Educators believe some working conditions need to be addressed**
- **Less than 1/3 of Employers identified any challenging working conditions**

respondents reported that gender-specific challenges exist, less than 30 per cent of Employers agreed. Employers also identified fewer challenges. Table 6 lists the challenges to career advancement identified by women and employers.

- Unsupportive work cultures and relationships with supervisors continue to pose problems for women as they attempt to advance in their careers. Only three Employer respondents cited work culture as an issue.
- Absence of mentors and role models in senior roles was identified by Women respondents. The few Employers who cited issues agreed.
- Insufficient professional and career development was reported, some Women noting that better communication about opportunities would be of benefit. By contrast, Employers reported educational leaves and funding were the most prevalent form of support provided. (See Table 9)
- Personal characteristics such as confidence, assertiveness and even low self esteem were identified as barriers to career advancement. One respondent stated she was hesitant to ask for a promotion due to “lack of encouragement from management”, “a lack of self-confidence”, and “low self-esteem”.
- Employers in local, regional, and provincial operations were significantly more likely to report that there were barriers to female career advancement in mining and exploration than respondents from national and international operations.³²
- Women reported significantly fewer barriers to career advancement in organizations with a senior female leader on the executive team.³³

- Women respondents were much more likely to report barriers to career advancement if they worked in a fly-in-fly-out arrangement.³⁴ As one Female Employee wrote:

“ Working at a Northern mine site, the majority of women are not able to work on a seven-day-in, seven-day-out schedule once they have children. The camp is set up to accommodate men as they make up 90 per cent of the employees at site. The isolated conditions, the lack of female co-workers, and the inflexibility of travel make working at site for me, personally, mentally difficult.”

Top Three Barriers to the Career Advancement of Women

- **2/3 of Female Workers** perceive the following barriers:
 - work culture
 - lack of mentors/social network
 - perceptions of their abilities
- **Less than 1/3 of Employers** perceive the following barriers:
 - lack of mentors/social network
 - work culture
 - lack of career development

Table 6
Challenges to Career Advancement Identified by Female Employees and Employers

Top Challenges to Career Advancement	Female Employees (n=385)		Employers (n=67)	
	Per cent	Rank	Per cent	Rank
Work culture	15.8	1	4.5	2
Lack of mentors/social network	13.0	2	7.5	1
Perceptions	9.9	3	–	–
Work-life conflicts	8.6	4	3.0	4
Inequalities in HR practices	6.8	5	–	–
Lack of senior female leaders	4.4	6	3.0	4
Individual internal barriers (e.g., low confidence)	2.6	7	–	–
Lack of knowledge of workplace/career opportunities	2.6	7	–	–
Infrastructure/equipment design	0.5	9	–	–
Lack of professional/career development	–	–	4.5	2

Source: The Conference Board of Canada

Roles with Greatest Barriers to Career Advancement

Women and Employers were asked to identify occupations where Female Employees face the greatest obstacles to advancement. As indicated in **Table 7** both groups agreed advancement through the leadership strata is clearly difficult.

- Senior management and executive roles pose the largest barriers, closely followed by the CEO, and middle management

and supervisory roles. Technical and skilled trades ranked fourth.

- Not surprisingly, Women were perceived to face the fewest barriers in areas where their overall representation was already high—for example, administration and corporate services.

Table 7

Prevalence of Career Advancement Barriers by Roles as Identified by Women and Employers

Positions	Female Employees (n=385)		Employers (n=67)	
	Per cent	Rank	Per cent	Rank
President, CEO	42.1	2	14.9	2
Executives, directors, and senior management	46.9	1	17.9	1
Middle and line management/supervisors	37.5	3	14.9	2
Professional: technical and specific	17.2	5	1.5	5
Professional: administration and corporate services	3.9	7	1.5	6
Technical and skilled trades	21.4	4	4.5	4
Labour, services, and production	14.6	6	–	–
Clerical and support	1.8	8	–	–
Other: Board of Directors	0.6			

Source: The Conference Board of Canada

Strategies to Help Women in Their Career Advancement

Women and Employers were asked to identify supportive practices to help women advance in careers. The most prevalent strategies are in **Tables 8 and 9**. Notable is the extent to which Employers believe they have supportive strategies in place, and the small percentage of Women who believe they have benefited from supports.

- Support for professional development and training is the most widespread type of support offered by Employers. This is also identified by Women as important.
- One-third of Employers offer flexible work arrangements to help Women advance. This is not identified by Women to be important to their career advancement.
- When Women receive support from senior leaders, supervisors and coworkers they find it especially helpful. Women and Employers also identify mentorship as useful.
- Women were significantly less likely to perceive barriers to career advancement when they reported the presence of supportive practices in their organizations.³⁵

Table 8

Support Received by Female Employees That Assisted Their Career Advancement (n=384)

Supportive Practices	Per cent
Supervisor/senior leadership support	6.8
Supportive colleagues/team	3.4
Professional development/training	3.1
Mentorship programs	2.9
Women's networks/associations	1.6
Supportive HR department/practices	1.6
Supportive family/friends	1.3

Source: The Conference Board of Canada

Table 9
Support Offered by Employers to
Assist Women Advance In Their Careers
(n=67)

Supportive Practices	Per cent
Educational leaves/funding	43.3
Flexible work arrangements	34.3
Mentorship programs	20.9
Special leave policies	19.4
Scholarship programs	16.4
Telework	11.9
Child care support	6.0
Eldercare support	3.0
None	1.5

Source: The Conference Board of Canada

Absence of Women in Senior Leadership Roles: Model of the Labyrinth

The metaphor of the glass ceiling has often been used to describe barriers women encounter striving to attain senior leadership roles in organizations. The metaphor of the labyrinth, developed by Linda Carli and Alice Eagly, is perhaps more reflective of the situation in mining and exploration. Career paths to senior leadership positions exist and a few women attain top roles. However, careers rarely progress in a linear fashion. Rather, there are twists and turns and obstacles en route.³⁶ Entry into the labyrinth begins with educational choices, but as women progress through various job assignments, roles, and life phases, they get lost. In mining and exploration, women identify the “male-dominated work culture” and the secondary career paths they are offered due to misperceptions of their abilities as two main barriers.

Attracting Female Students

A career begins with educational choices made by women at post-secondary educational or training institutions. In fact few women are choosing to enter mining and exploration-related programs of study and fewer still are entering or pursuing careers in the sector. To increase female representation in the sector, the reasons for this lack of representation must be identified and resolved.

Most Students Unaware of Career Opportunities in the Sector

Female Students were asked to identify industry sectors that appealed to them as potential career destinations.

- Of 100 Female Students polled, 10 were aware of mining and exploration as a potential career destination. Only five indicated they planned to seek jobs in the sector.

- When asked why they had not selected the sector, two-thirds responded that they were either unaware of sector job opportunities relevant to their training or stated that mining and exploration had not occurred to them as a source of employment as shown in *Table 10*.

Students Have a Negative Impression of the Sector

Many Female Students polled have a negative image of mining and exploration. Most are, self-admittedly, poorly informed but some had direct experience in the sector.

- One-quarter of respondents who did not choose the sector as a potential career destination indicated they did not want to work in mining and exploration because the work environment or culture was unappealing. (See *Table 10*) Of these 25 women, 5 had previous contact with or knowledge of the sector through acquaintances or work placements.
- 15 students raised concerns about the lack of environmental responsibility in mining and exploration. Another 20 students described mining and exploration as a sector where the work environment and work practices are “geared only toward men” and where discrimination is an issue. Ten students also commented that the sector “seems driven toward more physically-motivated persons,” and that all occupations in the sector are labour-intensive and physically demanding.



Courtesy of MIHR

Table 10
Students' Reasons for Not Choosing Mining and Exploration as a Career Option
(n=95)

	n=95
Never thought about this sector	39
Unaware of job opportunities relevant to training in this sector	25
The work environment and work culture is unappealing	25
Concern about working in remote locations	3
Better career opportunities in another sector	2
Better pay and benefits in another sector	1
Concern about workload	0
Concern about shift work	0
Concern about extensive travel	0

Source: The Conference Board of Canada

Students' Suggestions for Making the Sector More Attractive

Students were asked how educators and employers could attract female students or graduates to mining and exploration. Their suggestions are listed in **Table 11**. Top recommendations revolve around increasing awareness and communicating a better image of the sector to students and include:

- promote and market the sector
- communicate job opportunities
- share success stories of women in the sector

One of the students commented that she hadn't heard about the mineral and metals sector previously and did not have suggestions about how to attract women to the sector. She added, "Now that it's mentioned, I wouldn't mind looking into it."

Table 11
Practices Suggested by Female Students - How Educators and Employers Can Attract Women to the Sector
(n=100)

Recommendations for Educators	n=100	Recommendations for Employers	n=100
Market programs and talk of job opportunities for women in the sector	56	Talk of job opportunities and share success stories of women in the sector (e.g., at campuses)	48
Have female instructors who have worked in mining and exploration talk about the sector	15	Offer recruitment incentives/targeted recruitment	10
Communicate better image of the sector (environmental concern, supportive of women)	12	Offer competitive compensation/benefits and reasonable hours of work	9
Offer scholarships and incentives for women	10	Provide stable/interesting employment opportunities	9
Offer practical work placements and job placement	9	Sponsor scholarships/grants	7
Offer mentorship programs	2	Provide practical work experience	4
Coordinate site tours/outreach tours	1	Offer healthy and safe work environments	4

Source: The Conference Board of Canada

Why Choose Mining and Exploration?

Five students who chose mining and exploration were asked why they made this career choice. The students indicated they selected the sector because they were aware of career opportunities, competitive pay and benefits, suggesting these factors should be highlighted in promoting the sector.

Raising Awareness: Suggestions of Women in Mining and Exploration

Women who are currently or were formerly employed in the sector were also asked how employers could attract female graduates to the sector. Women suggested that to attract and recruit female graduates, employers in mining and exploration could:

- offer scholarships
- target recruitment efforts to women (e.g., targeted marketing of job opportunities in sector)
- tap into external professional women's networks

Remove Barriers for All Talent

Several respondents indicated that these practices should be put in place for the benefit of the entire workforce in mining and exploration, not specifically women. As one woman currently working in the sector wrote:

“As a woman, I don't think there should be measures to attract women. I believe there should be measures to attract skill, and remove roadblocks, if there are any, to make it possible for women to follow their callings.”

Early Career Choice

One woman suggested communication about the mining sector as a career choice should begin at the high school level when career choices are often formulated. Many career choices are confirmed during first year schooling at post-secondary institutions. Special efforts should also be made to address students on campuses. This is supported by research on career selection. In Canada, almost 75 per cent of students at age 15 reported knowing enough about different types of occupations to make an informed decision about their future.³⁷ In the *Youth in Transition Study*, over 60 per cent of graduate respondents reported they developed a better idea of their future plans during first year post-secondary education.³⁸

Discussions with a female instructor with sector experience and participation in a positive work placement can reinforce a student's career choice.

Some Educators in mining and exploration-related educational programs reported already being engaged in successfully implementing outreach programs for high school students in order to increase youth awareness of the sector. Due in part to better outreach to high school and first year students, almost two-thirds of Educators observed an average increase of approximately 15 per cent in the percentage of female student enrolment during the previous five years. For the remaining respondents whose institutions did not engage in outreach, female student enrolment remained stable over five years.

What Helped Young Women Choose Mining and Exploration?

Female Students were asked to choose up to three sectors where they planned to seek work following graduation. Two students chose the minerals and metals sector. Both identified having a female teacher who worked in the sector who encouraged them to pursue a career in the field. Not surprisingly, the opportunity to participate in a successful work placement program also had an influence on this career selection. When asked what factors contributed to successful work placements, they also identified being assigned “meaningful work assignments” and working with “a supportive team.”

Educators concurred that having someone with industry experience speak to students helps influence career choice. At one institution, the Dean of Engineering (a woman) facilitated an orientation session to first-year engineering students. Female workers from the mining and exploration industry and senior female students were invited to participate as speakers. This session helped influence students' choice of a career.

Challenges Faced During the Educational Journey

The majority of Educator respondents to the survey did not perceive women as facing gender-specific challenges that impede their access to either educational opportunities in mining and exploration or the completion of their programs of study. However, one educator reported that a lack of female peers, the absence of female mentors, and family responsibilities made it more difficult for women to complete their mining and exploration-related programs of study. No Educators perceived gender-related challenges or barriers associated with gaining work experiences while in post-secondary studies. Four educational institutions offered extra support to students to pursue a career in mining and

exploration. Of these, three provided bursaries or scholarships and one offered job placement assistance. These programs did not specifically target women. Another educational institution provided programming in trades and technology, specifically designed for women.

Top Barriers to Female Graduates' Transition from School to Work

- **2/3 of Female Workers perceive barriers, including**
 - work culture
 - perceptions of their abilities
- **1/3 of Employers perceive barriers, including**
 - lack of mentors/social network
 - work culture
- **No educators perceive any barriers**

Transitioning From School to Work

Perspectives of Women, Sector Employers, and Educators Differ Over Barriers

Stakeholders were asked to identify gender-related barriers impeding the transition of female graduates from post-secondary education to employment in mining and exploration. Women, Employers, and Educators disagreed about the extent to which these barriers exist.

- Over two-thirds of Women who are currently or were formerly employed in mining and exploration believe barriers exist that impede the transition of female graduates to employment in the sector.
- Less than one-third of Employers believe barriers are specifically gender-related.
- Educators are not aware of any challenges or barriers that impede the transition of female graduates from post-secondary education to employment in mining and exploration.

Employers Are Less Likely to Perceive Barriers

The list of barriers that are identified by Employees and the minority of Employers who identify them are, in fact, very similar. Employers, however, recognize fewer barriers. **Table 12** provides the lists of gender-related challenges in rank order as identified by Women and Employers.

- The biggest challenge identified by 13 per cent of Employers is the lack of mentors or a social network, followed closely by the “male-dominated work culture.”
- One-quarter of Female Employees identified the “male-dominated work culture” as the biggest challenge. Almost 15 per cent of Women made a point of writing comments about male co-workers and supervisors who held negative perceptions about women's abilities. This included preconceived notions about physical strength, leadership ability and if they had children, availability and willingness to travel.
- Women and Employers both cited work–life conflicts as a barrier to transitioning to a career in the sector. Employers, however, ranked this as the 3rd top challenge. Women ranked it 6th.

A statistically significant correlation was discovered between the number of Female Employees who perceive barriers to the transition of female graduates into the sector and the area of mining and exploration in which they worked.

- Women employed in education and non-governmental organizations reported more challenges.³⁹
- Women who had left mining and exploration also reported significantly more barriers than women currently employed in the sector.

This suggests that women who perceive many barriers to their successful inclusion in the workplace are more likely to abandon the pursuit of a career in the sector or to seek work outside the private sector.⁴⁰

Table 12
Challenges Transitioning From School to Employment - Female Employees and Employers

Top Challenges to Transition	Female Employees (n=385)		Employers (n=67)	
	Per cent	Rank	Per cent	Rank
Work culture	24.9	1	11.9	2
Perceptions (e.g., abilities, strength, travel)	13.8	2	–	–
Lack of mentors/social network	10.6	3	13.4	1
HR Practices (e.g., compensation, career development)	7.0	4	3.0	4
Infrastructure/equipment design	6.2	5	1.5	5
Work-life conflicts	5.7	6	6.0	3
Lack of knowledge or sector	2.3	7	1.5	5
Travel	0.8	8	1.5	5
Remote locations	0.8	8	1.5	5
Health and safety issues	0.5	9	–	–

Source: The Conference Board of Canada

Roles Where School-to-Work Transition Barriers Are Highest

Not surprisingly, challenges transitioning to careers in mining and exploration are greatest in occupational groups where women's representation is lowest. Employers and Women were asked to rank the occupational categories that posed the most challenge.

Table 13 lists the results.

- Female Employees and Employers identifying challenges agreed women face the greatest gender-related challenges transitioning into positions streamed to management. Both also ranked technical and skilled trades as 2nd (female representation is very low in this area).

- Female Employees and Employers also reported that women faced the fewest challenges in clerical and support roles and the professional occupations (administration and corporate services) where female representation is higher within organizations.

Work-life conflicts are not identified as a significant challenge for women at the start of their career in mining and exploration.

Table 13
Prevalence of School-to-Work Challenges by Roles, as Identified by Women and Employers

Positions	Female Employees (n=385)		Employers (n=67)	
	Per cent	Rank	Per cent	Rank
Positions that stream to management	43.9	1	16.4	1
Professional—technical and scientific	23.4	3	3.0	4
Professional—administration and corporate	3.6	5	1.5	5
Technical and skilled trades	23.9	2	13.4	2
Labour, service, and production	18.4	4	4.5	3
Clerical and support	1.8	6	1.5	5

Source: The Conference Board of Canada



Courtesy of MiHR

Supportive School-to-Work Transitional Strategies

Educators and Employers were asked to identify practices currently in place to help women make the transition from school to work. Women who work (or have worked) in the sector were asked what kind of support they found helpful.

- Almost all Educators offer programs to support students with school-to-work transition. Programs include work placement, summer job placement, and post-graduation job placement but don't specifically target women. Some Educators appear to make good use of alumni groups to provide students access to work placements and mentors.
- Under half (43 per cent) of Employers offer transitional career-to-work programs. These typically do not target women. A list of employer programs is provided in **Table 14**. The most frequently offered employer programs target work-life conflicts and the need for mentorship.
- For Women respondents, a need for mentors was identified as a priority. This ranked 3rd on the list of challenges. (**See Table 12**) Work-life conflicts at early career stage ranked 6th.
- First and second challenges identified by Women were "male-dominated work culture" and "perceptions of co-workers and supervisors." No employer programs and practices identified by respondents targeted these issues.

Table 14
Supportive School-to-Work Transitional Practices Offered by Employers
 (Per cent)

Supportive Practices	Received by Women Respondents (n=31)	Offered by Employer Respondents (n=67)	
		To All Employees	Target Women
Scholarship program	32.3	16.4	–
Mentoring/career counselling—at high school or post-secondary institution	22.6	–	–
Mentoring/career counselling—at time of employment	19.4	20.9	1.5
Practical work experience	12.9	14.9	–
Special leave policies	–	16.4	1.5
Flexible work arrangements	8.0	25.4	1.5
Telework	–	10.4	–
Child care support	–	4.5	–
Eldercare support	–	1.5	–
Support from family and friends	12.9	–	–

Source: The Conference Board of Canada

More Cooperation Required - Educators and Employers

Educators offered several recommendations for Employers to better support female graduates aiming to make the school-to-work transition including:

- Promoting a better image of the sector on campuses
- Targeting mentors for students prior to graduation
- Providing students with definitive work experience prior to graduation through work placements, summer job placements, and final year projects

- Forging relationships between sector employers and program heads at post-secondary educational and training institutions

Educators believe that building relationships with sector employers will allow educators to become better informed about sector developments and will provide students with a more factual and compelling image of mining and exploration.



Courtesy of MIHR

Summary and Conclusions

Lack of gender diversity in the mining and exploration sector threatens to undermine future prosperity of the sector. The recession has merely delayed labour shortages expected to become more acute by 2017. Moreover, research has demonstrated that gender diversity at all organizational levels can enhance performance. Therefore, increasing representation of women, and removing barriers to advancement, should be a high priority at the firm and industry levels.

Research conducted to establish base-line data reveals that under-representation of women begins with chosen fields of study and persists for most roles, levels, and career stages. Although the representation of women in mining and exploration has increased significantly over the past decade, it is considerably lower than the national labour force and other primary industries.

Surveys of four key stakeholders—**Women, Employers, Students, and Educators**—reveal diverging perspectives on the experience of women in the sector. Two-thirds of Women respondents believe they face challenges limiting their potential for success. One-third of Employers reported that gender-related barriers exist. When Employers perceived barriers, they identified fewer of them.

A negative image of the sector and a lack of awareness of the career opportunities within the mining and exploration sector may deter young female students from choosing the industry as a career destination. However, Educators who report implementing outreach programs for high school and first-year post-secondary students observed a steady increase in the proportion of women enrolled in their programs. Many industry sector representatives are visible in the high schools and on campuses, aggressively marketing their sectors. The mining and exploration sector needs to be there. As the saying goes, “Out of sight, out of mind.” Visibility matters. Work placement programs ease transition to employment, yet only 15 per cent of Employers reported offering them.

Women's Perspective

Women currently seeking employment in the mining and exploration sector find themselves without female peers or mentors to direct their professional paths as they begin their careers. To ensure women are well-represented at all levels and occupations they need to be present within organizational talent pipelines.

Once women have chosen mining and exploration as a career destination, sector employers need to focus actively on retention. Many Women respondents cited a perceived “male-dominated work culture” at the root of issues with recruitment and retention. Systemic barriers contributed to a perception by Women that they are not offered the same opportunities as their male colleagues

due to preconceived notions about physical strength, leadership ability, and willingness to travel to remote locations. Women who perceived such barriers were significantly more likely to work outside of private industry or to depart from the sector entirely.

In the **Ramp-UP** study, few Employer respondents recognized the presence of gender-specific barriers. The barriers are subtle and usually unintended. For instance, Employers who have strategies to support women primarily focus on resolving work-life conflicts. However, during the early stage of their careers, Women do not identify this issue as a major concern. Workplace culture appears to be a critical issue. Yet Employers did not appear to recognize this key concern let alone have strategies to deal with it.

Improving Work Conditions

As women progress in their careers stakeholders report that some working conditions traditionally found in mining and exploration are challenging and impede their success. These conditions include:

- lack of flexible work arrangements
- absence of prior notice of travel
- absence of child care support
- insufficient parental leave

When supportive practices are in place, Women in the study indicate they can more easily coordinate caregiver responsibilities and are subsequently more confident of their career success. They emphasize that these fundamental practices should not only be put in place exclusively for women, but should benefit all talent.

Lower Representation of Women in Senior Roles

Few women reach senior leadership roles in mining and exploration. This is due in part to the under-representation of women in the talent pipeline. However, once again, women identify that an unsupportive work culture and relationships with supervisors consistently impedes career advancement. Many Women respondents mentioned that supervisors didn't provide the same career development opportunities as was given to male colleagues. Reducing travel requirements, however well intentioned, can also limit critical career development experience that is needed to advance.

Most Employers were unaware of this challenge. Likewise, Female Employees did not mention discussing these issues with supervisors or senior leaders. This apparent lack of upward feedback, together with feelings of inadequacy which some women experience as they progress in their careers may be symptomatic of a deeper issue of workplace culture, that manifests in poor communication.

Future Directions

Under-representation and under-employment of women is not merely a mining issue. It is a social and economic issue requiring the attention of public policy makers at provincial and federal levels. Nevertheless, several opportunities emerge for employers, industry-level organizations, and institutional stakeholders, to begin addressing systemic barriers to the inclusion and advancement of women in the mineral sector.

Identify Historic Practices - Cumulative Systemic Barriers

Women reported in this study that a “male-dominated work culture” was a challenge for success at every stage of their careers, while few Employers seemed aware of the issue. Further study of root causes should be conducted so they can be addressed. Employers should consult Female Employees to better understand firm-level practices that contribute cumulatively to systemic barriers. Women in the study identified flexibility and supervisory assumptions as two elements of practice and culture that can be readily addressed. Immediate measures employers can take include mentorship programs, awareness training, re-evaluation of talent and potential, and analysis of pay practices. There is no need to “reinvent the wheel” as pockets of good practices actively exist.

The Need for a Training and Development Strategy

Organizations in the sector should place more emphasis on the training and career development of women. Financial assistance may be available to the industry from various government sources. Potentially, industry associations might also seek to assist employers in accessing available funds. Examples of programs that may be available for subsidy include: Outreach, Training, Mentorship, and Career and Leadership Development.

Demonstrate the Organizational Benefit of Higher Female Representation in Sector Organizations

Organizations which have undergone a sustainable culture change could be benchmarked to demonstrate business benefits accrued from having a sustaining and inclusive culture, highlighting steps taken to achieve success. Industry associations could develop and provide education to top leadership on diagnosing and addressing deeply embedded issues associated with counterproductive organizational culture.

To highlight and promote the importance of gender diversity and the progressive career development of women in the sector, future research and action could correlate the financial performance of sector organizations with high gender diversity. Follow-up interviews with senior female and male leaders in mining and exploration could be undertaken. Finally, success stories illustrating the business case for gender diversity would be helpful.

Benchmark Gender Diversity in Sector Organizations

To ensure progress, sector organizations should analyze and report annually on the representation of women in their workforce. Future research and action could include the creation of key indicators such as ‘new hires’, representation levels across occupational groups and levels, wage gap, retention rates, and promotions. Data can be analyzed and benchmarked accordingly by industry. Reporting initiatives already exist for companies to voluntarily disclose economic, environmental, and social performance. Gender could also be included. The Global Reporting Initiative (GRI), for example, includes gender diversity as a reported benchmark. The mining and exploration sector has other vehicles (such as the Mining Association of Canada's TSM or the Prospectors and Developers Association of Canada's e3 initiatives), that should incorporate benchmark data. This will improve accountability and drive progress over time.

Create an Employment Brand That Reflects the Reality of Organizational Life

To retain vital young employees, the employment brand must reflect the reality of organizational life. The bottom line is that employees that are denied important work experiences or who encounter other insurmountable barriers to career advancement are more likely to leave. For example, an opportunity to travel to remote locations and work in the field may be a vital component of employment that is attractive to both women and men. At the same time, work-life conflicts in combination with inflexible work practices can emerge as a significant barrier. Study and action is recommended to identify and showcase good practice organizations that allow employees to better balance or manage work-life balance without missing out on critical formative experiences. This research may benefit through extension to non-mining sector industries addressing similar issues.

Celebrate Successes to Constructively Publicize the Issue

To raise profile and celebrate the progress made on this issue, industry, in partnership with government, might sponsor awards programs that recognize world class practices, organizations that achieve milestones and women's accomplishments from operational and trades occupations through to senior leadership.

Attract Students to the Sector

Negative perceptions of the sector, or simply lack of awareness, deter Female Students from considering mining and exploration as a future career option. Focus groups—with students and program heads of related programs of study—are recommended to understand how to build a strong employment brand which appeals to this population and how to strengthen the relationship between the sector and post-secondary educational and training institutions. Sector employers could mobilize alumni networks

and industry associations to raise awareness of the sector among youth, through post-secondary student networks and social networking. As well, benchmarking and gathering best practices from other industries on how they brand themselves to students and new recruits—specifically women and individuals from diverse backgrounds—are recommended. Notwithstanding the disappointing response from Educators, further study of this group is not likely to yield significantly more insight.

Follow Up With Women Who Understand the Challenges and Solutions

This research study provides a high-level overview of the experience of women in the mining and exploration sector. It could be complemented by follow-up, in-depth interviews with selected Women respondents to probe and obtain examples of issues as they play out in the work context. This could include special focus groups of women in non-traditional occupations in mining and exploration. Many female leaders also leave the industry to launch consultancies. These are highly talented individuals who might have remained with their employers had they perceived greater opportunity. Interviews with women leaders and owners of consultancies are recommended to identify leadership development success factors, as well as systemic 'derailers' that exist within the sector.

The Impact of Unions in Sustaining Gender Diversity in Sector Organizations

Some sector employers are highly unionized. In traditionally male workplaces, unions tend to be male-dominated. Unions play a major role in regulating formative experiences. They also have an interest in improving gender diversity. Historically, unions have created clearly defined career paths for men. However, research has demonstrated that in altering the structure of opportunities and of hierarchical ladders, unions can also promote access to higher level roles for women⁴¹ A future area of study and action could be undertaken to determine how unions have impacted the gender diversity in mining and exploration sector organizations. Focus groups composed of union and management representatives can be used to constructively address issues of work culture and the image of the sector.



Courtesy of MiHR

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- 33 Chi test performed – $\chi^2(2, N = 288) = 6.0, p = 0.05$
- 34 Chi test performed – $\chi^2(2, N = 277) = 5.4, p = 0.05$
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Appendix A - Four Voices: Respondent Profiles

Female Employees

In total, 1,355 Women who were currently working or who formerly worked in the mining and exploration sector in Canada were invited to participate in the survey of Female Employees. There were 385 responses to the survey, resulting in a 22 per cent response rate. Among the respondents, 353 Women were currently working in the sector, while 32 had left mining and exploration.

Linguistic profile:

- Two Female Employees answered the French questionnaire while 385 used the English version.

Occupational profile:

Table A-1 shows the proportion of Women in each occupational group by area of mining and exploration.

- Over three-quarters of respondents currently work in the private sector.
- Almost 40 per cent work in administrative and corporate services, which is similar to the national profile. (**See Table 4**)
- Significantly higher representation of natural, geological, and earth sciences professionals and non-geological engineers occurred than was expected from the national profile. This can be attributed to the fact that the mailing list was developed from professional association membership lists.

Table A-1
Proportion of Respondents in Each Occupational Group by Area of Mining and Exploration
(Per cent; n=320)

Occupation	Private Sector	Government	NGO	Education	Consultant	Total
Natural, geological, and earth sciences professional	17.2	2.2	0.6	1.3	7.2	28.4
Non-geological engineer	10.6	0.3	0.0	0.0	0.9	11.9
Geological and environmental technologist and technician	2.8	0.0	0.0	0.0	0.3	3.1
Production and processing technologist and technician	5.0	0.0	0.0	0.0	0.3	5.3
Industrial and heavy equipment mechanic/millwright	0.3	0.0	0.3	0.0	0.0	0.6
Heavy equipment and crane operator	0.3	0.0	0.0	0.0	0.0	0.3
Underground/surface miner	0.6	0.0	0.0	0.0	0.0	0.6
Administration and corporate services occupation	31.3	0.6	1.6	0.0	3.4	36.9
Health occupation	0.9	0.3	0.0	0.0	0.0	1.3
Other	8.1	0.9	0.3	0.9	1.3	11.6
Total	77.2	4.4	2.8	2.2	13.4	100.0

Source: The Conference Board of Canada

Table A-2 shows the proportion of Women in each role by area of mining and exploration. Almost 70 per cent of respondents were middle and line managers/supervisors, or professional women.

This was also significantly higher than the national profile (**See Table 5**) due to the fact respondents were drawn from association membership lists.

Table A-2
Proportion of Respondents in Each Role by Area of Mining and Exploration
(Per Cent; n=307)

Role	Private Sector	Government	NGO	Education	Consultant	Total
Member of the Board of Directors	1.6	0.0	0.0	0.0	0.7	2.3
President, CEO	1.0	0.0	0.3	0.0	1.0	2.3
Executive, Director, and senior management	6.5	0.7	1.0	0.0	1.0	9.1
Middle and line management/supervisor	12.1	0.3	0.0	0.3	1.3	14.0
Professional—technical and scientific	25.4	2.6	0.7	1.6	7.8	38.1
Professional—administration, legal, HR, finance, etc.	14.0	1.3	0.7	0.0	1.6	17.6
Technical and skilled trades	5.2	0.0	0.3	0.0	0.7	6.2
Labour, service, and production	2.9	0.0	0.0	0.0	0.0	2.9
Clerical and support	7.5	0.0	0.0	0.0	0.0	7.5
Other	0.7	0.0	0.0	0.0	0.0	0.7
Total	76.2	4.9	2.9	2.0	14.0	100.0

Source: The Conference Board of Canada

Demographic profile:

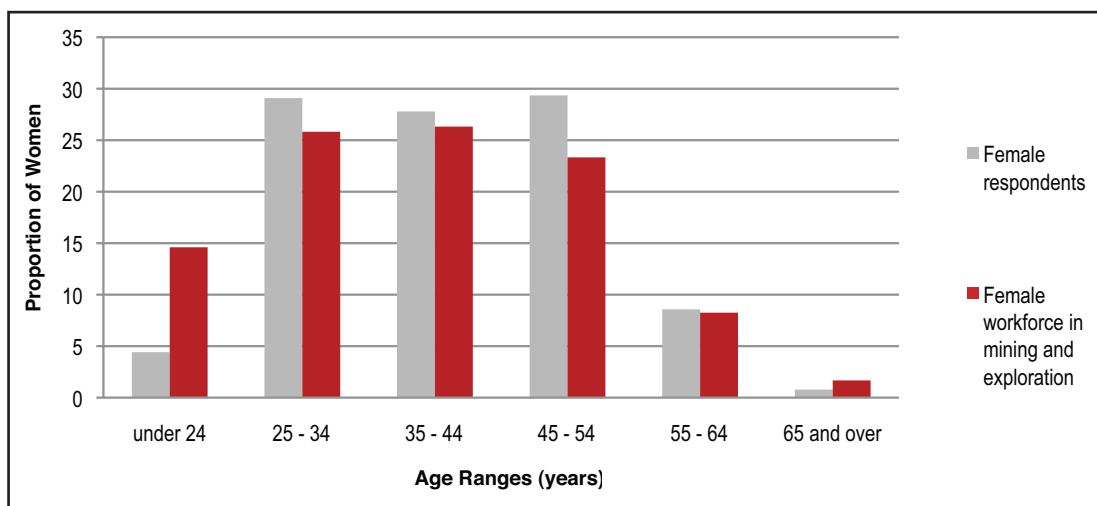
Chart A-1 compares the distribution of the respondents by age range, with the national profile of Female Workers in mining and exploration.

- The age range distribution of female respondents was also similar to the national profile of women working in mining and

exploration—with one exception. Women under the age of 24 were under-represented in the survey.

- These professionals had attended post-secondary educational institutions. As a significant portion of the sector’s workforce requires only high school certification or less—for example, culinary services and clerical support—this would skew the profile toward more mature, professional Female Workers.

Chart A-1
Age Profile of Women Respondents versus the National Industry Profile, 2006
(Per cent)



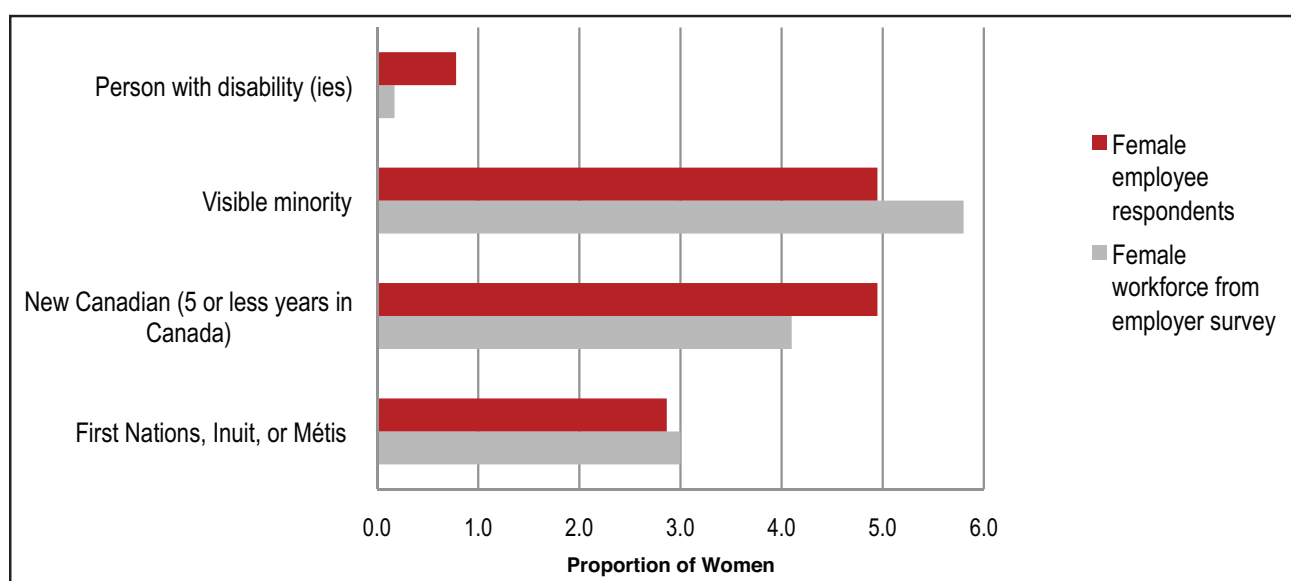
Sources: The Conference Board of Canada; Statistics Canada

Female Employees were also asked to indicate if they belonged to specific groups of interest: First Nations, Inuit, or Métis, new Canadians who had been in Canada for less than 5 years, visible minorities, and persons with disabilities.

- 2.9 per cent were First Nations, Inuit, or Métis
- 4.9 per cent were new Canadians
- 4.9 per cent were visible minorities
- 0.8 per cent of respondents self-identified as having a disability(ies)

Employers who participated in this research were also asked to indicate what portion of their company or site's female workforce fell into these groups of interest. **Chart A-2** compares the minority status of female respondents with the female workforce profile supplied by employer respondents. They were found to be very similar.

Chart A-2
Minority Status of Female Respondents versus Profile of Female Workforce Supplied by Employer Respondents
(Per cent)



Source: The Conference Board of Canada

Employers

In total, 446 Employers in the mining and exploration sector were invited to participate in the survey of employers. There were 67 responses to the survey, resulting in a 15 per cent response rate. Among the responses, 32 were completed from a corporate perspective by individuals at Canadian headquarter offices, 35 from a site perspective by site managers. All respondents answered the English questionnaire.

Demographic profile:

Employers were asked to indicate what portion of their female workforce belonged to the groups of interest. The female workforce profile is shown in **Chart A-2** and is very similar to the profile of Female Employees.

- 3.0 per cent were First Nations, Inuit, or Métis
- 4.1 per cent were new Canadians

- 5.8 per cent were visible minorities
- 0.2 per cent were persons with disability (ies)

Employers were also asked to indicate what proportion of their female workforce was composed of mature workers (45 years or older) and of young workers (30 years and younger).

- 26.8 per cent of employers' female workforce was composed of mature workers. This is slightly lower than Statistics Canada's latest census information in which one-third of the female workforce in mining and exploration are mature workers.⁴²
- 4.8 per cent of the respondents' female workforce was composed of young workers. This is significantly lower than the national industry profile where 27 per cent of the female workforce in mining and exploration are young workers.⁴³

Upon analysis of the Employer Profile information, it was noted that the Respondent Profile was biased toward female-owned small consultancies. In their workforce, these consultancies included women who had previous work experience in the sector. Therefore their workforce did not include as many younger workers. When these organizations were removed from the demographic analysis, the age profile resembled the national profile more closely.

Representation of women:

Employers were asked to indicate the representation of women in their workforces in various occupational groups and roles. The overall representation of women in the organizations and in specific roles is shown by headquarters and for sites in **Table A-3**. Their representation in occupations by headquarters and sites is shown in **Table A-4**.

- The overall average representation of women in the respondent organizations' workforce was significantly higher at 28.9 per cent than the 14.4 per cent reported by Statistics Canada in 2006.
- There was higher representation of women in senior roles in the organizations.
- When female-owned consultancies were filtered out of the analysis, the representation of women at the executive levels (and overall) more closely resembled the national profile. As these consultancies were female-owned, the owner was the President/CEO of the organization, was more likely a woman, and was more likely to have female corporate directors—which skewed the results.
- There was a high representation of women in administrative and corporate services, and clerical and support roles, and a low representation of women in trades and labour occupations—as expected from the national industry profile.
- Female-owned consultancies were grouped under headquarters, so when analysis was done at the site and headquarter level, the representation of women in headquarters was significantly higher than the national industry profile.
- The female representation was lower in sites, as most corporate and administrative services are found at the company headquarters. These are the occupations most likely to have a high representation of women.

Table A-3
Representation of Women in Roles by Headquarters, Sites, and Overall

	All Employers		Filtered-Out Consultants		Headquarters		Sites	
	n=	Mean (per cent)	n=	Mean (per cent)	n=	Mean (per cent)	n=	Mean (per cent)
Overall	31	28.9	16	19.2	18	40.7	13	12.6
Board of Directors	24	5.9	7	4.4	18	7.0	6	2.8
President, CEO	39	6.4	22	0.0	20	12.5	19	0
Executives, Directors, and senior management	38	17.2	20	16.3	21	16.1	17	18.5
Middle and line management/supervisors	25	24.2	17	13.5	11	45.3	14	7.6
Professional—technical and scientific	25	31.0	14	23.2	15	39.1	10	18.9
Professional—administration, legal, HR, finance	29	65.7	15	51.8	17	69.8	12	57.5
Technical and skilled trades	17	5.1	13	4.1	6	7.6	11	3.7
Labour, service, and production	15	16.5	14	14.1	3	28.9	12	13.4
Clerical and support	29	89.8	14	84.2	18	90.7	11	88.4

Source: The Conference Board of Canada

Table A-4
Representation of Women in Occupations by Headquarters, Sites, and Overall

Occupations	All Employers		Filtered-Out Consultants		Headquarters		Sites	
	n=	Mean (per cent)	n=	Mean (per cent)	n=	Mean (per cent)	n=	Mean (per cent)
Natural, geological, and earth sciences professionals	36	24.1	20	18.7	19	32.7	17	14.6
Non-geological engineers	25	17.5	18	14.9	8	22.7	17	15.1
Geological and environmental technologists and technicians	24	20.1	14	22.5	10	11.9	14	25.9
Production and processing technologists and technicians	19	35.6	17	33.3	3	42/9	16	34.2
Industrial and heavy equipment mechanics and millwrights	18	2.6	15	3.0	4	0.5	14	3.2
Heavy equipment and crane operators	14	9.8	12	11.4	3	0.4	11	12.3
Underground/surface miners	11	8.9	10	9.5	2	12.0	9	8.2
Administration and corporate services occupations	38	58.0	18	54.4	22	62.1	16	52.4
Health occupations	21	39.5	16	40.2	4	30.0	17	41.8
Other	6	27.2	4	39.6	2	2.5	4	39.6

Source: The Conference Board of Canada

Female Students

One hundred Female Students from business and administration, engineering, and sciences and trades programs of study were surveyed to gain their perspectives on the experience of women in post-secondary mining and exploration-related programs of study. A full profile of respondents is given in **Table A-5**.

Educational profile:

- 93 per cent of respondents were between the ages of 18 and 24.
- University students comprised 51 per cent of the sample and college students 49 per cent.
- Business and administration and the sciences had highest representation. Representation from the trades, technicians, and technologists was lowest. This replicates the national profile of major fields of study chosen by women in 2006 (See **Table 3**).

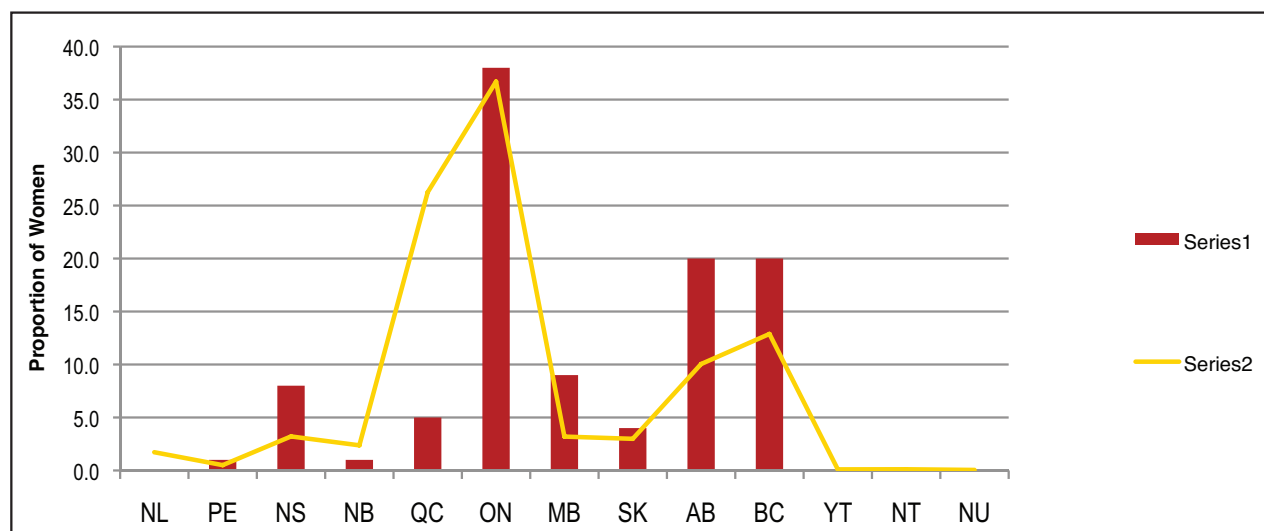
Linguistic profile:

- Five students answered the French questionnaire and 95 used the English version.

Geographical profile:

- Most respondents were studying in Ontario, Alberta, and British Columbia.
- Although contact was made, there was no representation from the Territories, and Newfoundland and Labrador.
- The study profile was very similar to the national profile of women with trades, college, or university certificates or diplomas across Canada. (See **Chart A-3**)
- Students from Quebec were under-represented in this survey.

Chart A-3
Geographical Distribution of Student Respondents versus the National Distribution of Women with Trades, College, or University Certification, 2006
 (Per cent)



Sources: The Conference Board of Canada; Statistics Canada

Minority status:

- 4 per cent were First Nations, Inuit, or Métis
- 4 per cent were new Canadians
- 8 per cent were Visible Minorities
- 2 per cent were Persons with Disabilities.

Table A-5
Programs of Study by Geographical Distribution, Minority Status, and Age

		Program of Study						Total
		Business	Engineering	Health Sciences	Sciences	Technician/Technologist	Trades	
Geographical Distribution	NL							
	NB				1			1
	PE	1						1
	NS	2	2	1	3			8
	QC	4	1					5
	ON	18	7	1	7	4	1	38
	MB	4			4		1	9
	SK	2	1				1	4
	AB	8	4		8			20
	BC	10	2		8			20
	YT							
	NT							
	NU							
TOTAL	49	17	2	31	4	3	106	
Minority Status	First Nations, Inuit, or Métis	2	1		1			4
	New Canadian	2	1					3
	Visible minority	2	2		3			7
	Persons with disability (ies)	1			1			2
	Visible minority and new Canadian	1						1
	None of the above	38	12	2	25	4	2	83
	TOTAL	46	16	2	30	4	2	100
Age Range	Under 18							
	18-24	43	15	2	28	4	1	93
	25-34	2	1		2		1	6
	35-44							
	45-54	1						1
	55-64							
	65 and over							
	TOTAL	46	16	2	30	4	2	100

Source: The Conference Board of Canada

Note: For the geographical distribution, totals will not equal 100 as students were asked to identify all provinces where they attended post-secondary educational facilities.

Educators

In total, 139 Educators in mining and exploration-related programs of study at post-secondary institutions were invited to participate in the survey. There were 10 responses to the survey, resulting in a 7.2 per cent response rate. Among the responses, 5 were filled out by individuals at community colleges, 4 from universities and 1 from a post-secondary training group. All respondents answered the English questionnaire.

Geographic profile:

- Ontario: 7
- Saskatchewan: 2
- British Columbia: 1

Methods of teaching:

- 3 provided online or virtual education
- 50 % of the institutions had satellite campuses in small communities

Programs of study offered:

- Technicians and technologists: 5
- Engineering: 4
- Sciences: 4
- Trades: 3
 - red seal: 1
 - other: 2
- Business and administration: 2

- Information and technology: 2
- Health sciences: 2
- 6 institutions offered interdisciplinary programs in mining and exploration-related fields of study

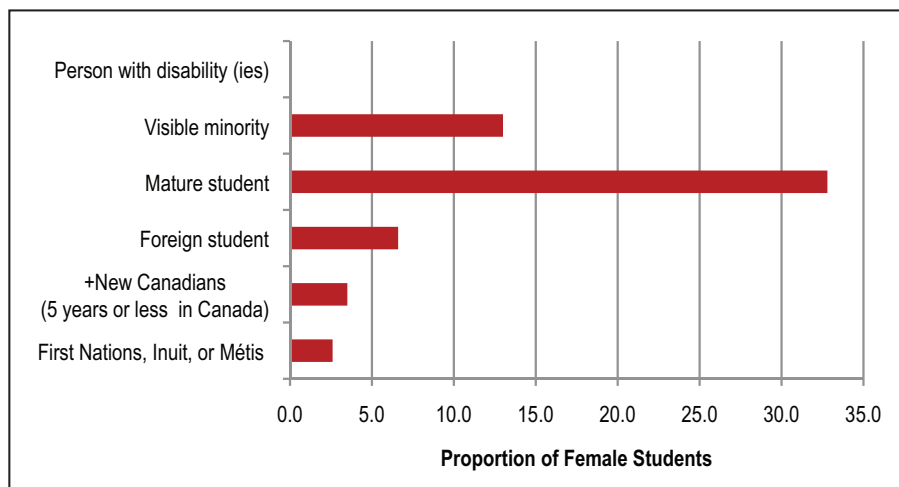
Relationship with licensing bodies:

- 9 institutions were aware of licensing requirements in mining and exploration
- 8 liaise with licensing bodies to align their curriculum
- 3 provide recertification or industry re-entry training

Profile of the female student body:

- Most Educators were unable to indicate the representation of women in various programs of study, or overall in their institutions.
- Educators were able to report the proportion of their female students that belonged to specific groups of interest. Chart A-4 illustrates these results.
 - 2.6 per cent were First Nations, Inuit, or Métis
 - 3.5 per cent were new Canadians
 - 13.0 per cent were visible minorities
 - 6.6 per cent were foreign students
 - 32.8 per cent were mature students
 - No educators reported that any of their female students were persons with disability (s)

Chart A-4
Minority Status of Female Students in Educator's Department or Training Institution
 (Per cent; n=10)



Source: The Conference Board of Canada

Profile of Female Instructors:

- Most Educators were unable to indicate the representation of female instructors in various programs of study, or overall in their institutions.
- Educators were able to report the proportion of their female students belonging to specific groups of interest. **Table A-6** illustrates these results.

Table A-6
Representation of Female Instructors in
Specific Groups of Interest
(Per cent; n=10)

Groups	Per cent
First Nations, Inuit, or Métis	8.3
New Canadians (5 years or less in Canada)	8.3
Visible minority	1.7
Person with disability (ies)	1.0
Young professionals (30 years or younger)	1.7
Mature (45 or older)	80.0

Source: The Conference Board of Canada

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