CENTRE OF TRAINING EXCELLENCE IN MINING

SKILLS ROADMAP PROJECT

A Sector Labour Market Partnership

Deliverable 5 – Key Findings Report

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A Sector Labour Market Partnership (LMP) Skills Roadmap Project Deliverable. Provided by B.C. Centre of Training Excellence in Mining (CTEM).

The artwork on the front cover – The Raven – was gifted to CTEM by Dean Heron. Dean is a member of the Wolf clan of the Kaska/Tlingit Nation and is a member of the Skill Roadmap Leadership Team.

"Raven, brought the light where there was darkness, it is time to step out into the light and heal." ~Dean Heron

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Project Background

The Minister of Energy, Mines and Petroleum Resources[1] established the BC Mining Jobs Task Force (the Task Force) in February 2018 to review exploration and mining in the province and find ways to strengthen the industry. The Task Force worked with Indigenous groups, the mining industry, and communities to develop recommendations on possible actions the government could take to bring more certainty to the mining sector and create jobs for people now and in the future. It looked at all aspects of mineral exploration and mining in BC and its Final Report[2] provided 25 recommendations to the government on measures it could implement to achieve the Task Force's vision of making British Columbians proud of a "growing mining industry that is the backbone of an inclusive, progressive and low carbon economy." In January 2019, the Office of the Premier issued a news release saying the provincial government is "moving forward" with the Task Force's recommendations.

One of the Task Force's recommendations was to collaborate with the Ministry of Advanced Education, Skills & Training (AEST) on the development and implementation of a cohesive roadmap for enhanced mine sector training to meet the mining sector's future skills and labour needs through a collaborative, inclusive, innovative, and geographically focused approach. The recommendation was that the roadmap consists of a forward-looking and responsive training strategy that meets the BC mining sector's future need for skills and supply of trained labour.

Project Objectives

The project has two primary objectives:

1. Establish and provide an analysis of labour market information from a literature review and environmental scan, and primary data collection to identify gaps between current skills and training in the BC mining sector workforce and the skills and training that will be required to meet the sector's future needs; and to

2 Develop skills, career, and training roadmaps (in report and graphic form) to support individuals, communities, post-secondary training providers, and industry that will assist them in adapting to meet the mining sector's future skills and training needs.

The Skills Roadmap project is a multi-year and multi-deliverable project. This Key Findings Report is a preliminary piece and the first deliverable to be published from the project. It will be followed by Skills, Career and Training Roadmaps and a Final Report in 2022.

1 Former name of the Ministry of Mines, Energy and Low Carbon Innovation

2 https://www2.gov.bc.ca/assets/gov/business/natural-resource-industries/mineral-exploration-and-mining/memp_10535_task_force_report_final-rev.pdf

The following report outlines the key findings collected through the primary and secondary research. The primary research supported the verification and enrichment of the gaps and key themes identified within the literature review and environmental scan report (submitted to AEST in January 2021) and findings shared within the interim report (submitted to AEST in May 2021).

Literature Review and Environmental Scan Findings and Key Themes

The literature review and environmental scan identified several gaps within the current written body of knowledge on the mining industry. The following is a summary of key themes and findings from this research.

Relevancy of Labour Market Information Tools and Forecasting

- There is a need for more regional industry workforce specific data to capture the reality of each region. This includes specific regional demographics of the workforce, and the workforce impacts and training needs that result from mining activity throughout the mining cycle.
- Labour market information needs to be more connected with the realities and workforce needs as indicated by industry employers.
- More responsive and current labour market information is needed to identify the current demographics of the workforce, and for forecasting future requirements. This will help industry balance its hiring needs against the cyclical nature of the industry, and ground its current realities with regards to COVID-19's impact to the workforce.

Understanding how Environmental, Social, Governance (ESG)[3] Impacts the Training and Workforce Needs of the Mining Sector

- As the ESG space has evolved, there is a lack of evaluation on how ESG is impacting the workforce demographics of the mining sector, and how ESG is evolving the specific skills, competencies, and the training needs of the sector.
- Increased expectations around ESG requirements influence not only expectations for employers, but also the skills and responsibilities of individual employees.
- There exists a lack of information on mining supplier workforce needs and downstream workforce impacts that develop over the lifecycle of a mine.

Expanding Mining's Inclusion and Diversity Landscape

- More information is needed to understand the barriers to training faced by under-represented and under-utilized groups in the sector.
- There is acknowledgement within industry and training institutions of the chronic under-representation and under-utilization of women and Indigenous peoples within the mining sector and the momentum required to remove barriers and build more equitable workplaces.

3 The term Environmental, Social, Governance (ESG) refers to three central factors in measuring the sustainability and societal impact of a company or business.

- More inclusive research is needed to understand intersectionality[4] and the impacts on workers in mining, barriers experienced by individuals living with a disability, and the experiences of LGBTQ+2S workers.

Need for Clear Project Definitions

- There were several terms identified in the literature review and environmental scan that summarized common themes but lacked universal definitions. These include and are not limited to; Skills, Competencies, the Golden Triangle and the BC Mining Industry. Clear and consistent definitions were established for the purpose of primary data collection (Appendix A) and generating the Roadmaps.

Integrate Innovation and Technology and Strategic Workforce Planning

- New technology is replacing some jobs, although it requires new skills and expertise in its place. Traditional skills are still required, although less so.
- Ongoing developments in technology have a significant impact on the skills of tomorrow and therefore how training is delivered.
- The workforce impacts of new technologies have largely been reactionary, as organizations individually grapple with the implementation of new technologies, and the literature has largely focused on broad skills and occupation implications. There exists significant opportunity in assessing and exploring a more collaborative approach to innovation and technology; one that includes employers, workers, trainers, and communities.

Creating Local Solutions to Employment and Training

- With changes in applied technology in mining operations, sustainable and ongoing access to training and development for individuals and communities that are not near major centres is needed.

4 Intersectionality refers to the complex, cumulative way in which the effects of multiple forms of discrimination (such as racism, sexism, and classism) combine, overlap, or intersect especially in the experiences of marginalized individuals or groups. (Definition from https://www.merriam-webster.com/dictionary/intersectionality).

Primary Research

The primary research study aimed to identify gaps between current skills and training in the BC mining sector workforce and the skills and training that will be required to meet the sector's future needs.

The primary research sought to build on the literature review and environmental scan findings to:

- Identify the skills found in the workforce today;
- Identify the skills needed in the workforce in the future; and
- Identify how training is best delivered to meet these needs.

The primary research study used a mixed method approach, gathering both qualitative and quantitative data. The research tools developed included both a survey and key informant interview guide. Details on the primary research data collection methods and tools can be found in the research methodology and tools report (submitted to AEST in March 2021). Committee consultation was also utilized to verify, expand on, and enhance findings. The findings presented within this report are limited to the individual perspectives that were shared through the research process and are not exhaustive in nature. Additional barriers exist for different individuals and this research presents a snapshot in time of individual perspectives.

Research Framework

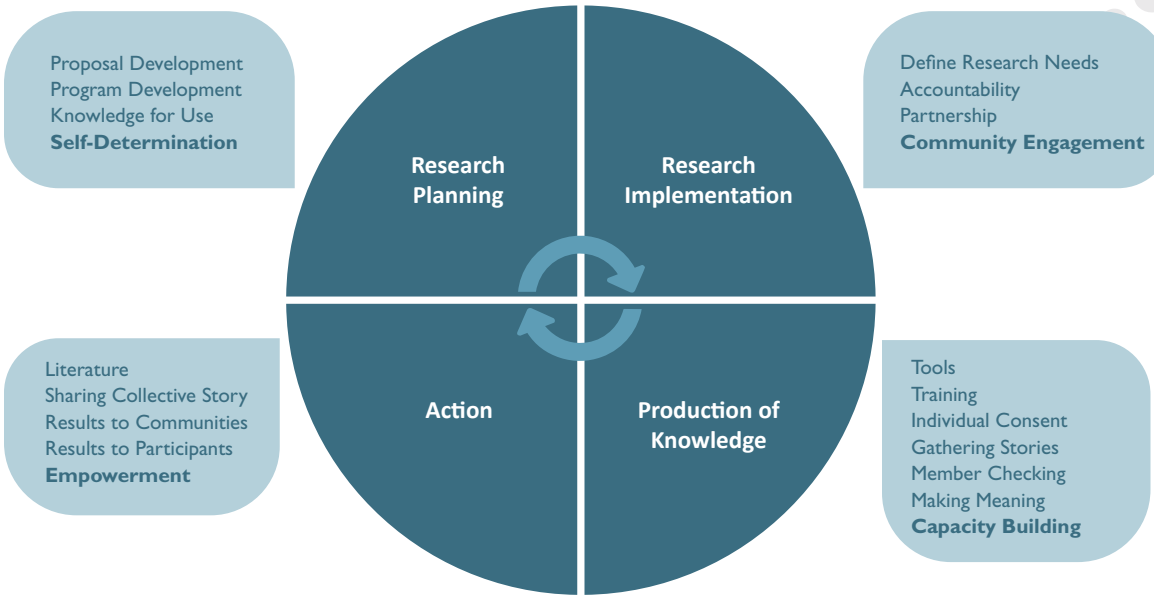
Primary research often involves a significant power imbalance between researcher and research respondents or participants. The researcher controls the design of the research study, the use of data, and reporting of findings, while the respondents and participants provide information. Historically, exploitation of research participation has disproportionately impacted women and Indigenous peoples. It is in acknowledgment of this historical context, that the project planning team endeavours to utilize a framework that is equity seeking while meeting the objectives of the project.

This project relies on a high degree of collaboration, working and engaging with broad and diverse perspectives within the BC mining industry, communities, and training and education space. It was therefore envisioned that a Participatory Action Research (PAR) Framework guide the research, and the development of the strategic roadmaps. PAR is achieved through empowering participants to develop the research in collaboration with the project and research team and honours diversity in perspectives.

Further, Figure 1 illustrates how PAR can be synthesized with an understanding of Indigenous research methodology[5]. This framework highlights Mi'kmaw Elder Albert Marshall's concept of Two-Eyed Seeing "To see from one eye with the strengths of Indigenous ways of knowing, and to see from the other eye with the strengths of Western ways of knowing, and to use both of these eyes together" (Bartlett, Marshall, & Marshall, 2012 p.335 as cited in Peltier, 2018).

5 Participatory action research with Indigenous methodologies as Two-Eyed Seeing. This model was adapted from the Jacklin and Kinoshameg (2008) *Wikwemikong Community Needs Assessment Research Model* as seen in Peltier, 2018.

Figure 1 Participatory Action Research and Indigenous Research Methodology[6]



The illustration in Figure 1 was used to guide the primary research activities and analysis of the primary research data. It will continue to be used to guide the project as it endeavours to honour Indigenous methodologies and ways of knowing, and seeks to share the process and results of this project in a collaborative manner that is deemed beneficial by participating respondents and communities.

Validation, discussion and exploration of the project research findings has occurred in consultation with the Project Governance Committee and subcommittees. Research participants from the survey and key informant interviews were given an opportunity to indicate an interest in further connecting with the project: 74 survey respondents indicated an interest in receiving a copy of the projects final report, and 64 of the survey respondents indicated an interest in further engaging in the development of the project outcomes. To support this high level of engagement, the project team will host a virtual meeting (to be hosted summer/fall 2021) to connect those who indicated an interest in developing the project outcomes. This session will share initial results and provide an opportunity to reflect on the findings and contribute to the developing strategic roadmaps.

Key Informant Interviews

Key informant interviews were conducted as part of the primary research activities to provide an in-depth and candid discussion space for subject matter experts in workforce and training development within the BC mining sector. The identification of individuals to contact for key informant interviews were gathered through consultation with the Project Governance Committee and Sub-Committee members. Attempts were made to create a balance through a diverse set of representatives; gender representation, inclusion of Indigenous peoples, regional representation and representation from trainers, community, and industry were considered.

6 ibid

A total of 14 interviews were conducted and interview transcripts were compiled and analysed. There were five key informants from community and partnering organizations[7], five trainers or educators, and four employers. Findings from the key informant interviews are woven throughout the report and were used to validate, explore, and provide context to the survey findings.

Committee Consultation – Data Collection

Aligned with the participatory research process and framework, consultation with the project Sub-Committees and Project Governance Committees guided the refinement of the research questions and process. Additionally, committee members were given an opportunity to provide perspective from their areas of expertise and experience on the primary research questions and themes. Mentimeter (a software tool) was used to record responses to these questions and consultations during project committee meetings, and for the purpose of the key findings report, the collective committee responses to the primary research questions have been integrated and shared within this report.

Data collection from the committees was from January 14, 2021 till June 22, 2021 and is ongoing. Over 120 subject matter experts participated in the meetings. Meeting dates and participatory numbers are included within Appendix A.

Survey Data

The *CTEM Skills Roadmap Project – Future Skills and Training Needs BC Mining Sector Survey* was programmed into the Survey Monkey platform and open for responses from May 13 – June 7, 2021.

The survey link was disseminated during BC Mining Month through a variety of social media and network channels, including Association for Mineral Exploration (AME), the Mining Association of British Columbia (MABC), CTEM, and the Committee participants networks and affiliated organizations. During the time the survey was open, a total of 197 responses were collected. The survey had a 70 per cent completion rate and took respondents on average 15 minutes to complete.

Demographics of the Survey Respondents

Of the respondents who indicated their gender identity, 113 respondents, or 58 per cent identified as women, and 38 per cent or 75 respondents identified as men. This is in contrast to the current gender representation of the BC mining workforce, where women make up less than 20 per cent; however the survey respondents included individuals outside of the industry workforce, including trainers, educators, governance and community. Additionally, three per cent of respondents preferred not to answer or skip the gender identity question, and one per cent of the respondents identified as gender-fluid, non-binary, and/or Two-Spirited (Appendix B).

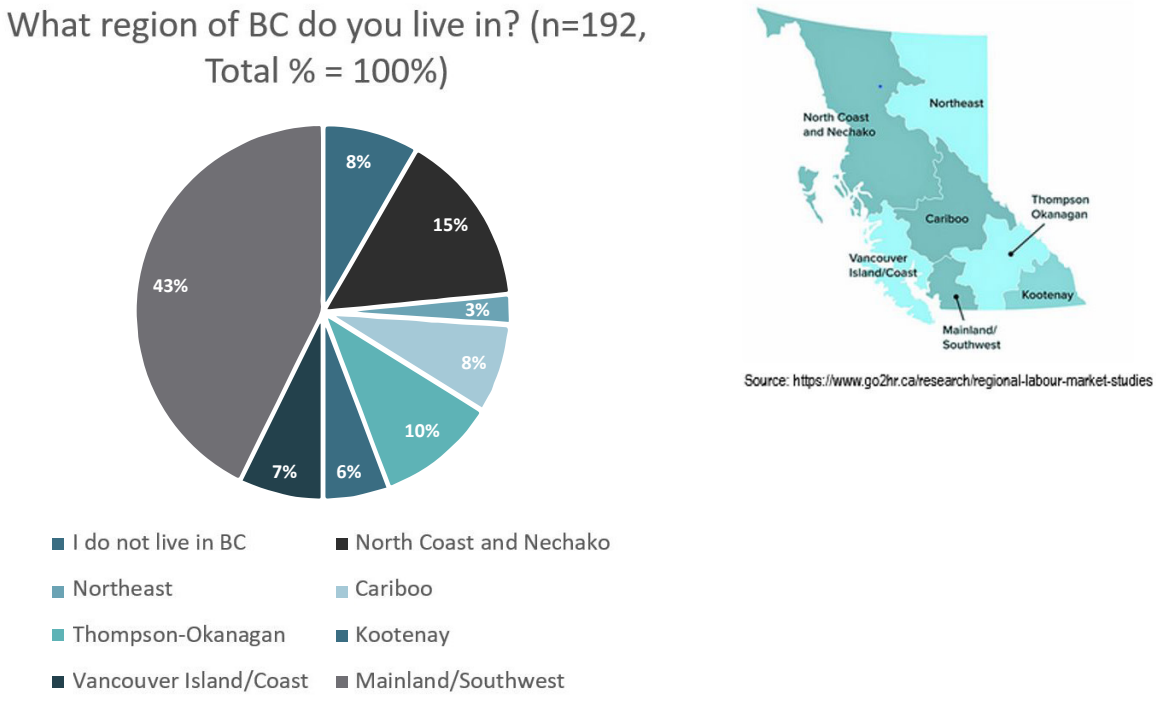
7 See Figure 4 for definitions of informant categorizations.

With regards to Indigenous representation, 17 per cent of the survey respondents indicated that they are Indigenous. Of the survey respondents who indicated they are Indigenous, 75 per cent identified as First nations, while 15 per cent identified as Métis. Additionally, nine per cent of the Indigenous identifying respondents preferred to self-describe (Appendix B).

Overall, the survey respondents identified as between the ages of 18 and over 65, with most respondents falling within the 35-44, and 45-54 age range (Appendix B).

In recognizing that within the sector individuals may work and live within different regions, survey respondents had the opportunity to provide this information. Figure 2 illustrates where survey respondents were located throughout the province. The majority of the respondents were located within the Mainland/Southwest with 82 responses or 42 per cent of the total responses. It is worth noting that 15 per cent, or 29 of the respondents, reside within the North Coast Nechako region – which overlaps with the Golden Triangle.

Figure 2 Survey Respondents: Location



Survey respondents indicated a wide range of educational attainment; high school diploma, apprenticeship or trades, college and university level designations. Of the respondents who provided their educational attainment information, the largest portion of respondents, 44 per cent, had a university certificate, diploma or degree at a bachelor level, followed by 28 per cent with a high school diploma or equivalent.

The survey provided an opportunity for respondents to indicate how they are connected to the BC mining industry, these classifications (Figure 3), were developed in collaboration with the governance

and project sub-committees to help identify the many different employers, partners, organizations, individuals and supporting community and government structures that comprise the BC mining sector. Each respondent was asked to identify with one of the classifications and then offered a tailored survey experience for each of the categories. As illustrated in Figure 3, of the 188 respondents who answered this question, 35 per cent identified as working in the industry, while 21 per cent identified as trainers or educators, and 19 per cent identified as employers working in the industry. The remaining 26 per cent were individuals from mining communities, governance, and partnering organizations.

Figure 3 Survey Respondents: Connections to the BC Mining Industry

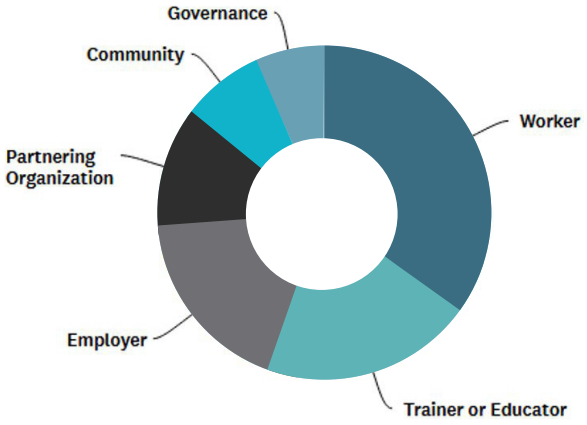


Figure 4 Stratification Classifications of Primary Research Respondents

Trainers and Educators – *individuals who provide training and education to the BC mining workforce* (public and private training providers, professors, industry trainers, educators, essential skills trainers, Indigenous knowledge-keepers).
Workers – *individuals who work in mining in BC or want to work in BC mining* (employees, unemployed, contractors, unionized employees, trainees, students).
Employers – *individuals who work in the BC mining sector and as part of their job function hire BC mining workers* (senior leaders, managers, supervisors, HR representatives; mining companies, exploration companies, support services, mine suppliers).
Governance – individuals who work within government (Indigenous, regional, and provincial government representatives).
Partnering Organizations – *individuals who represent mining and related industry associations and partnering industry service organizations* (mining associations, professional associations, industry councils, special interest industry groups, legal services, hiring service organizations, non-profits, supporting organizations).
Community – *individuals who reside within a BC mining community, or represent BC mining community members* (Indigenous associations, band and tribal council members, regional and community associations, regional economic development groups, individual community members).

With over 58 per cent respondents identifying as women, and 17 per cent of respondents identifying as Indigenous, the survey respondents exceeded current women and Indigenous representation in the mining industry – indicting the survey was successful in prioritizing perspectives from individuals within these groups. Additionally, having a majority, 67 per cent of the survey respondents, not from the Lower Mainland and 15 per cent specific to the Golden Triangle region provides a strong geographical perspective and a regional focus on the Golden Triangle. One-fifth of the respondents were trainers and educators offering a strong perspective of the demographic group. Additionally, having over a quarter or respondents from communities, governance, and partnering organizations allowed for expanded experience and knowledge to be included in the research.

Research Data Analysis – Focus on Key Themes and Questions

The primary research analysis and presentation of key findings was guided by the following approved themes and research questions as outlined in the research methodology and tools report. With the depth of content and data gathered through the survey and key informant interviews these questions are used throughout this report to guide the reader to the findings on each of these topic areas.

Diversity and Inclusion

- *What barriers are impacting women and Indigenous peoples from accessing and building careers in the mining sector?*
- *What barriers to access/completion of mine training are women and Indigenous peoples facing?*
- *What strategies are successful in addressing these barriers, what still needs to be done?*

Skills and Competencies

- *What are the occupations in demand within the mining sector?*
- *What are the skills and competency needs of the mining sector today and into the future?*

Training

- *What gaps exist in the current BC mining training landscape?*
- *How is training best delivered?*
- *How do/can training providers, employers, communities collaborate around training and skills development?*

Technology and Innovation

- *How is technology and innovation impacting the mining workforce?*
- *How will developments in technology and innovation impact skills and training needs?*

Environmental, Social and Governance (ESG)

- *How are developments in ESG impacting the mining workforce?*
- *How will developments in ESG impact skills and training needs?*

Diversity and Inclusion Findings

Diversity and Inclusion

- *What barriers are impacting women and Indigenous peoples from accessing and building careers in the mining sector?*
- *What barriers to access/completion of mine training are women and Indigenous peoples facing?*
- *What strategies are successful in addressing these barriers, what still needs to be done?*

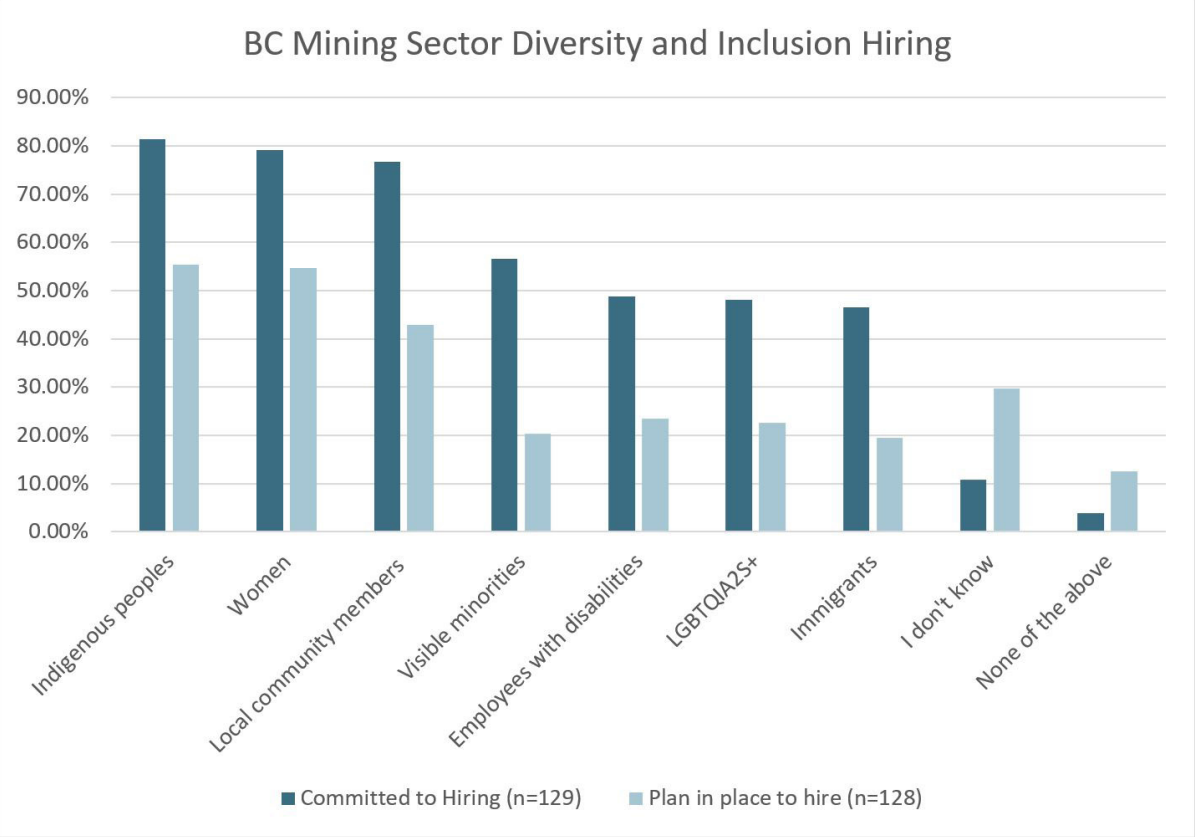
To address the research questions around barriers to diversity, the survey respondents and key informant interviewees were asked a number of questions to develop a deeper understanding of the barriers that are impacting women and Indigenous peoples from accessing and building careers in the mining sector. The questions had a particular focus on identifying the specific barriers around training access and completion and identifying diverse perspectives on the strategies and solutions that could best address the barriers.

The content analysis was conducted on the open-ended responses by identifying common barrier themes and grouping responses within these categorizations. This analysis was conducted to synthesise the qualitative data and identify commonality in response themes. To honour and preserve the specific perspectives that were written by the survey respondents the complete open-ended responses can be found in Appendix D.

Inclusion and Diversity Recruitment

Additional questions were asked to understand the workplace climate in the mining sector, and the prioritization of diversity and inclusion as part of organizational hiring strategies. These included a series of questions to understand how the sector is prioritizing the hiring of under-represented groups. Figure 5 illustrates the workers, employers, and trainer survey respondents and their understanding of their organizations prioritization of diversity hiring.

Figure 5 Survey Respondents: BC Mining Sector Diversity and Inclusion Hiring



As shown in Figure 5, mining employers, workers, and trainers indicated that their organizations are prioritizing the hiring of Indigenous peoples, women and local community members. By comparison, the respondents indicated a difference between the organization's commitment versus having an actual plan in place to hire from under-represented labour pools. Consistent with the gaps identified in the literature review and environmental scan, employers and workers indicated less of a prioritization for other marginalized groups in the sector, with less focused commitments and knowledge of hiring plans for employees with disabilities, LGBTQIA2S+, and immigrants. Within the respondents, only 10 per cent indicated that they 'didn't know' if their employer was 'committed to diversity hiring' while 30 per cent of respondents indicated they 'didn't know' if their organization had a 'plan in place to hire' from one or more of diversity groups listed. This indicates that there may be a widening gap with regards to perceptions of employers commitment to hire, as compared to the perception of employers having a plan in place to increase diversity hiring.

Training and Workforce Barriers – Indigenous Peoples

The following table summarizes the findings from the content analysis of the open-ended responses to the question *"What barriers are Indigenous peoples facing?"*

Table 1 Survey Responses: What barriers are Indigenous peoples facing?

Barrier Themes	Highlighted Survey Responses
Lack of Career Awareness of Mining Job Opportunities	• Access to general awareness education about the mining industry. • Shortage of information in schools about the job opportunities available. • Lack of exposure to industry expectations and requirements (can be different from cultural expectations). • Notification at the Band level about the opportunities out there. • Roadmaps to jobs in the mining sector are not well known within the industry. • Need for in-community informed career planning supports and resources.
Location and Remoteness	• Location of training and education is not within communities. • Geographical barriers, isolation and challenges in relocation to training or job sites. • Remote living, less access to the work site or office.
Social, Health and Economic Factors	• Funding for training programs, cost of training, materials (e.g. work clothes), and transportation and accommodation to access training programs, poverty. • Lack of social and community supports. • Access to mental health, wellness supports. • Family and community responsibilities.
Infrastructure Deficits	• Access to housing and accommodation. • Lack of communications infrastructure (cell service, broadband internet, computer access). • Lack of infrastructure in remote communities.
Transportation	• Lack of a driver's license. • Access to transportation, access to vehicles. • Ability to travel within community.
Training Access and Education Gaps	• Access to training programs in remote and rural communities. • Training programs relevancy. • Meeting initial entry requirements and upgrading (Gr.12). • Essential skills gaps – literacy, computer skills and digital literacy. • Lack of recognition of prior learning. • Little exposure to STEM subjects. • Training and trust in training and education systems.
Discrimination	• Stereotypes, racism and assumptions. • Deep, old, frustrating stereotypes that have maintained systematic racism. • Stigma, cultural stereotypes, unconscious bias.

Challenges in Accessing Job Experience	• Lack of access to co-op opportunities and apprenticeships. • Opportunities are needed to gain the required experience to enter the workforce.
Inequity in Career Advancement Opportunities	• Glass ceiling into senior positions. • Lack of opportunities for career growth and promotion. • Lack of acceptance into non-labour, skilled, technical, and leadership roles.
Lack of Career Development Supports	• Access to job search tools and knowing who to apply with and how to apply for jobs. • Challenges in accessing informal networks. • Scarcity of mentorship.
Inhospitable Workplace and Industry Culture	• Not enough effort made to create safe and welcoming workspaces. • Feeling like they have to let go of other values to feel more included. • Non-inclusive atmosphere at the work site. • Challenges adapting from a remote lifestyle to mining jobs. • Lack of respect for Indigenous knowledge and protocols. • Cultural insensitivity.
Need for Childcare and Family Supports	• Access to childcare. • Unable to be away from family for long periods of time.

Career Advancement

As noted in Table 1, inequity in career advancement opportunities was commonly recognized by respondents as a barrier facing Indigenous peoples within the sector. Respondents referenced non-labour, leadership, technical and skilled roles as spaces in which there has been chronic under-representation and lack of opportunity. Other key barriers to career advancement included disparity in infrastructure and services within remote Indigenous communities, and particularly those which limited individuals' ability to access or complete training, e.g. equipment, transportation, and internet and cellular service.

Essential Skills

Essential skills disparity was referenced by a number of key informant interviewees as a barrier that impacts individuals' ability to access and complete training that leads to mining employment. One respondent indicated the dual barrier of digital literacy and general literacy; someone who is struggling with reading and comprehension, further struggles when applying these skills in a digital landscape, e.g. searching for jobs and applying online. This is compounded by the aforementioned infrastructure disparity of poor internet or limited computer access. There is indication of a difference in prioritization of essential skills training within the survey respondents as seen in Figures 12-15. Although a small number of respondents (n=12), 100 per cent of the community respondents of the survey indicated a prioritization of essential skills training for members, similarly 70 per cent of trainer and educator respondents prioritized essential skills training as important to the sector, while less than 20 per cent of employers and worker survey respondents prioritized essential skills training. This indicates there may be a disconnect between the understanding and prioritization of essential skills needs between industry, training and community partners.

The importance of providing training on essential skills was emphasized in many of the key informant interviews; supporting learners in the development of individual work ethic, communications and knowing how to approach supervisors were all examples of essential skills knowledge and applications that support learners and workers ability to succeed in mining workplaces. Additionally, the need for general industry career awareness training was highlighted to support learners in their ability to make informed decisions about their personal career development and how best to pursue training or careers within the mining sector.

The validity of antiquated educational requirements for specific jobs was also questioned by respondents and key informant interviewees.

The Social Determinants of Health

As shown in Table 1, survey respondents identified connections between social, health and economic barriers, which can be linked to the concept of 'social determinants of health'. This can be described as:

"The primary factors that shape the health of Canadians are not medical treatments or lifestyle choices but rather the living conditions they experience. These conditions have come to be known as the social determinants of health… Our health is also determined by the health and social services we receive, and our ability to obtain quality education, food and housing, among other factors. And contrary to the assumption that Canadians have personal control over these factors, in most cases these living conditions are – for better or worse – imposed upon us by the quality of the communities, housing situations, work settings, health and social service agencies, and educational institutions with which we interact."

(Source: Raphael, D., Bryant, T., Mikkonen, J. and Raphael, A. (2020). Social Determinants of Health: The Canadian Facts. Oshawa: Ontario Tech University Faculty of Health Sciences and Toronto: York University School of Health Policy and Management. The publication is available at http://www.thecanadianfacts.org/)

Driver's License

The training and employment requirement of a valid driver's license or transportation to and from site, is a significant hurdle in an individual's ability to access mining training and employment. This was emphasized and highlighted by respondents and interviewees, particularly the difficulties in obtaining a driver's license for individuals in remote areas; one key informant conveyed that in remote communities accessing the nearest driver's registration office may be upwards of 200km away. Therefore, accessing reliable transportation to and from testing centres, accessing vehicles to practice with, literacy and prior tickets associated with driving without a license can create massive obstacles for individuals trying to obtain their license.

Social, Health, and Economic Factors

Respondents also indicated the complexity of the social, economic, and health barriers that impact Indigenous peoples disproportionately and create additional challenges with regards to accessing and completing training. One informant spoke to the need for representation of Indigenous educators who understand the barriers facing Indigenous learners, which often includes a fear of success or failure, which

can lead students to quit before completion. It was highlighted that Indigenous learners need to feel safe within the learning spaces, and safe to make mistakes to be able to embrace learning. The development of a safe spaces for learning was reinforced in many of the discussions and is multi-faceted; it includes the connection and relationship to trainer or facilitator, the connection between learners in a classroom or cohort, and supportive administration and structures that surround the training or education program.

Figure 6 Indigenous Barrier Statements: Workers

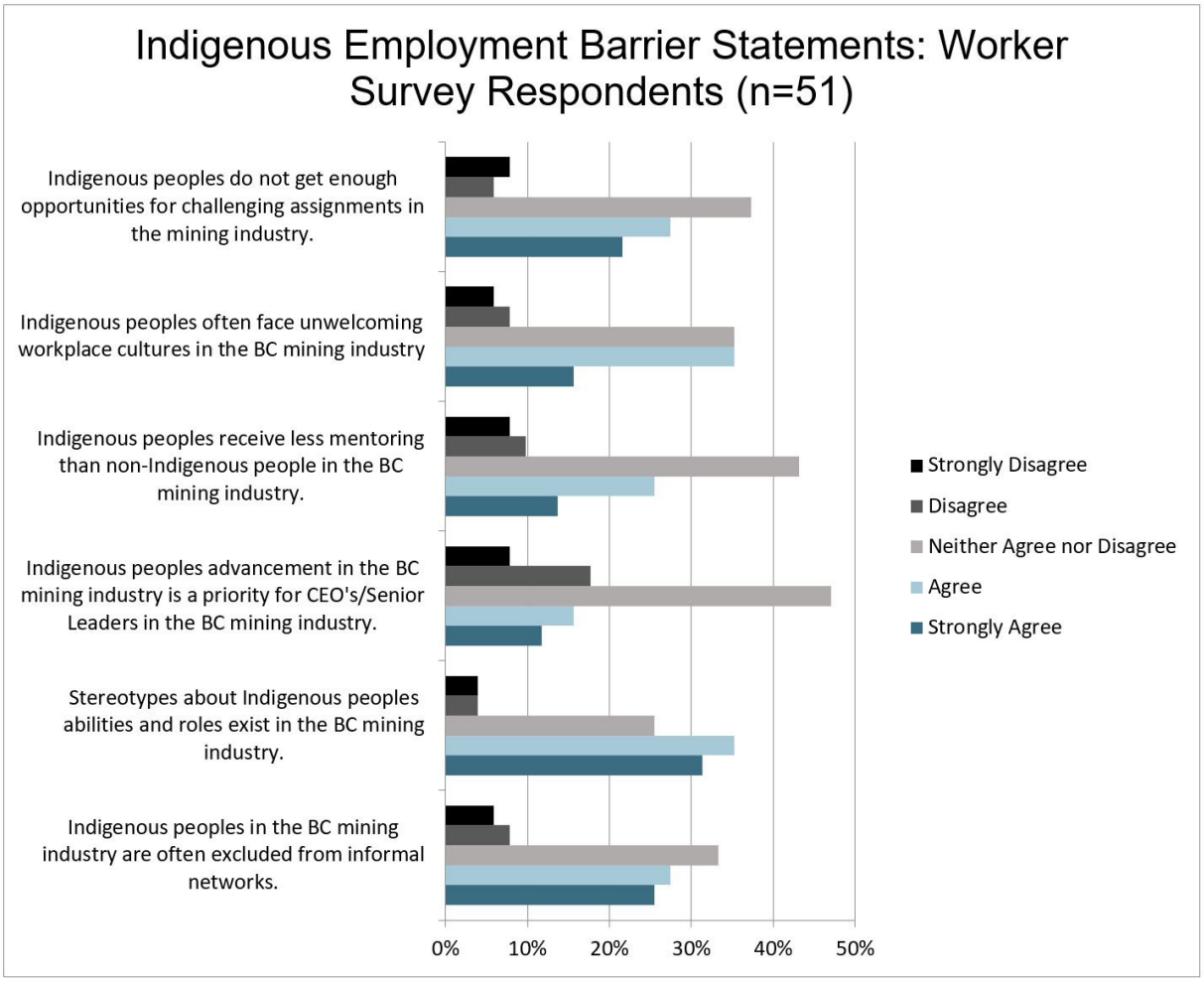


Figure 7 Indigenous Barrier Statements: Employers

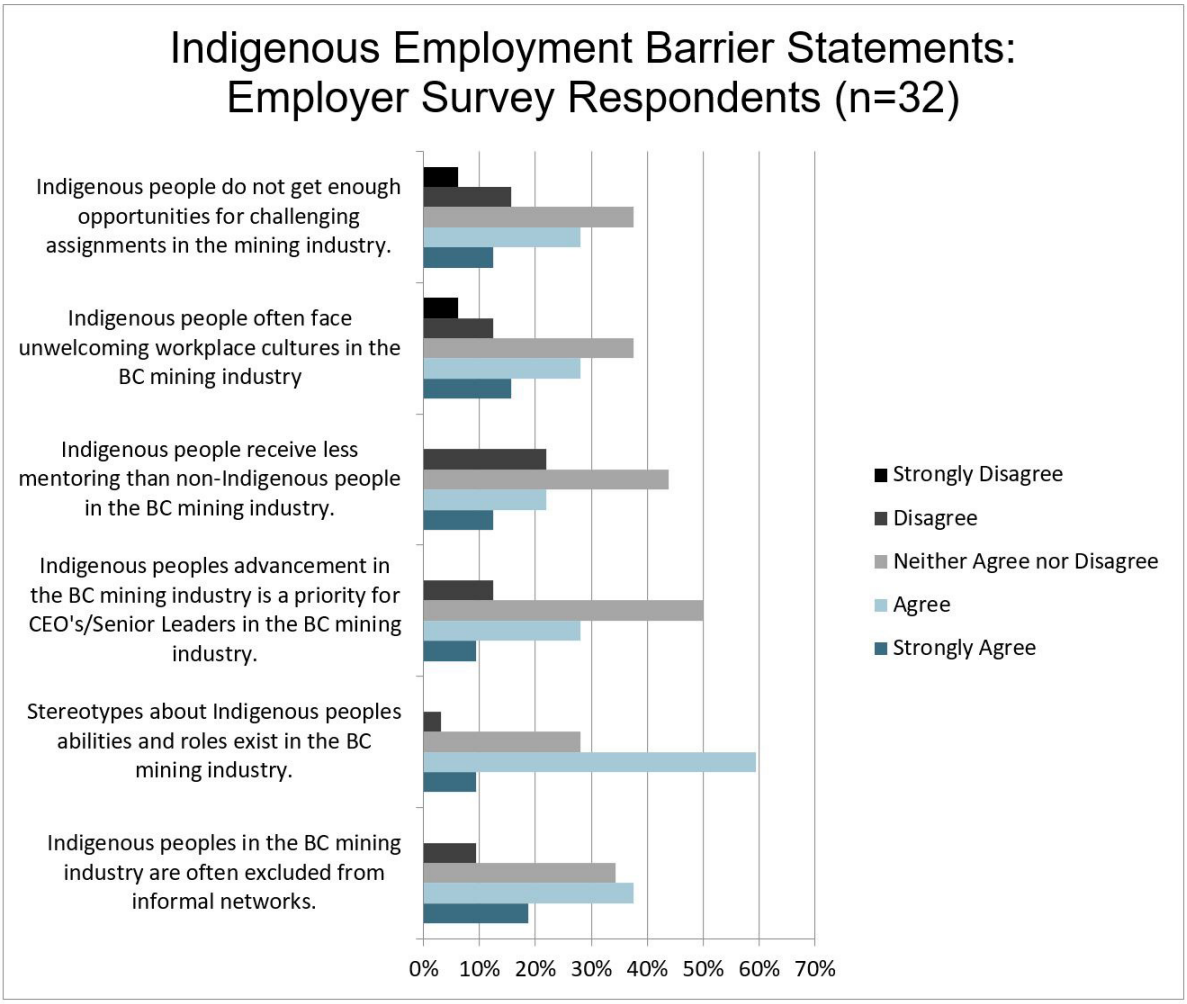
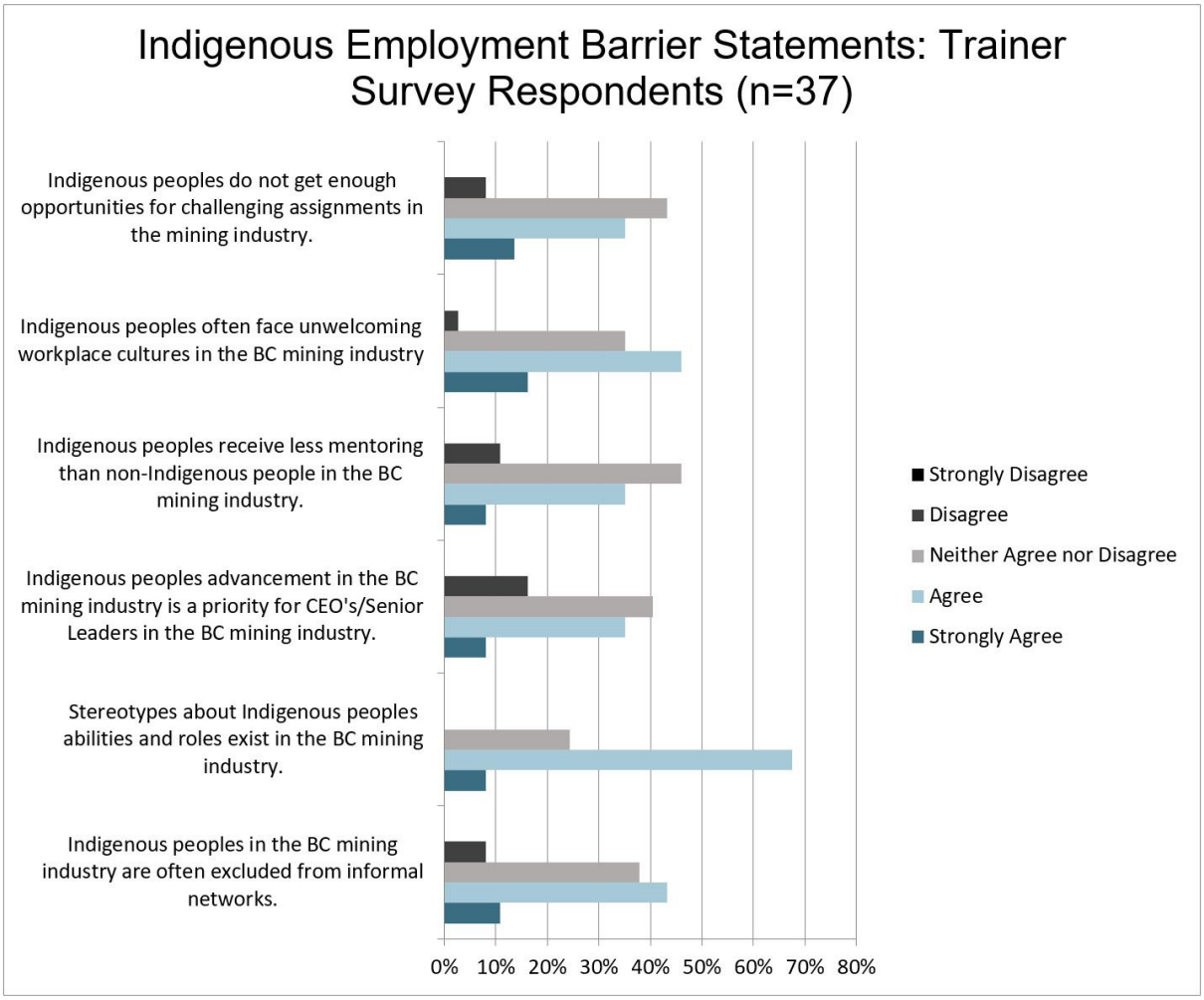


Figure 8 Indigenous Barrier Statements: Trainers



Figures 6-8 illustrate the survey respondents' perceptions of a number of identified employment barriers facing Indigenous peoples. Generally, when compared with worker respondents, trainer and employer survey respondents indicated a firmer acknowledgement of barriers for Indigenous employment, particularly around opportunities for advancement, and the exclusion within informal networks in the sector. When asked if they agreed or disagreed with the following statements, workers, trainers and employers most strongly agreed with the statement that *"Stereotypes about Indigenous people's abilities and roles exist in the BC mining Industry."*

Workers, trainers and employers selected the following as the top three barriers for Indigenous employment (they did not collectively select them in this order):

- *Stereotypes about Indigenous people's abilities and roles exist in the BC mining Industry.*
- *Indigenous peoples in the BC mining industry are often excluded from informal networks.*
- *Indigenous peoples often face unwelcoming workplace cultures in the BC mining industry.*

It is notable that of the 'top three', all received over 50 per cent of agreements (agree and strongly agreed) from each of the demographic groups, except for the third ranked barrier from the worker demographic which received 43 per cent. Additionally, worker, employer and trainer prioritized the barrier *"Indigenous peoples do not get enough opportunities for challenging assignments in the mining industry."*

Training and Workforce Barriers – Women

Survey respondents were given several questions to reflect on the employment and training barriers that face women within the mining sector. The following table was created through content analysis of the open-ended responses on the survey question *"What barriers are women facing?"* and interpreted using coding and recursive abstraction. The complete open-ended responses are available within Appendix D.

Table 2 Survey Responses to: What barriers are women facing?

Identified Barriers	Highlighted Survey Responses
Lack of Career Advancement Opportunities	• Lack of opportunities for career growth. • Glass ceiling – support for women is only up to a certain point. • Lack of support for women in STEM disciplines. • Lack of challenging work assignment opportunities
Social, Health and Economic Factors	• Lack of support from family members and partners. • Social barriers, societal expectations of gender roles. • Funding and poverty.
Inequity in the Distribution of Care Responsibilities	• Lack of childcare options in remote communities, on site, misalignment with care and shift work. • Unsupportive workplaces for accommodating family needs. • Lack of daycare funding. • Elder care responsibilities. • Difficulty in working in the field when children are very young.
Training and Education Barriers	• Lack of literacy, education, and training. • Relocation required for education. • Less women in STEM and trades programs in general. • Ability to dedicate time and resources to attend training - with the pressures of home life. • Lack of time to commit to a long-term program. • Retraining to pivot mid-career is not often available, and difficult to take time out of work for training. • Need for lifestyle support for education and training. • Housing and transportation issues for training.
Gender Discrimination	• Gender stereotypes in the industry and training institutes. • Misogynistic behaviors and attitudes. • Harassment and lack of complaint and resolution processes.

Lack of Networks and Mentorship	• Shortage of mentors and champions. • Missing role models and mentors on the larger scale. • Need for advocacy networks, branching out from known networks.
Gendered Pay Gap	• Unequal pay. • Deep-seated financial barriers e.g. women earn less for equal work, lack of transparency in pay structures. • Lack of opportunities that are paid at the same level of male dominated positions
Inhospitable Workplace and Industry Culture	• Unconscious bias. • Male dominated industry. • Unwelcoming workplaces. • Assumptions about role suitability for women and men. • Legacy of women being viewed as bad luck in mining. • Culture of senior management and leadership. • Camp-life/lack of comfort. • Gender equity efforts are moving too slow. • Old and outdated stereotypes.
Career Awareness and Job Search Barriers	• Need for flexible career planning supports and resources. • Poor communication of required skills and career choices. • Not knowing which employer to apply to.

Inadequate Childcare Options

Additional context on the barriers were provided through the key informant interview process. The importance of childcare access and support, particularly in remote communities was indicated as a significant barrier within multiple key informant discussions, and reinforced within the project committee meetings and survey responses. For women with care responsibilities, mining employment or the opportunity to participate in mine training can be extinguished by a lack of adequate childcare options. Additionally, the lack of accommodation and housing suitable for children within proximity of mining operations and training facilities was another obstacle identified, as was safe access to transportation. Where access to childcare was possible, individuals working within a mining or exploration setting felt they may still struggle to find options that accommodate shift work or fly-in and fly-out schedules.

Key informants also highlighted the importance of acknowledging the complex social barriers that impact a marginalized group's ability to access and complete training programs. Examples given included the responsibility or expectations of an extended family or a partner who is not supportive of a woman leaving the family home. It was thought that the majority of women are over-burdened with care responsibilities, making their participation and completion in full-time or immersive training options incompatible with their commitments.

Systemic Barriers

During the committee review of the methodology and literature findings it was raised that although questions about barriers for greater inclusion were asked, there was a need to be specific about the type of barriers that were being referenced. It was decided to include a question that specifically asked survey respondents about systemic barriers that are impacting Indigenous peoples and women. Systemic barriers within the survey were defined as *"situations, policies and/or practices, which results in some people receiving unequal access or being excluded from benefits and opportunities."* Table 3 summarizes the survey responses as indicated by the different respondent categories. To preserve the specific content shared by survey respondents the complete survey responses to these questions are included within Appendix D.

Employment and Training Barriers Facing Women and Indigenous Peoples

Survey respondents identified some similarity in the barriers to mine training and employment that impact women and Indigenous peoples. These included:

- Lack of career advancement opportunities
- Career awareness and job search barriers
- Gender, racial and cultural discrimination
- Training and education barriers
- Social health and economic factors
- Inhospitable workplace and industry culture

Table 3 Survey Responses: What systemic barriers exist within organizations?

Survey Respondents	Responses
Trainer	• Lack of understanding on learners' background and needs. • Compounding challenges outside of education (e.g. childcare, health, financial issues). • Policies that create access barriers to training and certification. • Admissions for post-secondary (GPA requirements). • Geographic. • Funding. • Racism and stereotyping. • Quality of education. • Linear thinking about the career paths. • Disconnect between corporate policy and operations. • Colonial and misogynistic institutional hierarchies. • Lack of vision that includes positive action for including under-represented people.

Worker	• Racism (e.g. cultural stereotyping, discrimination, privilege). • Educational gaps of understanding systemic barriers and cultural awareness. • Lack of awareness of benefits and opportunities (e.g. stock options, HR training, maternity/paternity leave benefits). • Seniority systems for advancement. • Training access and inflexibility in programing. • Remote work environments. • Work schedules. • Prerequisite experiences. • Public school education. • Childcare availability, access, and cost. • Geographical disparity in training opportunities. • Over-reliance on professionals/certified persons. • Disparity of training opportunities.
Employer	• Racism and harmful stereotypes. • Remote Indigenous communities are less likely to have suitable and sustainable training programs. • Requirement of high school education/graduation. • Inflexibility of hours that conflict with traditional land use activities. • Mentoring and supports for Indigenous and women learners could be improved. • Shortage of appropriate training programs and facilities offered by companies. • A gap in continuity from the organizational perspective; the relationship is built and then changes hands to another group/team.
Governance	• Work and training schedules that lack flexibility to accommodate family and community responsibilities. • Companies are motivated to hire women, and people of colour but not to promote them. • Qualifications are not aligned with actual requirements and competencies to do the jobs. • A disconnect between equity and equality.

Partnering Organizations	• Without Indigenous peoples in senior positions, biases develop towards advancement and development. • Board level inequities need to be rectified. • Inflexibility in training delivery models, scheduling, location. • Cohort requirements from post-secondary institutes prohibit remote Indigenous communities from being able to afford community-based training, also, post-secondary institutes are acting counter to Declaration on the Rights of Indigenous Peoples Act (DRIPA) section 14 to limit high schools from choosing a training partner of their choice, forcing schools to work with the closest training provider. • Expectation that a long season of field work is a requisite for stable employment in the industry has long been a barrier.
Community	• Pay inequity. • Racism, sexism and nepotism within the sector. • Cannot meet the learner number requirement for classes so they aren't offered in the community. • Logistical issues such as travel for instructors to come into the community. • The myriad corollary effects of growing up in households disproportionately impacted by poverty and the residential school system has meant that disproportionate numbers of Indigenous youth and adults do not graduate high school. The gaps in Indigenous education and skills-training are a labour and business problem. Chronic under-funding on/off reserve, discrimination, workplace bullying, etc.

Respondents to the survey and key informant interviews, as well as in discussions with committee members referenced the legacy and inter-generational impacts of the residential school system on First Nations, Metis and Inuit people in Canada, and specifically the barriers in the present day for Indigenous learners in BC. A key informant provided the example that for many Indigenous learners being in a training or classroom setting, or test taking can be "triggering" (cause emotional distress linked to a previous negative experience) and connected this to the barrier of obtaining a driver's training and testing.

The disparity between the training infrastructure and educational systems in northern communities when compared to urban centres was also noted as something that disproportionately impacts Indigenous learners and trainees. One example provided was students entering post-secondary with courses from high school may not have equal access to prerequisites; e.g. to enter an engineering program, a student requires high school physics (Physics 12) but many high schools in northern B.C. do not offer Physics 12. A student from these schools needs to take pre-requisite courses not offered in their community prior to being able to apply, putting another barrier in the way of their progress.

Removing Barriers and Creating Solutions

Survey respondents were also asked about the removal of the barriers identified and the development of possible solutions for Indigenous peoples and women. The following table highlights the summary of responses by the different survey respondent groupings.

Table 4 Survey Responses: How best to address these barriers?

Survey Respondent Group	Responses
Workers	• Work as a team. • Early education exposure – encourage women and Indigenous youth/ children to pursue math and sciences. • Long-term mentorship. • Career awareness sessions and campaigns. • Bring training to communities. • Subsidize training travel. • Implement alternative shifts. • Collect data on gender and Indigenous hires and report. • Flexible training options. • Cultural awareness. • Hiring practices and training supports (e.g. quotas, scholarships). • Access to childcare. • Senior leadership accountability. • Link training to retention and positive workforce outcomes.
Employers	• Partnerships with the mining industry. • Mentorship programs. • Provide additional opportunities – stretch assignments. • Access to leadership opportunities. • Transparency in hiring practices. • Training of systemic barriers. • Implement policies that support the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). • Flexible training opportunities that promote access. • Upgrading support for STEM and GPA. • Funding and resources for remote education and training. • Move to targeted actions – not just goals but accountability. • Mobile training that can be delivered in remote communities. • Build community capacity to deliver training. • Mandatory training to address unconscious bias, racism, stereotyping, and misogyny. • Training on human rights.

Trainers and Educators	• Partnership with industry. • Mentorship programs, Elders in residence, role models. • Provide additional responsibilities. • Transparency in hiring practices. • Workshops that address systemic barriers, rights education for women and Indigenous peoples. • Access to leadership roles for women and Indigenous peoples. • Become informed and implement policies that support UNDRIP. • Explore alternative training formats. • Allow programs to admit students who do not meet GPA requirements. • Better access to training for remote communities. • Senior leadership to develop policies to break down the barriers.
Partnering Organizations	• Collective intent and concerted effort to market opportunity to youth (women and Indigenous). • Flexibility regarding length of stay in the field – use technology to create more flexible solutions. • Work with ICBC to develop driver training programs for Indigenous peoples that address the difficulty getting a learner's license when they have a record of driving without a license, and provide vehicles for practice. • Corporations that report to shareholders need more minority representation on their Boards and in positions that are not finance or legal backgrounds. The mining industry needs to seek out minority people and include them in these leadership positions. • Score card data that investigates where the 'rung in the ladder' is missing to enable career progression. • Organizations could participate in a culture assessment; review all company/industry media channels and check for role models, find champions, highlight the champions and match them to individuals needing support.
Governance	• Flexibility in training and workplaces. • Flexibility in which college serves which region. • Mining to become part of school curriculum.
Community	• Equalize the entry requirements to other similar careers in trades. • First Nations operated education centre for upgrading, for example; Quesnel Dakelh Education and Employment Society. • Mental health and addiction support for those in camp. • Policies, practices, and situations that encourage inclusion. • Earlier intervention and pre-employment training. • Culturally appropriate essential skills training. • Wrap-around services such as transportation support and affordable accessible childcare.

Right-Sized Solutions

Implementing solutions and strategies to increase diversity and inclusion within the sector need to be reflective of the size and capacity of organizations and communities, and individualized. It was noted through the key informant interviews that smaller organizations working within the sector, although well intentioned, may need additional supports and resources, which could include supports around policy development, initiatives and HR practices. It was suggested that training organizations, communities and employer associations work together to support the change required for small and medium enterprises. These are often the organizations that support learners and often do not have access to the mining companies or the provincial and Indigenous governments relationships with one another yet serve a critical role in preparing future workers.

Cross-Sector Partnerships

Through the survey, key informant interviews and committee consultations there was a recognition that more can and needs to be done to enhance Indigenous participation in the mining sector, but also cross-sector efforts are needed to support collective workforce development within the regions in which mining occurs. This may include reaching out to other sectors, forestry, hydro, oil and gas to build collective workforce partnerships.

The Birdcage Analogy

Sto:lo author Lee Maracle has been known to refer to Marilyn Frye's Bird Cage Analogy to describe the roadblocks faced in Indigenous communities – particularly for women.

"Consider a birdcage. If you look very closely at just one wire in the cage, you cannot see the other wires. If your conception of what is before you is determined by this myopic focus, you could look at the one wire, up and down the length of it, and be unable to see why a bird would not just fly around the wire any time it wanted to go somewhere. There is no physical property of any one wire, nothing that the closest scrutiny could discover, that will reveal how a bird could be inhibited or harmed by it except in the most accidental way.

It is only when you step back, stop looking at the wires one by one, microscopically, and take a macroscopic view of the whole cage, that you can see why the bird does not go anywhere. It is perfectly obvious that the bird is surrounded by a network of systematically related barriers, no one of which would be the least hindrance to its flight, but which, by their relations to each other, are as confining as the solid walls of a dungeon".

(Source: Marilyn Frye, "The Politics of Reality: Essays in Feminist Theory;" Crossing Press: Freedom, California, 1983; p. 2-7 as seen in https://cpt.org/sites/default/files/2019-04/US%20-%20Bird%20Cage%20of%20Sexism.pdf)

Flexibility in Training Delivery

Within the key informant interviews, there were similarities in the needs perceived for women and Indigenous peoples around flexibility in training formats and scheduling, due to the additional care and family responsibilities within their community. It was also noted that the prospect of leaving home for long periods of time to complete training deters individuals from participating. Solutions suggested were shorter rotations, completing apprenticeships over a longer period with more time spent at home or within their community, additional supports when providing on site accommodation for learners while on site, and childcare to remove barriers to participation and retention.

Recognition of Individual Needs

A key informant working within training and education highlighted the need to see individuals and not barriers; that the focus should be on building relationships with individual learners and understanding their interests and needs. Trainers and educators within the community felt they have an in-depth knowledge of the challenges, but need mining industry employers to clarify the skills and training requirements required and to provide and support work integrated learning opportunities.

Skills and Competency Findings

- *What are the occupations in demand within the mining sector?*
- *What are the skills and competency need of the mining sector today and into the future?*

Survey respondents were asked questions to enable them to reflect on the occupations in demand that were identified through the literature review and environmental scan.

Figure 9 Survey Respondents: Occupations in Demand

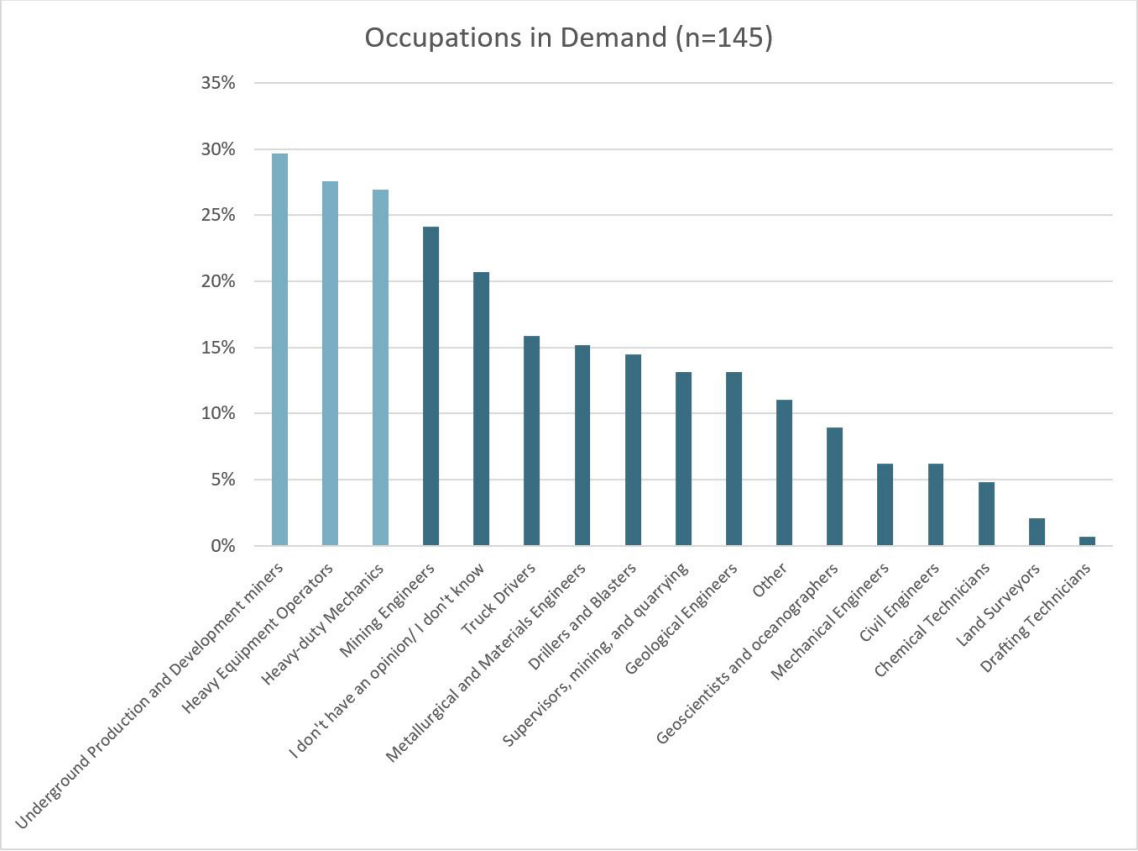


Figure 9 summarizes respondents' selection of occupations in demand and indicates that *Underground Production and Development Miners, Heavy Equipment Operators and Heavy-duty Mechanics* were recognized as the top three occupations in demand. *Mining Engineering, Truck Drivers, Metallurgical and Materials Engineers* were also seen as occupations in demand. Of note, 20 per cent of respondents indicated that they did not know or have an opinion on the occupations in demand, which aligns with findings in the literature review and environmental scan that indicated challenges in identifying relevant and timely labour market information and assessing and projecting current and future occupational needs in the sector.

The breadth of the mining sector is expanding and as a result of changes in mining activity and technological implementation, the specific occupations and groups of occupations required are evolving. The expansiveness of the sector was highlighted by a key informant with reference to the supply side of the sector - where not only consulting engineers, but sales teams, fabricators, and other services are included as part of the mining labour force.

As the shifts in Environmental, Social and Governance (ESG) requirements and technological developments occur, the occupational mix and forecasting of labour requirements based on historical data becomes increasingly complex. The importance of trades and technical roles were often highlighted within the committee meetings and through the key informant interviews.

The occupations in demand for remote and rural communities are often transferable amongst heavy industry (e.g. oil and gas) and are categorized within trades and technical roles. One key informant from the Golden Triangle region indicated that occupations in demand for this region included "millwrights, heavy duty mechanics, pipe fitters, gas fitters, welders, and carpenters." A second interviewee from an employer within the Golden Triangle confirmed that the occupations most in demand are "trades and technical roles and labour positions." Additionally, one key informant spoke to the need for "lab technicians, geological assistants, mill operators, apprenticeship cooks and heavy-duty mechanics."

Key informant interviews also provided insights into the labour forecasting and workforce needs within the exploration sector. It was noted that for exploration, the workforce needs are both annually cyclical, and sensitive to the overall commodity cycle. Employers tend to actively recruit workers from industries where the transferability of skills has long been established. Some respondents anticipated targeting the technology and innovation sector, but as one key informant indicated there may be a slower rate of the acceptance of transferability of new technology and skills as the industry is "still reliant on boots on the ground."

Future Skill Needs for the BC Mining Workforce

Survey respondents were asked to identify the skills that were most important to the future of the BC mining sector. Survey respondents were given an opportunity to select up to three skills from the list displayed within Figure 10. *Cultural awareness, competence, human rights, anti-racism and reconciliation* was selected most often by respondents with 53 per cent of the survey respondents indicating that this skill set was a priority for the sector. *Similarly, judgment and decision making* was indicated as a priority by 39.8 per cent of respondents, and 33.3 per cent of respondents prioritized *critical thinking. Leadership and social influence* and *data analysis* were selected least often.

Figure 10 Skills for BC Mining Sector

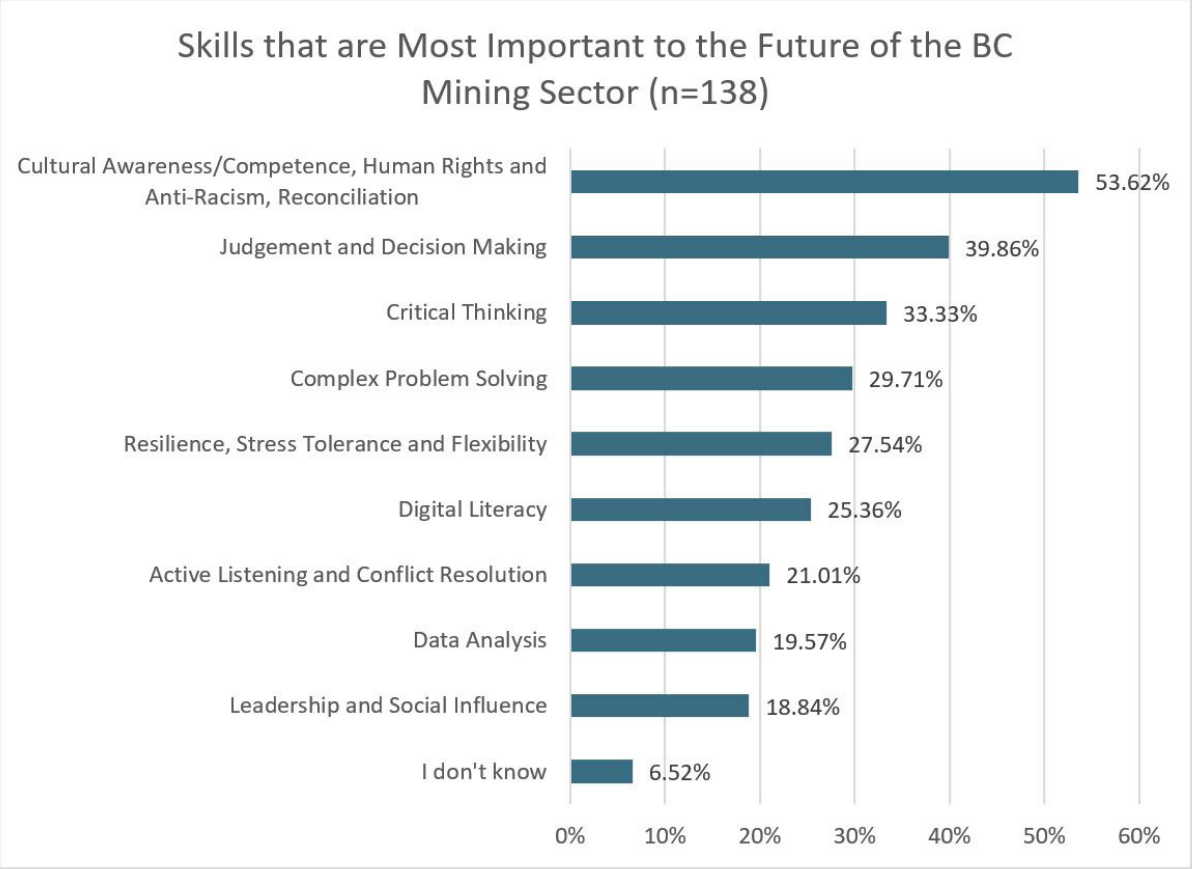
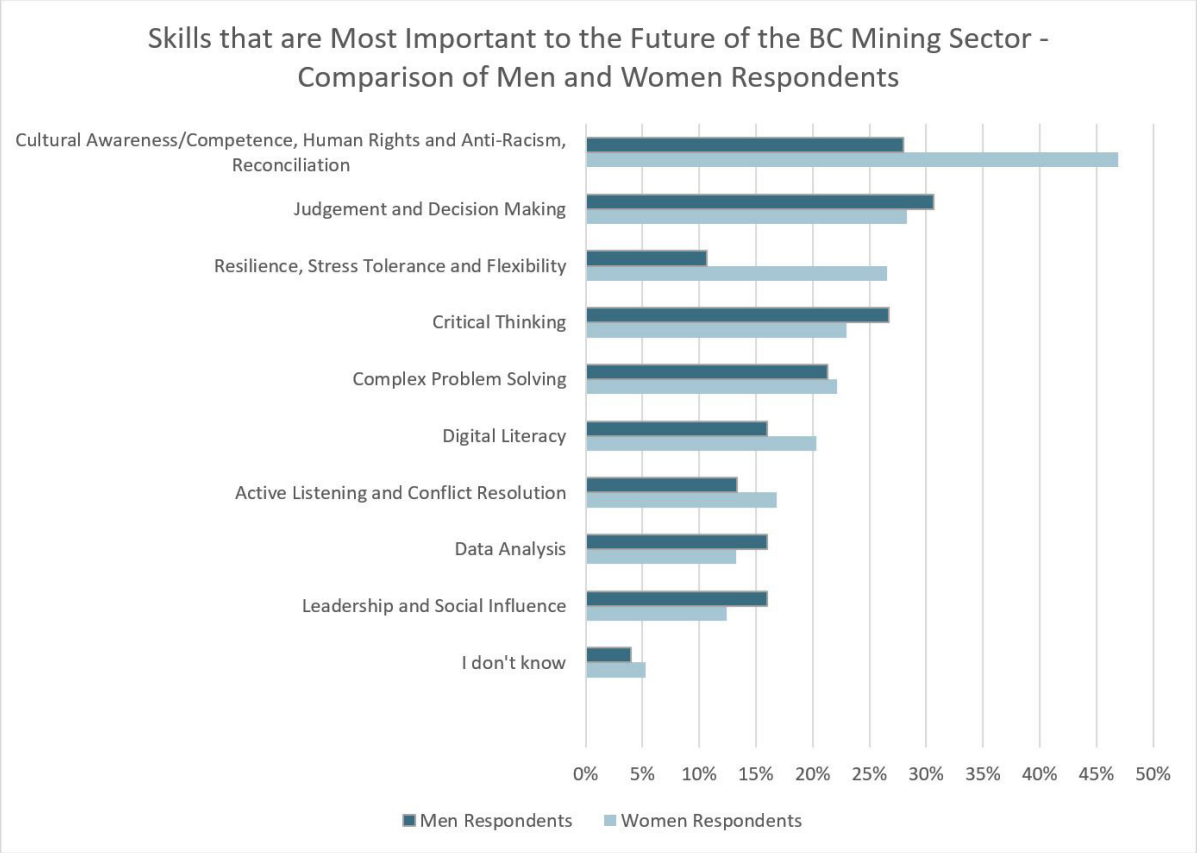


Figure 11 illustrates a gendered difference observed in the survey responses with reference to the selection and prioritization of the skills for the BC mining sector. Women prioritized *cultural awareness, competence, human rights, anti-racism, reconciliation, judgement and decision making* and *resilience, stress tolerance and flexibility,* while men *prioritized judgment and decision making, cultural awareness, competence, human rights, anti-racism, reconciliation* and *critical thinking.* While the survey responses cannot be generalized over the population within the sector, this difference in the prioritization of skills by gender does raise the question about how policy and training priorities are prioritized, and that diverse representation, balanced gender representation, Indigenous representation and representation of other marginalized groups in the sector should be part of the process when developing the roadmaps.

Figure 11 Skills for BC Mining Sector - Comparison of Men and Women Respondents



Additional Skills

Survey respondents were asked to identify additional skills needs within the sector in the open-ended question *"What other skills will be important to the future of the BC Mining Sector?."* The complete list of responses is included in Appendix C. To summarize, the responses can be generally categorized into the following skills themes:

Computer Skills and Digital Literacy

- The importance of digital and computer literacy. From foundational computer skills (Word, Excel, Outlook) to data analysis, and advanced programming (coding), these skills are in demand due to the movement towards increasing digitization and automation within the mining sector.

Trades and Technical Expertise

- The need for Red Seal Trades, and the technical and operational skills required for equipment operation and underground mining and exploration.

Lifelong Learning

- The need for a commitment to lifelong learning, the ability to obtain new skills, and to develop as a professional post-hiring and train on-the-job.

Transferability of Skills

- The need for transferable skills within the mining sector and also the opportunity to recruit and access transferable skills of workers in anthropology, social science, resource management and others with technology related education or experience. Transferability of applied skills was seen as important, as well as the 'soft' or 'core' skills of leadership, mentorship, and critical thinking.

Essential and Life Skills

- The importance of essential skills as well as life skills such as driving, financial literacy, goal setting and work life balance.

Indigenous Cultural Awareness and Competence

- The importance of cultural awareness/competence, human rights, anti-racism and reconciliation. Respondents commented on both a need for expanding foundational knowledge of First Nations Impact Benefit Agreements (IBAs) with mines in BC, as well as alluding to industry broadening its understanding of holistic remediation[8] practices.

Equity, Diversity, and Inclusion

- The need to increase the focus on diversity and inclusion and the need to work together in building equity. Being open and accepting and providing accommodations within mining training and work environments to foster diversity and inclusion within the sector.

Environmental, Social, Governance (ESG)

- That mining must balance the history of the industry with regards to social and environmental impacts with the evolving needs and demands of workers and community members. There is a need to build understanding of government regulations while being a part of policy development and collaborating on new ESG practices. Garnering community support through financial and employment benefits is important, but should be done while minimizing negative impacts on the land. Green technological knowledge, and the ability to explore and extract green metals is anticipated to increase within the sector, and all workers will need to demonstrate environmental awareness and values.

Communication

- The need for increasing communication skills, with reference to writing and reporting as well as interpersonal communication skills including active listening and conflict resolution.

8 'Holistic remediation' is a systems-based approach that takes into account the complexity of the environment in which mining occurs and seeks to identify and alleviate the environmental and social impacts of mining.

Skills Transferability

Key informants provided further context on acknowledging the transferability of skills that have been gained from outside of the sector. Examples were provided of workers who have more easily succeeded in mining roles when the transferability of previous work experience and training was validated by someone within the sector. Advocating for the individual and legitimizing the transferability of the trainees' skills helped erode some of the prevalent resistance to accepting non-mining experience in the sector, despite the skills and aptitude being present.

Skilled Trades and Apprenticeships

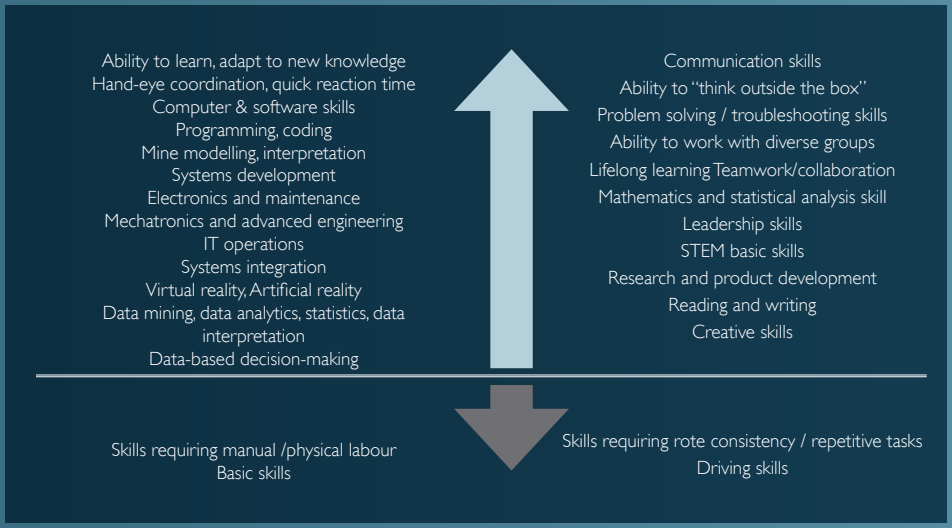
Key informants indicated the need for skilled trades and that they faced challenges in having employers support apprenticeships and recognize Red Seal training. Examples were shared where this was noted as a particular challenge for smaller organizations who incur the training costs, as the training slows down the work of the worker providing the training, and then, once the individual is trained, they are concerned about losing the newly trained or certified employee to a larger employer.

Additional comments from one informant highlighted the shifts in skill needs within the trades as a reflection of new technologies being adapted. The example of haul trucks becoming electric vehicles was given. This example changes the way machinery trades persons operate within the mine. The need for agility in gaining new skills or reskilling within the workforce because of the urgency of technological shifts was expressed. In particular, a base level of computer skills and digital literacy will be needed and is expected to grow as innovations advance.

Technological Impacts and Shifting Skills Needs

More information on how technologies will influence skills can be found in MiHR's 2019 report *The Changing Nature of Work Innovation, Automation and Canada's Mining Workforce*. In this research work stakeholders contributed to the conversation on how skills needs were shifting within the mining sector as a result of innovation and technology developments. The following outlines how these stakeholders anticipated the shifts in skills needs.

Future Skills Demand in Mining



(Source: MiHR, "The Changing Nature of Work, Innovation, Automation and Canada's Mining Workforce;" 2019; p 34 as seen in https://mihr.ca/wp-content/uploads/2020/05/MIHR_Innovation_Report_EN_WEB.pdf)

Training Findings

Training

- *What gaps exist in the current BC mining training landscape?*
- *How is training best delivered?*
- *How do/can training providers, employers, communities collaborate around training and skills development?*

Gaps in the Current Training Landscape

As part of the committee consultation, participants responded to series of questions by entering text directly into Mentimeter. This provided a stream of input and insights into the current gaps in the training landscape as reported in the project's interim report:

Link from Training to Employment

- More training coordination within the industry is required so that training offered in one site is applicable to other sites.
- Often there is no link between training and employment, which leads to training for the sake of training, without any link to careers.
- Typically, there is a lot of entry-level training, career paths are not provided, and there is no oversight to manage career progression.

Blended Training Delivery

- Training needs to be a mix of hands-on and classroom learning. Currently training focuses on book learning and without the practical experience, once an individual is qualified, it can be difficult to get a job. There needs to be mentorship, internships, experience working through real life/ on-the-job problems.
- Training delivery needs to be further diversified – recognizing that there is more than 'one type' of learner and that various approaches will resonate with each learner.
- Training is often provided with tight timelines resulting in 'cramming' (a memorization technique that only lasts for the short-term) or can be too far in advance of work, yet lack of training is often given as a reason to prevent people from starting work. Where courses are scheduled after the job start date, it delays the individuals' employment, or jobs that were offered are cancelled.
- Having to travel extremely far from home is a barrier to training, especially when a parent also has to pay for childcare. It was felt that COVID has taught us all that lots of training can be done online and this should be considered for remote learners.

> "COVID has taught us all that lots of training can be done online and this should be considered for remote learners." *(Survey Respondent).*

Transferability Between Sectors

- Certifications that are not transferable between industries, e.g., crane certification in construction is different to crane certification in the mining sector.

Demonstrate Leadership in Inclusion and Diversity

- Training should be used to invest in people, providing soft skills as well as the required training for the work.
- Training can be out of touch with industry expectations, or not relevant to the industry, and often lacks Indigenous or female perspectives.
- Instructors that are flown in from outside a region who have lots of practical experience, but no hand-on experience, or instructors that are uninformed and unenthusiastic can have a negative impact on learners' connection with the material or subject. More Indigenous and/or female instructors are needed, as these instructors provide positive role models for young people.
- Training needs to support diversity and inclusion; the training promotion should include pictures of a diverse workforce. Having a gender lens on training materials will help to increase underrepresented participation.

Training Content

Building on the findings from the committee consultations, survey respondents were asked to reflect on different types of training for career development within the BC mining sector. Figure 12 highlights the survey responses received from those who identified as workers and their interest in different career development training. Worker respondents were most interested in *training for new technology, leadership training,* and *cultural awareness* and *cultural safety training.*

Similarly, as shown in Figure 13, respondents who identified as Trainers and Educators indicated that *training for new technology, essential skills training,* and *cultural awareness and cultural safety training,* would most benefit the sector. By comparison, employers did not prioritize the training for new technology, and focused more on the *cultural awareness, unconscious bias training, and communications.* This difference may be due to employers looking at the industry with less focus on job specific training requirements and instead on broader industry and organizational needs. Key informants indicated that the barrier for training on new technology is often the prohibitive costs of equipment or programs, and the need for teachers and trainers to update their skills.

Figure 12 Worker Survey Respondents Training Interests

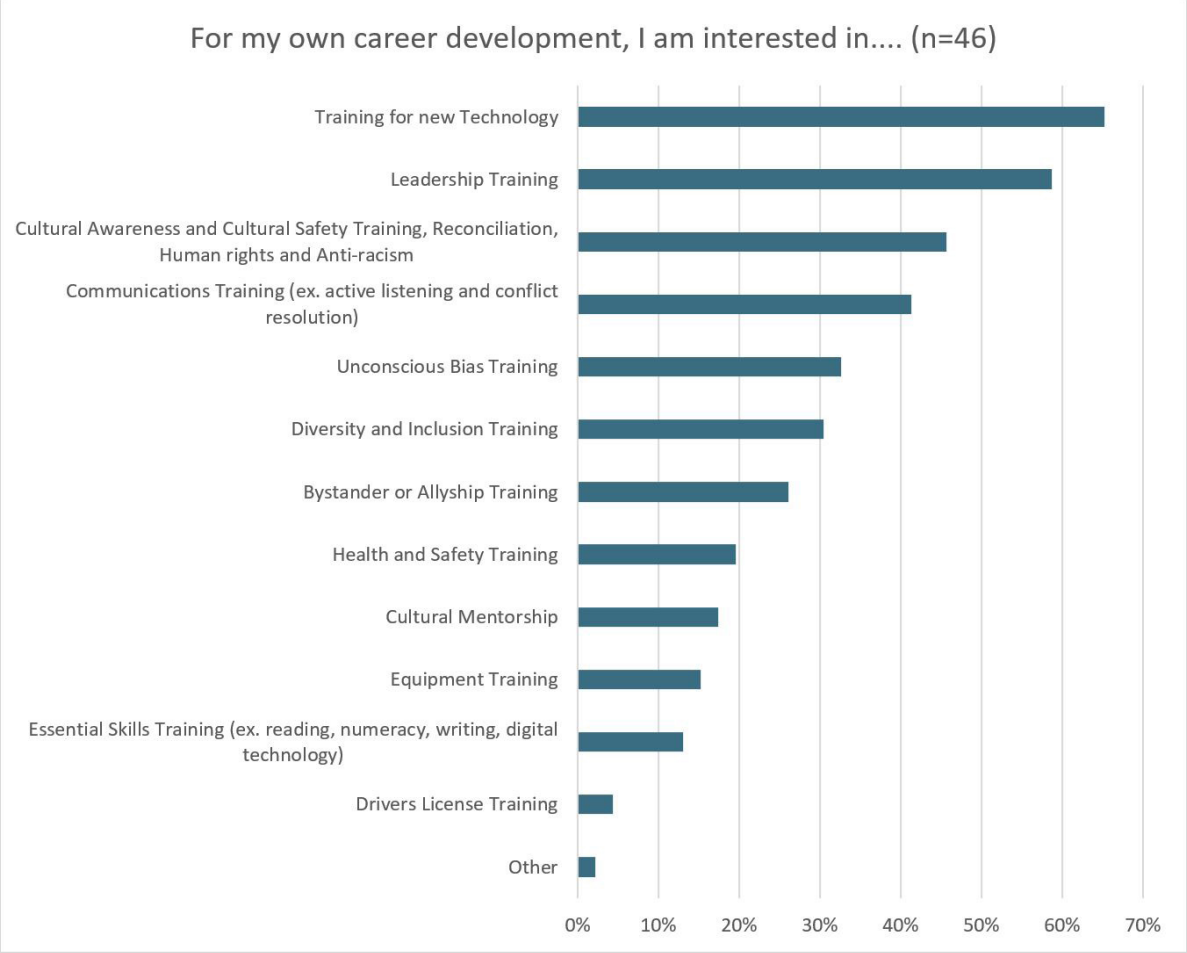
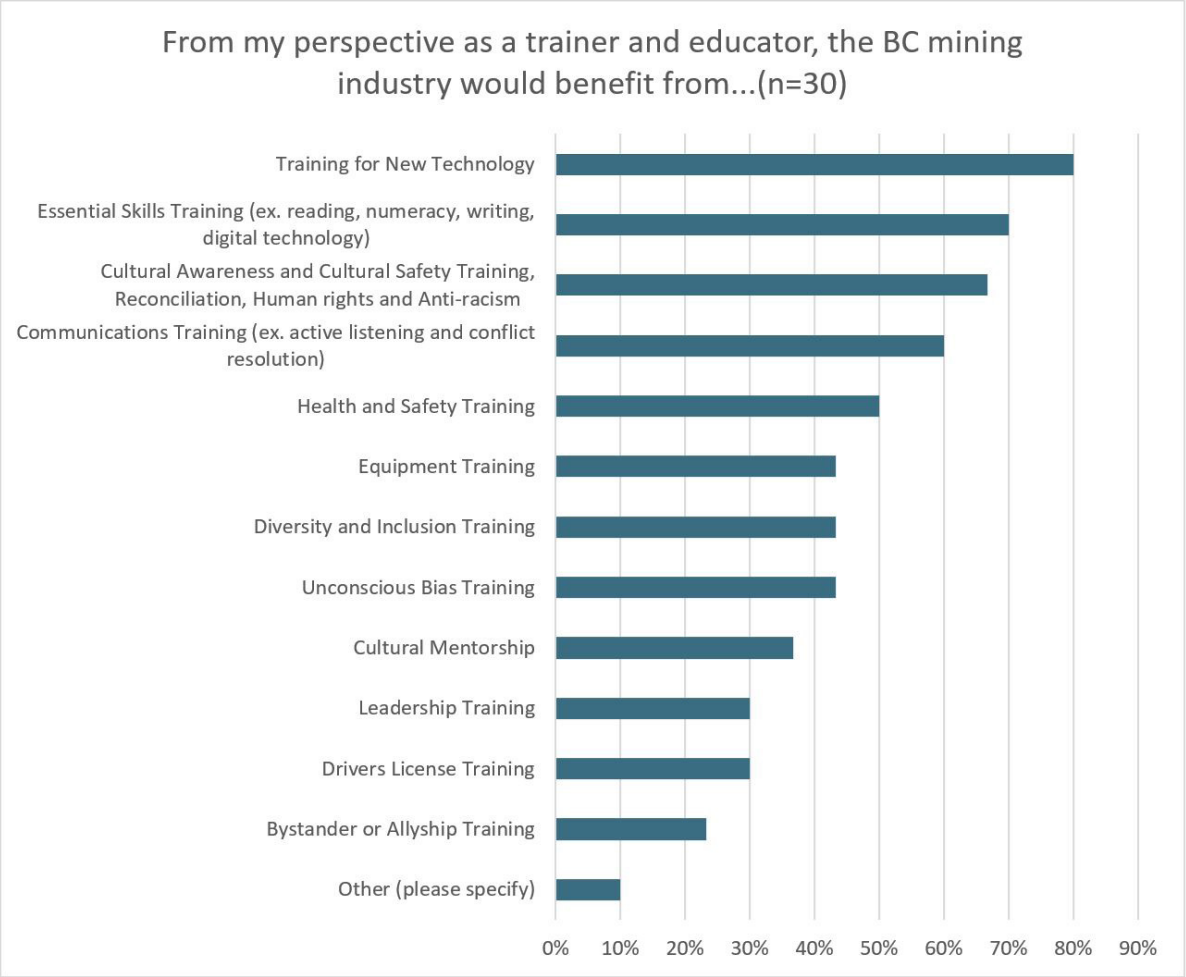


Figure 13 Trainer Survey Respondents - Training Content



Employers were asked to indicate the types of training that their organization would most benefit from. As shown in Figure 14, survey respondents were particularly interested in *cultural awareness and cultural safety training, reconciliation, human rights and anti-racism* for their organization, and unconscious bias training. Less than 20 per cent of the employer survey respondents indicated that their organization would benefit from *essential skills training, equipment training* and *health and safety training.* Similarly, to the observation about employer perceptions on technology training, equipment training was not prioritized by employers indicating that employers may be looking at training from a broader or more universal perspective and less at job-specific, or site specific technology and equipment training needs. Conversely, respondents who identified as from community (Figure 15) prioritized *essential skills training* and *driver's license training* as well as *training for new technologies.* It should be noted that the number of community respondents is relatively small, and its reflection of broader community sentiments cannot be extrapolated. However, the difference in employer and community responses does create a point for further conversation and exploration in the way training is prioritized and training content for the sector, and how to address the gaps in awareness of each industry member's needs and priorities. It is important to note the diversity in prioritization based on the respondents' classifications. This shows the need to consult with a diverse group of stakeholders and partners.

Figure 14 Employer Survey Respondents - Training Content

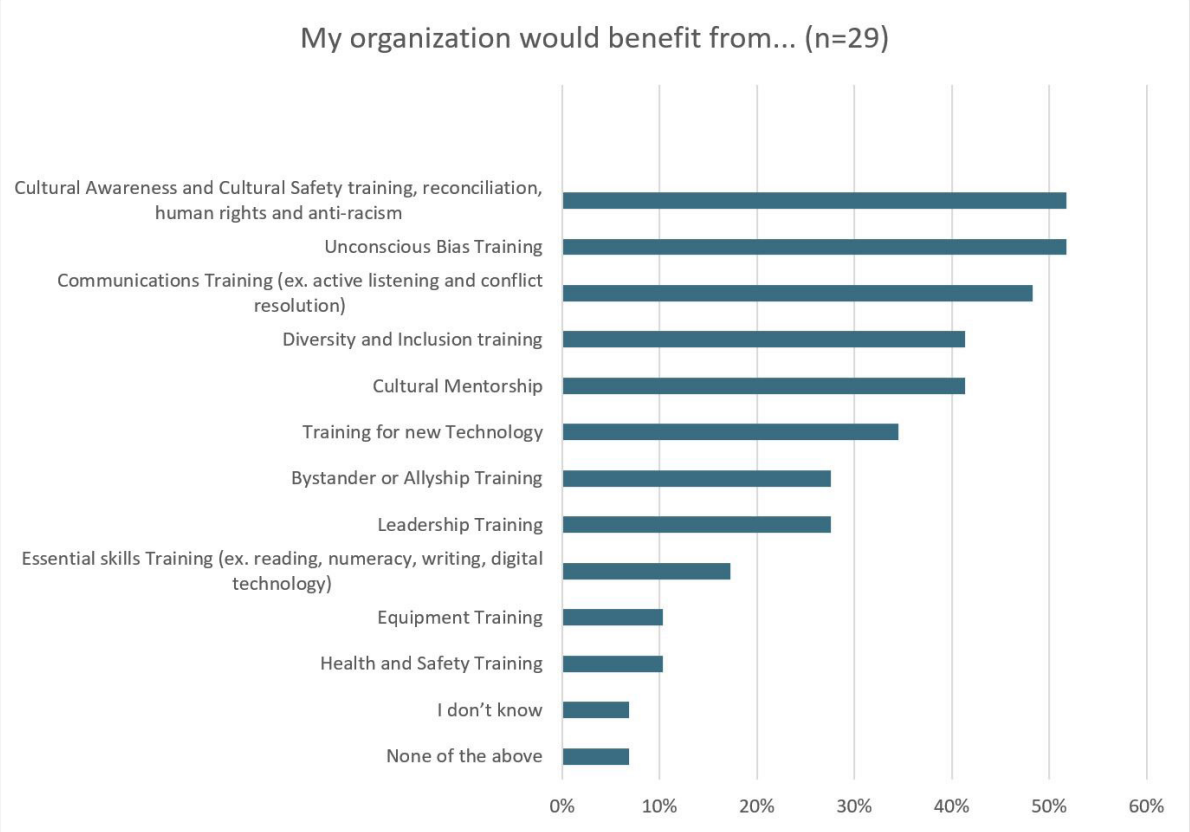
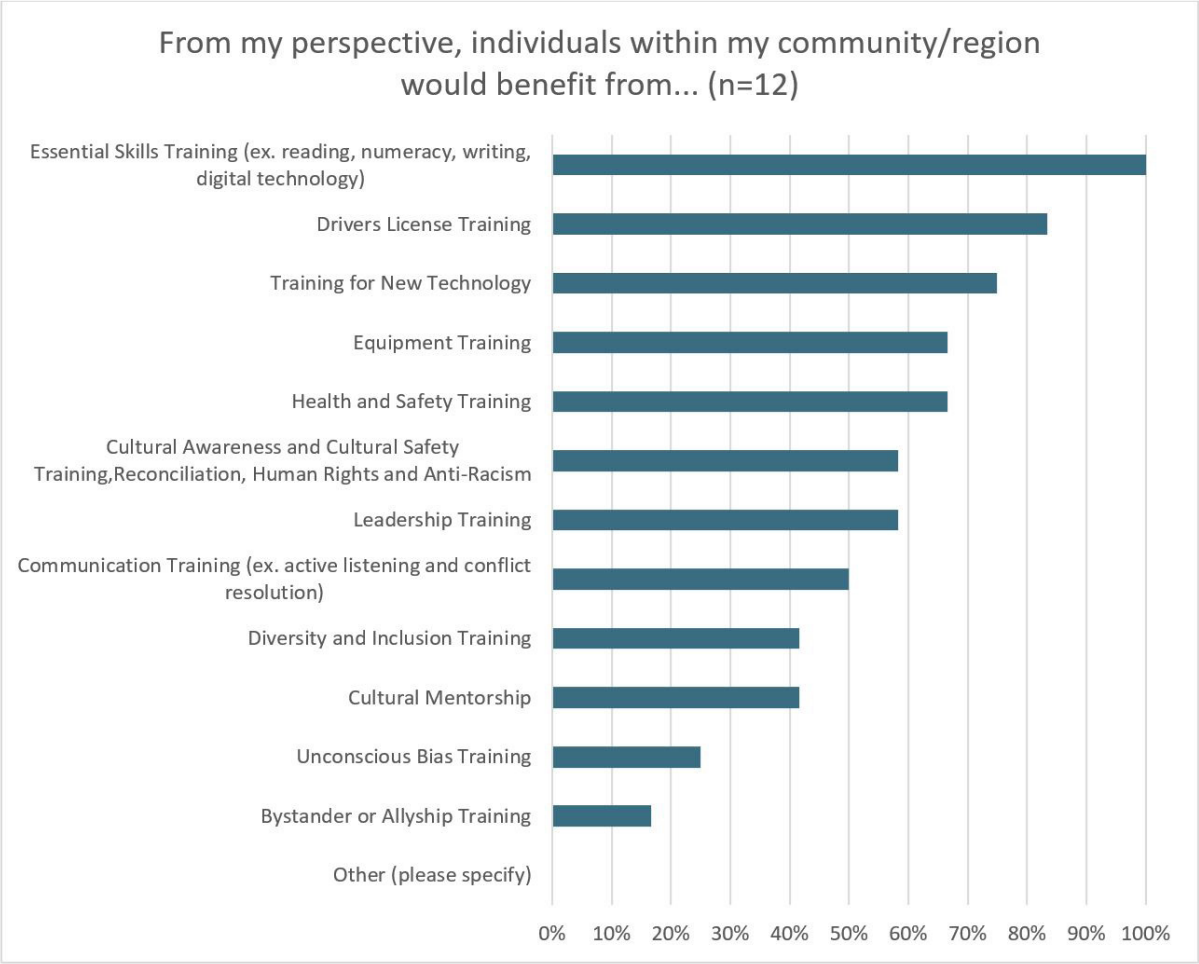


Figure 15 Community Survey Respondents - Training Content



Through analysis of the results, when compared collectively, workers, trainers, employers, community selected the following as the top three most beneficial types of training (those in bold were selected by more than one of the demographic groupings):

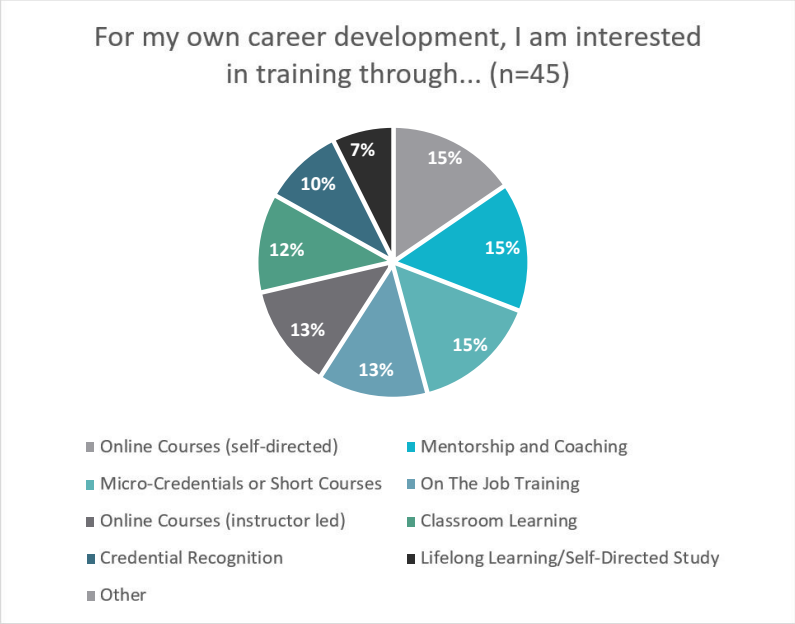
- **Training for technology**
- **Cultural awareness and cultural safety training, reconciliation, human rights and anti-racism**
- **Essential skills training (ex. reading, numeracy, writing, digital technology)**
- Leadership training
- Unconscious Bias Training
- Communications Training (ex. active listening and conflict resolution)
- Driver's license training

Training Delivery

Discussions on effective training delivery methods included the need for mixed approaches to training delivery and that instructors and trainers need to do more than just 'tell' learners and instead incorporate active learning opportunities. There was a general recognition that training delivery should be responsive to learners and the variety of learning styles.

Figure 16 illustrates that mining industry worker respondents are interested in a variety of training formats, reinforcing the need for flexible and mixed training methods.

Figure 16 Worker Survey Respondents Preference for Training Formats



Within the committee consultations and key informant interviews the importance of providing training in communities was again reinforced as an aspect of training delivery. By training in the community, training can be culturally supported by Elders, community members, and provide other community supports, removing many of the barriers to participation that occur when learners and trainees are required to leave their community to receive training or education. The challenges that are preventing in-community learning were thought to be funding, infrastructure, and access and mobility with regards to bringing equipment and qualified trainers to remote and rural communities.

One key informant from trainers and educators, observed that learning paths remain linear and that a different approach is needed to reflect the diversity in pathways to specific occupations. Also, as technology and innovation rapidly changes the work environment, training materials need to be updated frequently, and refreshed to reflect new ideas and new curriculum design frameworks. For those that have a leadership role in a post-secondary department, it was asked that they influence the way subject matter is taught, and impact those that are curriculum "gatekeepers."

Training Success

As part of the committee consultations, participants provided content on the successful strategies that are currently being deployed within mining training by entering their input directly into Mentimeter. The Golden Triangle sub-committee provided 30 responses, the Women's subcommittee 62 responses, the Indigenous sub-committee 49 responses, and the Training sub-committee 34 responses.

The input can be summarized as:

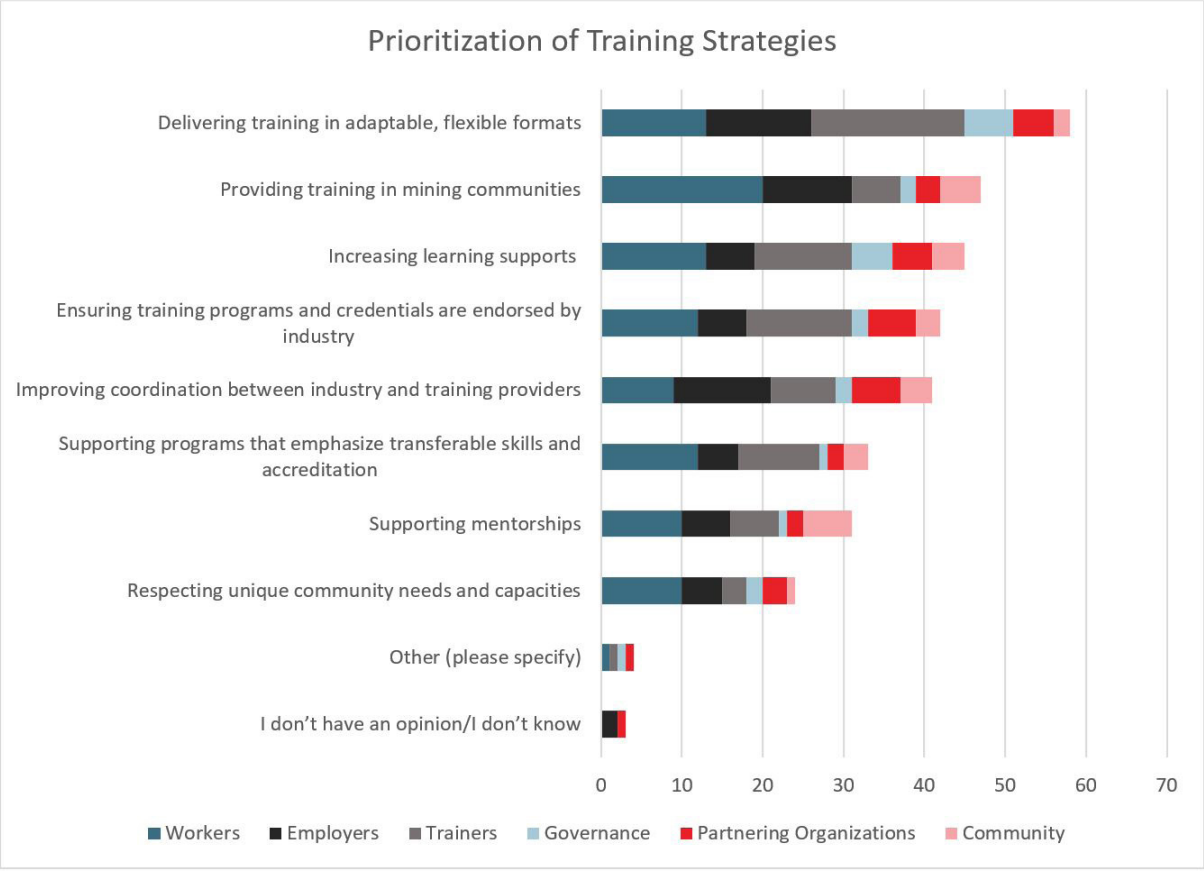
- Training should not be just geared towards the mine site; instead the mine could contribute to training programs within the community it operates in.
- Training should provide a set of base skills that can be supplemented with micro-credentials to allow for specialization or advanced skills.
- Training should be portable within the industry.
- Formulate a training plan at the onset of employment that provides a long-term vision and maps out a career and make it part of the employment contract to show the employer is invested in the employee. It should include essential and soft skills, as well as plans for advancement.
- Training should be tied directly to employment through either long- or short-term contracts.
- Training delivery should be flexible, and courses provided to small groups or one-on-one.
- Provide training within community, offering work gear, providing childcare, reimbursement for travel, and catered lunches.
- Ensure cross-cultural training and bring the social and cultural experiences into training, include Indigenous acknowledgement, local language, and cultural awareness.
- Reach out to local high school students to identify their interests, aspirations, and use that data to develop training programs and opportunities.
- Training with instructors from diverse backgrounds (e.g., Indigenous and women) who have done (or are doing) the job and can provide real-life examples.
- Have a mentorship and support system built into training and ensure long-term mentorship (e.g., frequent check-ins or have an Elder present on site).
- Partnerships between mining companies, Indigenous groups, and training institutions where leadership are supportive and engaged.
- Ability to do training while at site while at work, giving employees a balance between work and family life.
- Diverse learning strategies, field trips, a mix of hands-on (including job shadowing), classroom, and course work. Learning should be fun and have enthusiastic instructors.
- Distance learning opportunities and the chance to share learning experiences in a hub. If a course is online the students need and want the ability to communicate with each other.
- Pre-screen the students to see what their passions are, and fit the training to what the learner wants.
- Ensure that training materials are up to date. Refresher courses should provide additional or new information to materials received in previous training.

The importance of outreach to local schools, and post-secondary institutes was highlighted by both trainers, community leaders and employers. Mining organizations that are larger in size tend to have the resources to connect individuals through more developed liaison roles and activities, scholarships, and research collaboration. It was noted by one key informant that despite being part of a larger well-resourced outreach efforts, there exists a gap in the tracking of the outcomes of partnership with training institutes and the workforce development impacts, including how career outreach is impacting broader inclusion and diversity efforts.

Building Collaborative BC Mining Training Strategies

Survey respondents were asked to reflect on several potential training strategies[9] and select up to three for prioritization for the BC mining sector. Figure 17 shows each of the survey sub-groups (workers, employers, trainers, etc.) cumulative 'votes' for each of the strategies. *Delivering training in adaptable, flexible formats was prioritized by the majority of respondents, followed by providing training in mining communities and increasing learning supports.*

Figure 17 Prioritization of Training Strategies



9 British Columbia Mining Jobs Task Force. (2018). Mining Jobs Task Force Final Report. Victoria: BC Government. Retrieved from https://www2.gov.bc.ca/assets/gov/business/natural-resource-industries/mineral-exploration-and-mining/memp_10535_task_force_report_final-rev.pdf

As shown in Figure 17, when comparing each of the demographic groupings, employers prioritized *delivering training in adaptable flexible formats, providing training in mining communities,* and *improving coordination between industry and training providers. Worker respondents prioritized providing training in mining communities, delivering training in adaptable, flexible formats,* and *increasing learning supports.* Training provider respondents collectively saw *delivering training in adaptable, flexible formats, ensuring training programs and credentials are endorsed by industry* and *increasing learning supports* as the highest ranked strategies. Any mining training strategies will need to consider the various groups who interact with and are impacted by the selection and implementation of strategies, noting the difference in prioritization and perspective.

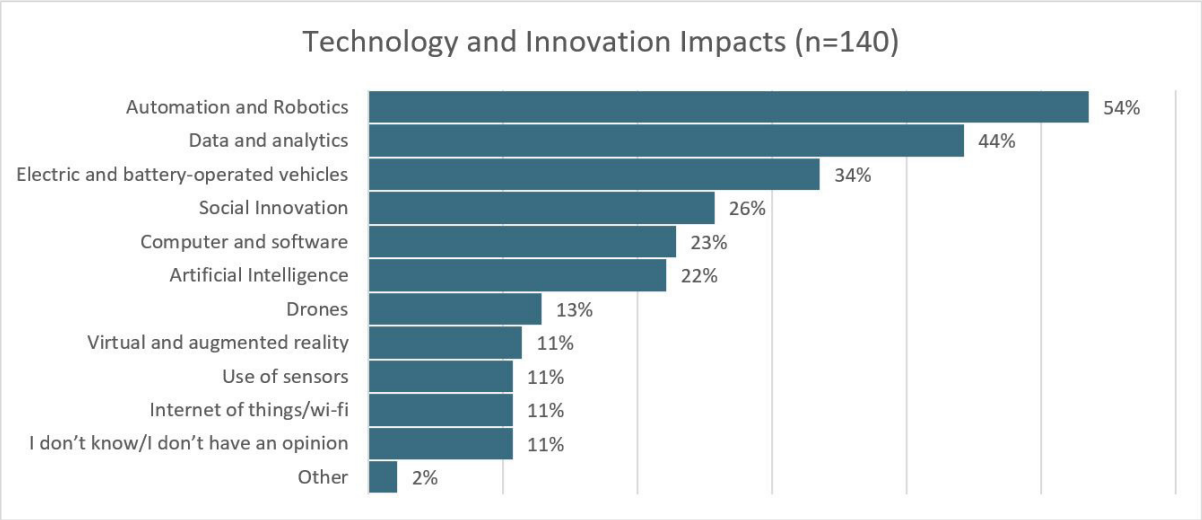
Technology and Innovation Findings

Technology and Innovation

- *How is technology and innovation impacting the mining workforce?*
- *How will developments in technology and innovation impact skills and training needs?*

Survey respondents and key Informant interviewees were asked a series of questions on the impacts of technological and innovation advancement in the mining industry. Figure 18 illustrates the collective responses from the survey respondents when asked *"What aspects of technology and innovation will have the most impact on the future of mining in BC?"*

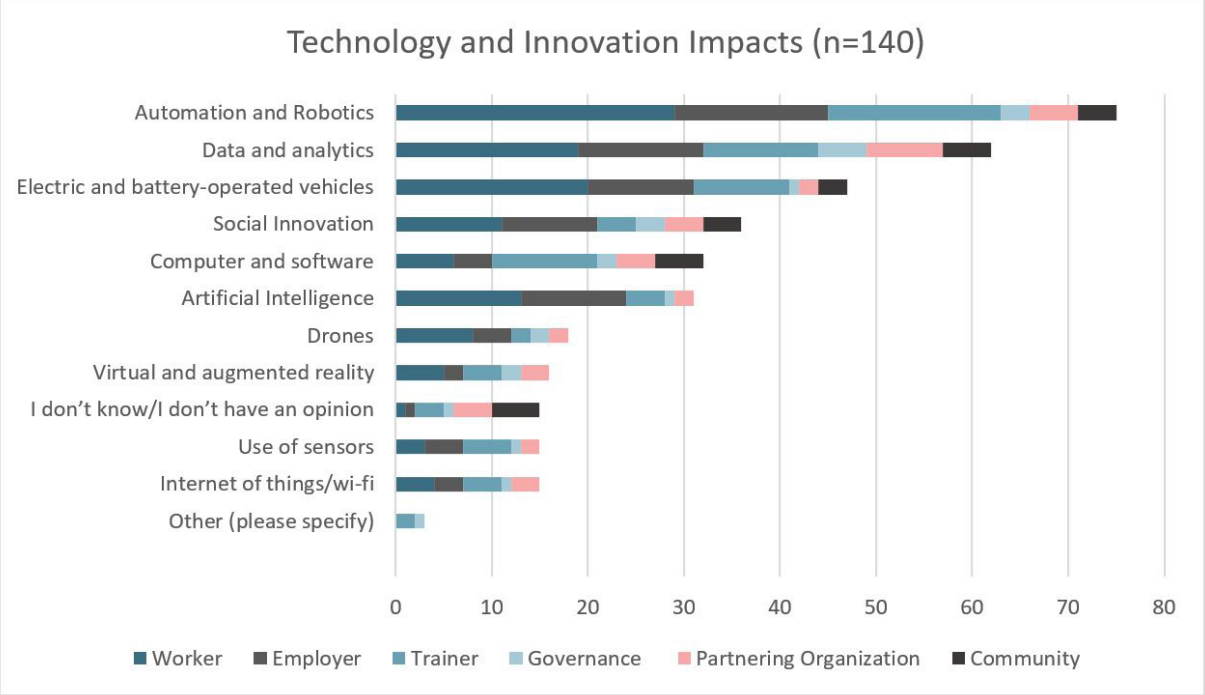
Figure 18 Technology and Innovation Impacts



Over 50 per cent of survey respondents selected automation and robotics as having the most impact on the sector, followed by data analytics and electrical and battery-operated vehicles, then demonstrated a range of different perspectives on the technologies that would have the most impact on the future of mining in BC.

Figure 19 shows the cumulative selections that were made by the different survey respondent groups when asked to select (up to three) technology and innovations that would have the most impact on the BC mining sector.

Figure 19 Technology and Innovation Impacts by Survey Respondent Category



Worker respondents perceived *automation and robotics* as having the most impact on the future of mining, followed by *electric and battery-operated vehicles* and *data analytics*. Employer respondents similarly perceived the impacts but also collectively highlighted *artificial intelligence* as something that will impact the sector. Trainer respondents and partnering organizations also highlighted the impacts of *automation and robotics and data analytics*.

Key informant interviews provided further context on the impact of technology and innovation in the sector, particularly there was an acknowledgement of the reactionary nature of training for new technology. One respondent indicated that if a mine takes on a new technology the support services will adapt to accommodate and train their employees in accordance, but that a collective proactive effort is missing within the sector. Additionally, it was articulated that the workforce development needed to transform the workforce to adapt to new technologies will be dependent on the mine, the resources to implement both the new technology and the subsequent training required.

It was noted that advanced education and training facilities provide space to test and develop technologies but the connection for applying them needs to be made within the field. This provides an opportunity for work integrated learning where learners within the training environment can support the testing of technology within the field, providing value to employers and giving valuable work experience to trainees and learners. Work integrated learning provides a particular opportunity for smaller organizations that may not typically have the resources or capacity to test the application of new and emerging technology.

Participants within the primary research highlighted that technology and innovation do not occur as a separate function, and that integration of technology and innovation is becoming more prominent. They also indicated that technological shifts are becoming increasingly aligned with environmental expectations

and regulations; reclamation through technology and cleaner operations, and the gradual shift towards electric battery operated vehicles. But — they also questioned how current training is keeping pace with the application of new technology and provided the example of machine learning, big data and its current and anticipated application within industry, in comparison with how it is being taught within mining undergraduate courses. There was also a sense from key informant interviewees that students are interested in increasing their technological applied knowledge, and the opportunity to branch out to include broader technological science within mining education and training e.g. Data Science, Computer Science, Micro-biology and Chemistry.

It was thought that as new technologies are taught and implemented, workers and learners will embrace and become increasingly comfortable with these technological shifts and innovations at different paces. For individuals to stay within the industry, and industry to retain what can be sometimes decades of experience, room must be made to process technological change and the impacts on work performed, while supporting the preservation and transfer of historical industry knowledge and experiences.

Environmental, Social and Governance Findings

Environmental, Social and Governance (ESG) Research Questions

- *How are developments in ESG impacting the mining workforce?*
- *How will developments in ESG impact skills and training needs?*

Integrating ESG within the workforce and training landscape is still within the formative stage; the absence of literature and infancy of the discussion on ESG's impact on workforce demands within the sector was also supported by committee consultations. One key informant within trainers and educators group illustrated that while conversations around ESG are formalizing, there is no coordinated approach; reclamation, community outreach, diversity initiatives, and environmental stewardship are all happening, but connecting them and linking them to strategy and outcomes has not occurred yet.

For ESG strategies to be successful key informants saw the need to attract entrants to the mining workforce from groups that may have historically been perceived as outside of the industry. One key informant specifically highlighted the need to attract environmental scientists by building awareness of the need for their skills, and around the environmental practices and values that reflect modern BC mining.

Key informants also spoke about how acknowledging traditional Indigenous skills (e.g. trapping, fishing, and hunting) is aligned with the environmental and social stewardship movement within the sector. These traditional skills provide both a high level of essential skills that mining has always valued; working safely with equipment, troubleshooting and adapting to the environment, while also emphasizing the significance and importance of the environment and the community.

ESG Reflections from Project Committee Consultation

As part of the committee consultations, members were asked to provide their perspective on the impacts of ESG and its challenges. Committee members provided responses to the following questions using the Mentimeter tool.

What are the challenges of the evolving landscape around environmental, social and governance values?

The Golden Triangle sub-committee provided 28 responses to this question, the Women's subcommittee 41 responses, the Indigenous sub-committee 31 responses, and the Training sub-committee 38 responses.

These can be summarized as:

- The landscape is always changing and evolving, and it is difficult to keep up.
- Implementation and concepts of ESG in the industry are poorly understood. There is a lot of misinformation about how it applies and what it means. There is also an imbalance; often the social aspect is not considered as important as the environment and governance.
- Resistance to ESG is often due to resistance to change and to extra cost. There is reluctance of managers to change their way of thinking; still incredibly 'old school.'

- ESG performance needs to be tied to corporate compensation packages; as much as production and share price.
- The 'Old Boys Club' needs an override; there needs to be more diversity and inclusion at the board level, certainly with increased participation by women and Indigenous peoples.

What are the opportunities of the evolving landscape around environmental, social and governance values?

The Golden Triangle sub-committee provided 20 responses, the Women's subcommittee 25 responses, the Indigenous sub-committee 18 responses, and the Training sub-committee 24 responses.

These can be summarized as:

- There is a chance to build stronger relationships; ESG is helping to understand different perspectives. Relationship and rapport building are required to assist more skilled and qualified people and to allow active participation in reclamation and closure activities.
- Meaningful adoption of United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and Free, Prior and Informed Consent (FPIC), a specific recommendation outlined within UNDRIP, will help build joint decision-making pathways and teach how to listen to each other, and come to conclusions together.
- There is a chance now to build awareness of ESG as the three categories are intertwined, rather than separate entities.
- Training on ESG could be introduced into schools and existing training programs, and outreach on ESG to educate the public.
- The social aspect of ESG needs to be embraced so that communication and community skills can greatly improve.
- ESG offers an opportunity to move Indigenous workers into management-level jobs.
- Industry can now develop standards and clear metrics to measure and audit ESG its performance.
- It was felt by all that there needs to be a true commitment to change.

The BC mining sector does not operate in isolation and that the industry has lasting impacts on the lands and communities in which it operates. As outlined in the literature review and environmental scan, the BC mining sector's focus and large-scale adoption of ESG practices and metrics is gathering rapid momentum, as financing and access to capital increasingly has ESG measurements and metric requirements. At the same time, the industry is developing its understanding of ESG and how the adoption of ESG standards and expectations will impact the skills and training needs within the mining workforce.

There are challenges; the sector must reconcile with a legacy of negative environmental and social impacts and continuously work to improve outcomes and reflect the shifts in social and governing expectations. A strong place to start is building on successes in ESG in relation to organizational, training, and community focused strategies and by focusing awareness on the positive training and workforce outcomes that result from these actions. Similarly, industry can learn from rural and remote Indigenous and non-Indigenous communities that are governing from a place of environmental stewardship.

Additional Feedback from Survey Respondents

In closing, the survey respondents were provided an open comment box for additional feedback and comments. The richness of the data and suggestions provided are presented here in full to preserve the intent of the suggestions and to be carried forward to the development of the strategic roadmaps.

Broadening Inclusivity Efforts Within the Mining Sector

- We are talking about women and Indigenous peoples here, but never/rarely do we ever have this discussion about gender non-binary, trans, or LGBTQ etc. members of the workforce.
- It is critical that appropriate training opportunities are made available to, and taken up by, the broadest possible cross-section of society. Demographic changes in BC and Canada over the coming years mean that we, as a society, must take advantages of all our human resources - we cannot let any historically disadvantaged groups slip through cracks if society is to continue to prosper in the future.
- Diversity will be key. You cannot solve a problem based on the learning model from which the problem was created. Skills and training considerations will need to develop from new perspectives.
- Promises for Indigenous involvement need to be met.
- Please stop showing people, particularly women and minorities, in pristine PPE vests and/or overalls.

Resource Allocation that Targets and Benefits Mining Communities

- Build infrastructure within the communities affected by the mine(s). The ability to live in a camp setting and fly to and from work has drastically affected the communities.
- Government funding to be automatic for education centres on an annual basis, and multi-year funding.
- We need more foodsafe and other training in our community - Dease Lake.
- Engage our youth. Hands-on training. Come to our community.

Timely and Responsive Collaborations – Industry, Training and Communities

- More collaboration between industry and training facilities. Ensure training at worksites is consistent and thorough - not just 'checking the box.'
- The industry is changing as fast as any industry in the world. Training providers must keep current to industry practices, standards and technology.
- Improving training access is critical to being able to engage more learners. Online courses that allow learners outside of the lower mainland would be of benefit - we started that almost a decade ago with BCIT; students need co-op placements to be able to get their foot in the door for employment.
- I think some real thought needs to go towards to the cyclical nature of the industry. Perhaps money made during mining booms could be allocated to support historic remediation projects in the downturns.

- It is changing, and I am proud to be a part of it - but we need to change faster.
- Mining companies and government will need to invest money to assist educators to keep up with rapid technology changes.
- Glad to see this work being done.
- Lots of improvements over the years but a long way to go for the best interests of the industry and those employed in it.

Impactful Career Awareness and Industry Branding

- Need to ensure that mining careers are being promoted as a path for growth and support for community and families, and does not have to have detrimental impact on environment when done properly, with skilled conscientious career-minded people.
- BC Mining is one of the leaders in innovation for training and inclusion that I have found through my information exploration, other industries should learn and follow BC mining's lead.
- Information should be given out at the secondary school level to highlight opportunities to youth.
- Appeal to the younger generation and what is important to them. Demonstrating there is a pathway to advance their career, for them to feel included and to have an impact on the outcomes.

Expanding Current Industry Training Strategies

- Trades training, and remote learning.
- A broader scope of training should be provided - not just the types of jobs you do every day, but other types of jobs/tasks that an employee might like to try in the future.
- Matching training with available positions is key to having success. Participants need to know there will be something available upon successfully completing the training.
- Safety practices must be integrated into every facet of training program to become part of the culture.
- Literacy and essential skills are key to utilizing the Aboriginal (Indigenous) workforce.
- Consider strategies beyond training from scratch, and BC focus only. Then it can be more like an on-boarding focus. Who wants to move and do those jobs and for how long? Get in touch with people who leave the industry for more clues. Or ask people in the industry about people they know who have left (many of us have), to understand the tipping points.

Next Steps - Skills, Career and Training Roadmaps

Widespread representation, on committees and in survey participation, has provided a wealth of data to help inform and ground the research of the CTEM Skills Roadmap Project. Information on the skills required for mining sector careers, the barriers to greater inclusion – both currently and in the future, and the training required to help prepare the workforce, will now inform the development of 18 skills, career and training roadmaps.

These roadmaps will serve as important resources for anyone looking to enter or progress within the mining sector, and readers can know, with confidence, that a multitude of employer, training and community partners have played a significant role in helping to shape and inform the contents of these roadmaps.

The next six months of this project (July through December 2021) will focus on the development of these tangible materials aimed at encouraging a wide range of workers into the mining sector and to support employers in meeting their current and future workforce needs, as well as supporting education and training providers to continue to refine and develop their curricula to meet the changing needs in this dynamic sector.

The roadmaps will be inclusive and representative of diverse perspectives, and reflect advancements in technology, innovation, and environmental, social and governance responsibilities. Each roadmap will be presented in infographic form, and will use plain language, allowing a wide audience to understand the information without prior sector experience. The roadmaps are focused on the topics of skills, careers, and training.

Skills Roadmaps

A total of five Skills Roadmaps will be produced, including:

- Skills required in the mining sector workforce, both currently and in the future, including technology, environmental, social, and governance skills.
- Identifying unrecognized skills in the workplace, focusing on transferable skills.
- The evolution of training and skills recognition for current workers.
- The evolution of training and skills recognition for students and potential new workers.
- The recognition of barriers and potential solutions to them, focusing on barriers faced by women, Indigenous peoples, and people in rural communities.

Career Roadmaps

A total of 11 Career Roadmaps will be produced, including:

- One infographic that provides an overview of jobs available in the mining sector both currently and in the future.
- Four infographics on technical jobs available in the mining sector both currently and in the future.

- Four infographics on environmental and/or community jobs available in the mining sector both currently and in the future.
- Two infographics on management jobs available in the mining sector both currently and in the future.

Training Roadmaps

A total of two Training Roadmaps will be produced:

- Technological (e.g. computer and software, information technology operations, and virtual / augmented reality) training that is available today and will be needed by the mining sector workforce in the future.
- Aptitude (e.g. communication, teamwork, collaboration, problem solving, and creativity) training that is available today and will be needed by the mining sector workforce in the future.

Methodology

Consistent with a Participatory Action Research approach, the roadmap process will rely heavily on feedback and continuous refinement from project committees. Specifically, information gathered through the various research and engagement methods leading up to this point – environmental scan and literature review, committee participation, surveys and key informant interviews, respectively, has been collated to provide a foundation for the development of the 18 roadmaps.

The previous four project sub-committees will reshuffle – creating three new sub-committees for each roadmap topic: skills, careers, and training. It is anticipated that each sub-committee will include representation from regional, community, employer, education/training provider experience, as well as representation from Indigenous workers, governments and service providing agencies and women workers in the mining sector.

Each roadmap sub-committee will work with project consultants to shape and refine these important documents, and to ensure contents and form are consistent with the project.

Accompanying Roadmap Reports

Each category of Roadmaps – Skills, Career and Training, will be developed along with an accompanying report that explains the infographics and elaborates on key themes and findings found in the literature review, environmental Scan, and this key findings report.

APPENDIX

Appendix A – Committee Consultation Participation and Survey Definitions

Table 5 Summary of Committee Participation

Type	Date	Number of Participants
Project Governance Committee	January 14, 2021	26
Training Sub-Committee	January 25, 2021	29
Regional, Golden Triangle Sub-Committee	January 26, 2021	21
Indigenous Sub-committee	January 27, 2021	25
Women Sub-Committee	January 27, 2021	38
Project Governance Committee	February 19, 2021	21
Training Sub-Committee	February 22, 2021	28
Regional, Golden Triangle Sub-Committee	February 23, 2021	21
Indigenous Sub-committee	February 24, 2021	18
Women Sub-Committee	February 25, 2021	30
Project Governance Committee	May 19, 2021	22
Training Sub-Committee	June 1, 2021	18
Regional, Golden Triangle Sub-Committee	June 2, 2021	18
Indigenous Sub-committee	June 3, 2021	16
Women Sub-Committee	June 4, 2021	21
Project Governance Committee	June 22, 2021	19

The following outlines terms and definitions that were provided to survey respondents in the introduction of the survey.

BC Mining Industry – organizations or individuals that work on some aspect of the mining life cycle within BC, including exploration, extraction, and processing of minerals and metals; closure; and restoration of mining lands; and organizations or individuals which support these activities through consultation or other service offerings.

BC Mining Community – all communities in BC are considered BC mining communities – as the BC mining industry impacts and connects with communities in all spaces and places within the province.

Training – the act of sharing knowledge or information specific to a topic.

Skills – a learned ability.

Competencies – the qualification of ability to apply a combination of skills and characteristics to do a specific task.

Environmental, Social, and Governance – the three central factors in measuring the sustainability and societal impact of an organization.

Diversity and Inclusion – Industry and community practices, initiatives, and policies that support the engagement, development, and retention of a diverse and inclusive BC mining workforce.

British Columbia – a geographical boundary that defines the Province of British Columbia as the most westerly province of Canada.

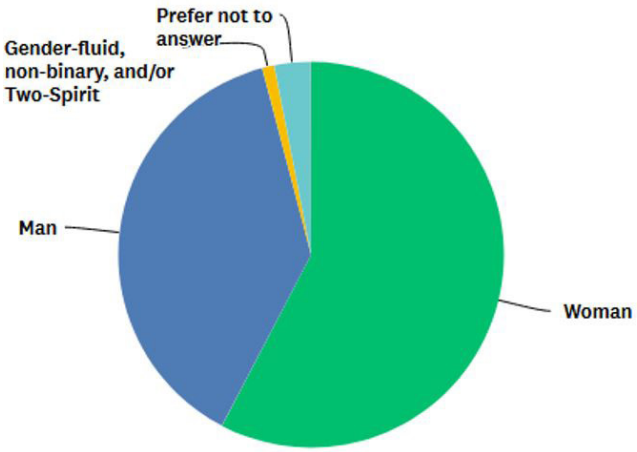
Golden Triangle – a geographical area located in the northwestern part of British Columbia that is mineral-rich in gold and other minerals - it is within the North Coast and Nechako region of British Columbia near the areas of Stewart and Dease Lake. The Golden Triangle region is predominantly located within Tahltan Territory and Nisga'a Traditional Territory (the Nass Area). The Gitanyow Lax'yip, Gitxsan Laxyip, Metlakatla, Tlingit and Kaska Traditional Territories have also been identified as Territories that may be impacted as a result of exploration and mining activity in the Golden Triangle.

Appendix B – Survey Respondent Demographics

Figure 20 Survey Respondents - Gender Identity

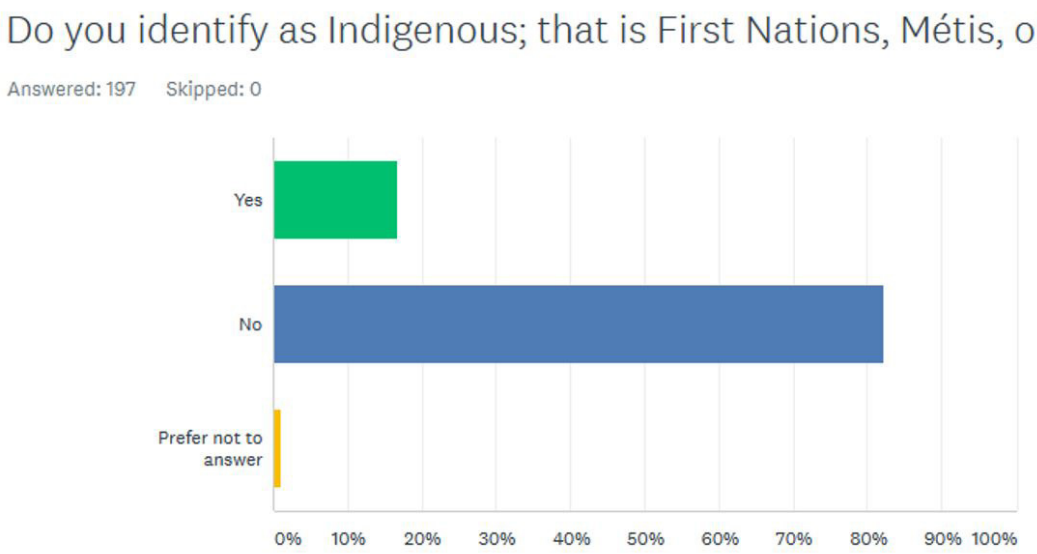
Gender: Select the option you identify with? (select one)

Answered: 196 Skipped: 1



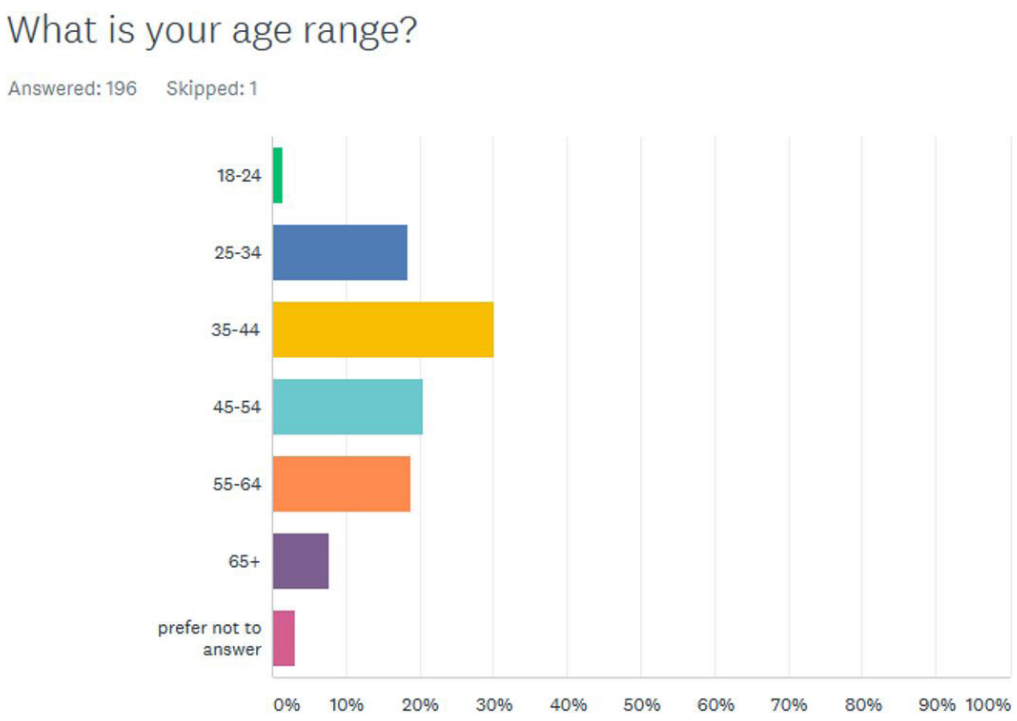
ANSWER CHOICES		RESPONSES	
Woman		57.65%	113
Man		38.27%	75
Gender-fluid, non-binary, and/or Two-Spirit		1.02%	2
Prefer not to answer		3.06%	6
Prefer to self-describe	Responses	0.00%	0
TOTAL			196

Figure 21 Survey Respondents - Indigenous Identity



ANSWER CHOICES	RESPONSES	
Yes	16.75%	33
No	82.23%	162
Prefer not to answer	1.02%	2
TOTAL		197

Figure 22 Survey Respondents - Age Range



ANSWER CHOICES	RESPONSES	
18-24	1.53%	3
25-34	18.37%	36
35-44	30.10%	59
45-54	20.41%	40
55-64	18.88%	37
65+	7.65%	15
prefer not to answer	3.06%	6
TOTAL		196

Appendix C – Survey Responses - Skills Required for the Future BC Mining Sector

Survey responses received to the question *"What other skills will be important to the future of the BC mining sector?"*

Computer Skills and Digital Literacy

- Typing, Word, Excel, Outlook.
- Technical skills - using computers, macros, excel, data visualization tools communication skills.
- Computer science skills, programming, and Artificial Intelligence (AI).
- Anything related to increased digitization and automation.
- Technology.
- Data analysis.

Trades and Technical Expertise

- Increase in all Red Seal trades.
- Technical underground mining and exploration, as this is where mining is going in BC, and we have very few local resources with this skill set.
- Equipment operation.

Lifelong Learning

- Professional development post-hiring.
- More on the job training.
- Ability to upskill.
- Communication, and a commitment to lifelong learning.

Transferability of Skills

- Opportunities in anthropology, social sciences.
- Technical skills and competencies, the ability to transfer knowledge from another technology related education or experience.
- Resource management.
- Drive, ambition, work ethic.
- Data analysis.
- Safety awareness.
- Critical thinking.
- Macro level competencies which will result in the advancement of complementary and associated competencies. These fall in the realm of transferable soft skills, and they are numerous applied

skills required to support the sector.

- Spatial awareness.
- Human factors.
- Leadership and mentoring skills.
- Adaptability – training to take on stretch roles will make future employees more comfortable with taking on new roles in an evolving workplace.
- Progressive thinkers.

Essential and Life Skills

- Financial literacy.
- Work/life balance training (goal setting, financial literacy and wealth creation).
- Driving skills.
- Essential skills.

Indigenous Cultural Awareness and Competence

- Cultural awareness/competence, human rights etc.
- Cultural awareness, human rights, anti-racism, holistic remediation practices, judgement and decision making, social capital.
- Reconciliation.
- Recognition that more can and needs to be done to enhance the Indigenous participation in the mining sector, but also supporting the other industry sectors in the area.
- Knowledgeable in local First Nations IBAs with mines in BC.
- Emotional intelligence – cultural awareness and reconciliation.

Equity, Diversity, and Inclusion

- A diverse work force.
- Acceptance of all people.
- Resolution.
- Teamwork.
- Accepting that times are changing and being able to think outside the box to either come up with solutions or to accept that people lead different lives and may need specific accommodations that will not apply to you.
- Equal pay scale.
- Willingness and openness to various perspectives – there is always more than one way to achieve results.
- Social skills – not only cultural awareness/competence, but things like how to empower your fellow women and people in your workforce. Help every person succeed.

- Working with people who are bettering their life and on certain medications to stay clean and sober.
- Ethical behaviour.
- Communications to broad audience diversity and inclusion - how to accommodate jobs that will have a diverse group or how to improve current working conditions - (e.g. mechanical aids or robots for sampling rather than people)

Environmental, Social, Governance (ESG)

- Understanding and adhering to government regulations.
- Industry social brand – being able to balance the history of the industry with an evolving view of the worker motivations.
- Garnering community support through ensuring financial and employment benefits flow to local people and Sound Environmental Stewardship to eliminate negative impacts on other land users.
- Environmental understanding, policy development, technical skills (science and computer).
- Community collaboration skills.
- Exploring for 'green' metals and ESG.
- Environmental awareness should be a requirement for all employees. Not just awareness, but buy-in from managers, supervisors, and on-the-ground employees. Mining needs to be responsible.
- 'Green' technological knowledge, collaboration, communication, whistleblowing.
- Environmental Stewardship.

Communication

- Communication.
- Active listening.
- Communication.
- Communication and reporting.
- Writing skills.
- Conflict resolution.
- Interpersonal relations.

Appendix D – Survey Responses – Diversity and Inclusion Questions

The following responses have been downloaded from the survey platform and represent the complete verbatim responses as provided by the survey respondents.

What Barriers are Indigenous Peoples Facing?

RESPONSES
Racism!
Education, training, providing childcare, transportation, lack of opportunities for career growth, promotion
Hard to say as I am not indigenous, but suspect many barriers to do with education - related to need to complete high school.
training and leadership opportunities
Stereotyping, racism.
Skilled positions. Educated positions.
Stereotypes and assumptions, lack of training opportunities, lack of advancement opportunities, not enough effort to create safe and welcoming workspace
inability to travel for work, access to childcare, education opportunities, access to co-op or internship opportunities, unable to be away from family for long periods of time, access to education, access to job search tools, bad experiences at work, opportunities to gain required experience to get foot in the door, being discouraged by friends/family/classmates to pursue work in mining
poor public education causing issues with numeracy and literacy, a fit-for-labourer mindset in mine executive/management, not enough examples of Indigenous leadership, family social issues compounded by mine-site FIFO work, cost of travel and loss of income associated with accessing training programs. Poor internet to most Indigenous communities.
Cultural barriers and, at times, the requirement for pre-requisites.
Access to training
Lack of education
Overcoming stereotypes and access to education and training.
re-location for education
Access to education on the mining industry (why is mining occurring on their land); access to remote sites (do they access to transit to site); acceptance into non-labour roles.
Access to training
Stereotype, economic

Pre and post supports for success. Greater emphasis should be placed on pre-skills workshops, prior to entering the formal training, as well as continuous formal mentoring throughout study and post completion.
Deep, old, frustrating stereotypes that have maintained systematic racism, particularly for Indigenous women. With differences between cultural business and personal interactions many non-Indigenous people seem to think it's too hard to figure out how to work with and support Indigenous people in mining and in Canadian daily life.
I have read that indigenous peoples are under represented as employees in the mining sector.
Accessibility, training, education
Stereotypes about work ethics, not enough flexibility
Location of education Cultural differences
training
Lack of opportunity for technical education and work roles as well as an non-inclusive atmosphere at the work site. Often minorities will be asked to take on extra, un-paid roles to assist with diversity and inclusion initiatives which leave them little time for activities that would help them actually advance their career.
location of training, suitability of training
-Lack of access to training institutions, computers, social supports, transportation
institutional, social and educational
perception about reliability
Internal barriers
Lack of Education and training
Training, meeting minimum qualifications, drivers' license requirement
Education, discrimination
technology, travel
Distance - financial burdens to get out and obtain training - some companies are very stingy with apprenticeships
Grade 12. Training Companies in the school train the youth Work clothes $$
None - they are able to access and complete any training programs they want to, basically for free.
I am not sure but believe opportunity and access to the location where this training is offered. You have to leave and go to a city to obtain a higher level of education.

Lack of communications infrastructure (cell service, broadband internet, computer access). Lack of drivers' licenses and/or access to vehicles. Lack of exposure to industry expectations and requirements (can be very different from cultural expectations). Access to continuous health care.
Isolated nature of Indigenous communities relative to training centres. Disconnect between rights within one's traditional territory and/or reserve, and the fact that mining jobs require relocation and mobility in a way that could alienate an Indigenous person as they do not have the same rights in other areas.
Need to travel outside community, ability to travel within community, funding, limited computer knowledge, limited ability to function in a classroom setting - compared to outside or hands-on training
Notification at the Band level about the opportunities out there.
Starting levels of education from the public system. Distance and network connectivity, capital investment and density of population. perceived or real threat to traditional lifestyles. Cultural insensitivity, glass ceiling into senior positions
Lack of essential skill training, having to relocate from home communities to obtain training, different cultural values
shortage of mentors and champions; lack of recognition of Prior Learning ; workplace culture that is not inclusive
Access to apprenticeship programs is a big challenge.
Lack of understanding of the career path, difficulties accessing employment, transportation issues
Mentoring
It appears that the roadmap to jobs in the mining sector is not well known within the industry (BC AMTA was a good model when it existed).
opportunity for experience cultural stereotyping, lack of understanding of cultural needs remote living location, less access to the office
training
Essential and work readiness skills - ie digital literacy
Indigenous are divided and conquered by corporations and governments, instead of encouraging synergies there is exclusivity pushed on local groups.
no drivers license, frequent family demands to be at home
Lack of essential skills - digital literacy - access to infrastructure and equipment
Access/bandwidth
Many barriers to gaining employment then some are subjected to racisms

education systems that are basic to large, metropolitan areas cannot be duplicated in smaller communities. A high school graduate from a remote community does not have the same educational experience, and hence competency, as many others. This affects the level of entry level capacity that a learner presents in training.
meeting initial entry requirements (e.g. high school diploma; drivers license)
Lack of formal education in Northern communities
Lack of education
Not having the required technical skills and/or education.
Non at our operations
Limited opportunities to naturally network due to geography, less formal training and access to training
Challenges adapting from a remote lifestyle living in an indigenous area to mining jobs. Can't adapt or been brought up with the proper skill set to succeed.
Living in remote barriers often with you families makes training for advanced skills difficult.
skills, access and knowledge to create resumes
Systemic racism. Access to education and training.
Want everything with lack of knowledge.
Education on the opportunities available and a willingness for mining companies to invite to understand the layered history and frustration.
educational and training
The same as non-Indigenous. Literacy, opportunity, lack of locale training facilities
not qualified to respond to this
Bias, prior education, access to training
Access to higher education (geography - no internet access or too far to drive/relocation).
Accessibility and visibility, lack of trust/awareness
No access to informal networks
Lack of training, education, discrimination, channels for rights complaints
Remoteness of work locations Understanding and appreciation of cultural differences
Shortage of information in schools about the opportunities available in the Mining Industry and a shortage of local access to Education & Training facilities and opportunities
Access (geographic, cultural, cost) Awareness

Grade 12 and Driver's licence
Lack of ability to build capacity. Education opportunities
Upgrading, wellness, transportation/accommodation, racism, funding
stigma
remote work, lack of transferrable skills
Training programs for skilled jobs within the mining industry.
Racism - people only wanting to hire indigenous people to check a box. They are given very entry-level, labor-intensive jobs as they aren't given the credit to achieve more.
?
Not knowing who to apply with not having skills or certification
Employee satisfaction, pension contribution through employer,
Lack of education/training opportunities due to rural and remote locations. Lack of programs that take holistic approach - mental health, social determinants of health addressed.
education and skills
Lack of: Literacy, education and training, cultural differences, experiences in:
racism/discrimination/stereotypes, poverty/housing, transportation, childcare, driver's licenses.
I've noticed some have difficulty with life skills adapting to fly-in / fly-out work rotations.
Education for higher grades closer to home
Access to in-community informed career planning supports and resources; access to regional based applied training; access to active mentors. From a skills training perspective supports to enter or re-enter higher learning, access to transportation, for some learners supports to map and coordinate daily logistics re: childcare, access to consistent sources of food to fuel the body so vital when completing comprehensive training programs, and transportation. For some learners there may be a need to access preparatory courses and training in advance of engaging in comprehensive mine training.
Stereotype, remoteness, lack of infrastructure in rural communities, lack of networking.
Poor educational background, little exposure to STEM subjects
Racism and unconscious biases
Training and trust
Lack of respect for Indigenous knowledge and protocols.
Lacking Essential skills required to safely perform duties and for career progression/opportunities
funding

Isolation, lack of access to WiFi and cell service. Cultural barriers. Poor access to secondary and post secondary education. Lack of knowledge about mining careers and opportunities.
Need for academic upgrading Need for mentoring Unwelcoming workplace culture Stereotyped perception
Technology for accessing education; training program too far from home; training program doesn't appear relevant.
Lack of STEM Education that leads to the professional careers in exploration and mining
Geographic, financial, mentoring, education
Financial barriers (affordable, quality training) -Educational barriers (do not have the pre-reqs for further education -Geographical barriers (live in remote communities, a great distance away from colleges and universities) -Social problems and/or alcohol, drug use, lack of self-esteem -
Lack of transportation and in many cases, no driver's license
Old boys club culture is still existent. Until this changes they will always face challenges.
If it is about them, I'd suggest asking them.
Difficulty in getting a drivers license, difficulty in obtaining certifications, difficulty utilizing technology applying for jobs, a lack of understanding of how to apply for jobs.
Opportunities to gain experience, education, and racism.
Perhaps feeling like they have to let go of their values to feel more included.
For advance education (i.e. Mining Engineer), the difficulty is qualifying for entrance into a University program. The pre-requisites are often neglected at the high school level and then must be made up through remedial course work which is challenging while trying to make a living.
Isolation, poor communication within indigenous Nations. Lack of Education and Educational
Opportunities. Lack of Introduction to Mining Career Choices
Education, Isolation, Poor Communication From Nations and Industry
racism, discrimination, psychological abuse
Pre-requisites to be considered for training/employment Drivers Licenses Proximity to work sites Access to Training Broadband access Cultural stereotypes Appropriate role models
right training in the areas needed in their local region.
transportation (lack of driver's license), no high school completion, access to childcare, need training in their communities, lack of role models
Pre-conceived notions about ability, education. Negative assumptions are made about their reliability and ability.

What Barriers are Women Facing?

RESPONSES
Racism!
Lack of opportunities for career growth, promotion
I think the issue for advancement or involvement of women in mining needs to consider ensuring women are supported in STEM, then the opportunities for advancement in mining would be more attainable.
mentorship and leadership opportunities
Glass ceilings. Seems to be a supportive professional environment for women up to a certain point.
Old boys club mentality at the top.
Assumptions, lack of advancement opportunities, inequity, not enough effort to create safe and welcoming workspace
Stereotypes, no understanding by other colleagues on women requirements like pregnancy, mensuration
inability to travel for work, access to childcare, opportunities to gain required experience to get foot in the door, being discouraged by friends/family/classmates to pursue work in mining, bad experiences at work.
Generally it is men making decisions at the top of the company organization chart and they make decisions to support and promote other men. Men think the gender participation issue is a "woman's" issue. Lack of understanding that there are still barriers- some senior leadership think that the issue is over. Woman, because they make less in their jobs, are often defaulted into being the "primary parent" and thus, default themselves out of career promotion to support the men. Training programs are often dominated by male participation, devaluing the female training experience.
Huge pay gap, less opportunity for advancement, need to constantly prove knowledge. Don't feel as though my knowledge is trusted
Stereotypes
Misogynistic attitudes from old senior management and widespread discrimination from uneducated HR departments.
No day care to work full time
Workplace culture, unequal pay
re-location for education time for education child care/ emotional support for children if women have to work in remote locations mentoring/professional development plans on the job or work time available for higher education unconscious bias from male counterparts, especially if women are also mothers
Acceptance in to labour roles; stereotypes of attitudes and emotions.

Old mentality mining
Stereotyping, putting career on pause for childcare,
Lack of support systems to alleviate financial and family responsibilities.
Deep-seated financial barriers such as women earning less for equal work, often due to no transparency in pay. Stereotypes that women are supposed to be in lesser roles than men.
Little or no support for women with families. Little in the way of repercussions when complaints are filed due to harassment.
I have worked previously in a coal storage/shipping facility, I did not feel that there were any barriers to me. I was paid a fair wage the same wage as a man in my position. Offered training / courses to advance my career.
Accessibility, leadership, role models
Men scared of the MeToo movement, not enough sponsorship, hangover of women being viewed as bad luck in mining
Not feeling welcome Not advertising to women
its hard work so few women are drawn to it
Lack of work assignment opportunities particularly related to remote locations, undervaluing of office work with respect to how management and government values the work product and a non-inclusive atmosphere at the work site. Most jobs in this industry are placed through networking, which women are often excluded from due to the prevalence of alcohol and the feeling of not being safe attending those events, family responsibilities, and non-inclusive atmospheres at social events. In addition most women take on extra soft-skill rolls which often leave them no time to pursue programs that help them advance their career.
Advancement, unconscious bias, pay discrimination
miss out on opportunities because many roles seen as 'men's roles'
Lack of child care, social supports, supportive spouses, transportation, confidence
institutional, social working at remote sites
old boy´s network
not up to the hardships, outsiders in male dominated industry
None
Lack of accommodation for families, mothers
Don't know
lifestyle supports for education and training, sexism, camp life stereotypes, lack of local mentors

Mining is generally a non-traditional industry for women and as such women are often a visible minority
shortage of mentors and champions; affordable access to child care; available information on availability of training; career options training
Childcare remains a major barrier.
Challenging to work in a heavily male dominated workplace. Lack of understanding of the career path
Mentoring
It appears to be less acute than it was 15 years ago, but the field season vs. non-field season dichotomy has been a big barrier for new and/or aspiring geoscientists.
lack of community lack of opportunity and trust from Management higher hurdles to prove capabilities and commitment to the company.
preconception
Male dominated and oriented training groups
difficulty working in the field when children are very young.
Awareness of the industry.
Masculine environment, lack of mentorship
breaking into the industry - industry does not seem to have confidence in women's skills for the most part
Harassment, informal biases, social stigmas and missing role models/mentors on the large scale. Day care and child support during the career development stages is required to support independence.
social barriers, societal expectations of gender roles
Sexism, discrimination
family, all male workforce
The same old gender inequality but it is changing for the better
Training Grade 12. Daycare Funding
Women are able to access and complete any training programs they want to. However, some areas of mining still have the "old boys' club" mentality toward women in the mining sector and there are instances of harassment because of this. Overall, this attitude is changing as a younger generation moves up in the work force.
We are starting to see more women represented in mining but it is not a uber friendly industry given the "old school" mentality of the folks that have been around for a while. But they are retiring or not and have more influence then they realize. Also camp facilities for women can be challenging.

Lack of support for childcare and/or family support, particularly gov't directed policies for all employers so that everyone knows how to make this actually support happen. Challenges around accommodating travel and fieldwork when children are younger. Feeling safe in a maledominated and/or isolated workplace (camps in particular).
Culture, particularly at the senior management level in the mining sector, is a boys' club and misogyny - both explicit and more subtle - is rampant. Having a family can have serious impacts to a woman's career as industry does not, in general, provide supports (like maternity top-up) or secure positions or promotions for women who plan to go on leave.
In addition to above; childcare, homecare support,
Some people still believe women should be at home and not in a mining world
lack of facilities (dry)
Old and outdated stereotypes.
Non at our operations
Challenging employment conditions with respect to families and therefore limiting career progress, i.e. remote work. Less women in STEM and trade programs in general
Misogynist behavior and primarily men in the mining business.
Skilled trades are almost exclusively male.
bias held by most people offering the roles
Male dominant culture of entitlement and double-standards.
I have no idea
Gender-equity efforts move too slowly.
stereo typing
Opportunity, labs, history and at times it can be perceived as "Mans Job or Mans world"
more barriers exist in the field and operations where mid-level management is not sufficiently trained or compenent to make inclusive workplaces
Bias, concern about workplace, lack of sponsorship
Worklife balance, working the roster cycle, many weeks away from home. Stigma about the mining industry being awful/bad for the environment, rough and unsafe
Advocacy networks, meaningful assignments that align with home life
No access to informal networks
Discrimination, confidence, channels for rights complaints

Unfortunately, remote locations Cultural shift or focus - generally those seeking to fill position with a women, it is generally someone they know. Branching out from their network
Women face similar barriers
I don't see any barriers here. Women have a reputation of being excellent equipment operators.
Access to flexible and informed career planning supports and resources; access to regional based applied training; access to active mentors. Access to supports to coordinate childcare, household responsibilities, while honing time management skills and preparing for the transition into higher education. For some learners there may be a need to access preparatory courses and training in advance of engaging in comprehensive mine training.
Stereotype, traditionally mining has been viewed as a male career.
Work environment might be unwelcoming.
Sexism, misogyny, and unconscious biases
Training and trust
Lack of childcare support.
1) Perceived as being less productive or less capable than their male counterparts. 2) ability to dedicate time and resources to attend training programs. Pressures of home life versus starting a career.
Funding
Childcare for shift workers and camp life. Poor understanding of mining careers and opportunities.
Unwelcoming workplace culture (harassment, exclusion) Perceptions of competence
Unsupportive workplaces (accommodation for family needs)
Time to commit to a long-term program. Programs should be packaged into small increments that people can make time for.
Unknown
Sexism, work life balance, flexible schedules, recruitment, women mentors, equal pay
Many of the same barriers as identified in question 17 including: -Lack of childcare -Lack of support from their partners and/or other family members -Family responsibilities including assisting elders -Community responsibilities (assisting with funerals, feasts etc.)
Old boys club culture is still existent. Until this changes they will always face challenges.
Retraining to pivot midcareer is not often available. Most is focussed on new entrants. As well, midcareer women may not be able to afford to take time out to retrain, because of loss of income.
Same as indigenous people but include pressure to stay home and difficulty in personal relationships working in a mainly male workforce.

Opportunities to gain experience, and sexism.
Similarly, women may feel they have to be more like men, in order to buy in to the culture. Also women are expected to make do in camp situations.
Perceptual barriers as to the ability of women to do the same sort of work as men. For example, a women can drive a dump truck just as well (or better) than a man and yet the perception is that they can't.
Lack of Childcare for Shift-workers, Lack of Introduction to Mining Career Choices.
Poor Communication of Required Skills and Career Choices. Childcare. Discriminatory Hiring Practices.
misogyny, discrimination, psychological abuse
Stereotypes Access to training Role models
?
access to childcare, low levels of education sometimes, lack of mentors, lack of role models
Legacy attitudes around differences between males and females considering the nature of mining as an occupation.
Childcare, Grade 12, and Driver's licence
Education opportunities
daycare, funding, transportation/accommodation, racism, upgrading
lack of opportunities that are paid at the same level of what a man would get. For example, a heavy equipment operator makes 35-40 an hour for the work that they do, most women are lucky if they make 20 tops for administrative or Human Resources work.
work schedule, day care issues, housing issues
Family responsibilities, childcare options, high school incomplete.
Lots of sexism in the mining industry. It is a very male dominated industry and women who make it into leadership and management roles are not treated the same and with the same respect as their male counterparts.
Lack of employment
Not knowing who to apply with
Limited childcare,
Unable to participate in workforce due to family commitments. Social justice issues.
interested in certain jobs - stereotyping
Male dominated industries, lack of support in industry training, health care, child support. Lack of: Literacy, education and training, cultural differences, experiences in: racism/discrimination/stereotypes, poverty/ housing, transportation, childcare, drivers licenses.

What barriers could be removed by providing appropriate training?

RESPONSES
Many barriers are removed, but sometimes the people who would benefit most assume the job/training is not for them. There needs to be real outreach with provided training (Perhaps pre-training/community education)
Education
broader diversity within trade areas
Training closer to home - the work is in remote places as are the potential workers but the training is centred in the south
Would help our community out so much.
Training only goes so far to remove barriers. People have to want to put into practice fair and equal treatment based on ABILITY, not race or gender.
Awareness training of each other's barriers. Kendra Johnson hosted and AMAZING session at Round Up 2021 relating to this which i think helped all attendants massively. Hearing real stories from real people that are recently lived and authentic.
I don't really know. Perhaps including sections regarding workers' rights and government policies, so people aren't afraid to stand up for themselves and/or report abusive situations.
Include training for basic computer literacy (if required), driver training and support.
These barriers are about access and accommodation more than a lack of skills that can be complemented by training.
A open mind.
Exposure for inexperienced people into executive decision-making processes.
provide more onsite leadership development programs
Senior management, directors, etc. should have their minds opened / be shown how effective and successful women and indigenous peoples are in the workforce and in senior/executive roles.
advancement opportunities, equality
Awareness of diversity in the workforce. how to and how not to talk to people culturally/approaching sensitive topics
education opportunities, opportunities to get required experience, being discouraged by friends/family/ classmates to pursue work in mining
Access to certifications are the gateway to career advancement. Training in the communities or at the mine/exploration sites removes barriers to travel/family life pressures etc...

This doesn't make sense. The context stated above was about accessing and completing training.
Simply by giving equal opportunities. Closing the pay gap, hiring more women and indigenous
Require HR personnel to understand the jobs being hired for.
community capacity building within area of Minesite
All of the above
Unconscious bias awareness, training and skills Leadership training (all, both women and men) esp if in supervisor roles empathy (social-emotional) training
Acceptance of diversity in the mining industry.
All and just have the right 'person' for the job
Training and information on diversity and the benefits, especially financial, that come when implemented and supported. In the current capitalist system it seems that the main way to change things is to show financial benefit.
If appropriate training was provided, I feel that woman and indigenous peoples could be fairly represented in the mining work force.
More female leaders
Target minorities with advertising and communication about programs Local mobile short courses Acknowledge cultural differences and approaches to education, tailor programs to fit different styles of learning
there are no barriers, for example a woman starting out will tend to choose finance or HR as opposed to mining related education
Training educators about, and how to avoid, unconscious-bias, providing opportunities for remote communities to educate their K-12 children to the standard of urban centres, sharing work experience opportunities for people living in remote communities so they know what is available out there and show them how they can participate in the work force and help their communities, as well as including anti-racist/sexist/etc. training in the classroom. We should
show the variety of work available in the mining industry and how each job is a valuable component.
train senior management and existing workers about their biases
-Training institutions provide remote learning, condensed training sessions, distance learning. Increased trades training
educational for Indigenous people.
old boy´s network
not sure that training is the solution
Providing leadership roles to women and Indigenous individuals

What Systemic Barriers Exist within Organizations that Limit Indigenous Peoples and/or Women from Accessing and Completing Training Programs?

'Systemic barriers' refers to situations, policies and/or practices, which results in some people receiving unequal access or being excluded from benefits and opportunities.

RESPONSES
I think to teach this fairness as part of everyone's orientation package when first arriving on mine site before starting job.
Lack of awareness to benefits and opportunities. For example, stock options, HR training for each employee, maternity/paternity leave top ups (so it's not just the bare minimum).
This seems like a topic for a thesis, not a survey.
i dont know
seniority systems for advancement or access to training, remote work, work schedules, prerequisite experience
- poor, unchecked, unaudited public school education- childcare availability and costs- long shift work- geographically unequal training opportunities
Both women and indigenous peoples need more flexible training opportunities that support their cultural and family situations.
As a woman who had to go on maternity leave; maternity leave is a huge barrier. My direct colleague received not one but 2 raises and advances while I was on leave. Since returning I have had zero opportunities of advancement and need to fight and prove myself as well as need to defend the fact that I took time off of work.
Lack of culture awareness
Nepotism In regard to indigenous people, access to post-secondary education (factors including cost)
time availability, if working full time or out of town work: hard to take classes requiring study time/test taking time outside of work. Or employers not accommodating school schedules during work hours. childcare - not much availability for extended child care hours (night, longer hours, etc)
Reliance on professionals. Too often require/have professionals managing aspects of camp/site that can be done by others.
None
Others are thought are put at top of the list before these individuals. I myself have been totally forgotten from the list when training is going on for all of my peers
Lack of policies in general that foster inclusion of Indigenous peoples and women.

Hidden pay rates; lack of family support such as childcare; lack of family-focused housing fly-in/fly-out is harmful to families.
I am unsure of what if any systemic barriers exist currently in the BC mining sector. However, if training targeted directly to woman and indigenous peoples were offered, it would be a win win situation. You would retain a higher ration of woman and indigenous people in the BC Mining Sector which could lead to long term employees. Employee turnover is costly, and if employees feel valued they will in turn become better employees.
Patriarchy and white supremacy
Lack of mentorship Unsure of application process, funding, jobs available, etc. Not feeling welcome, being "othered"
none
Lack of flexibility for training times and how long it takes to complete, lack of funds to pursue a training program (i.e., cannot afford to take the time off work and still support themselves, family or other dependents), promoting training opportunities within personal networks rather than offering the opportunities company-wide, assumptions that certain people would not be interested based on their background or personal situation and the lack of potential champions to help promote people and mentors to help people find opportunities
Lack of funding for those not senior enough, so in turn never getting the extra training needed to become senior
-Stereotypes of Indigenous people- lazy, not work the effort, disregarded.
demographics/preferences of senior leadership.
don't know
None
I was not aware of benefits and opportunities when I worked in mining..
There is belief that Indigenous people are lazy and stupid. Women face similar barriers
Not sure
Not sure.
NA at our operations
The less populated locations that the indigenous naturally occupy in BC are less likely to have suitable and sustainable training programs, attending educational programs in more urban settings is a major cultural and financial barrier to overcome
Requirement of high-school. Inflexible hours work that conflicts with traditional use. Battling addiction issues.
Habitual patterns and routines in terms of access to training and opportunities. Not encouraging change.

I don't believe the company I work for has the barriers that limit Indigenous people and or Women from accessing and completing training, I do think Supervisors and Managers in all employment areas could do a better job at mentoring and encouraging employees to work towards their goals and take part in training
I believe cost and location limit access to indigenous people. Information to women limit women in training
our workplaces are design for the success of white males (how people are treated, how we accommodate people etc) Having the white, male approach as "standard" inherently negatively impacts people that don't fall into that category
Often, in the industry, you work with the same people - if you got along well at one workplace, you bring them to the next...
This is what I would like to know.
There is often a gap in continuity from the organizational perspective - the relationship is built and then changes hands to other group/team, which creates a very challenging sustained accessibility.
Unconscious bias, work culture
Access to appropriate tools (computer, internet access) or how to use the tools provided. Location and timing of training programs
Shortage of appropriate training programs offered by companies and shortage of training facilities
I'm not aware of any.
Lack of understanding of background and needs
Hiring practices based on whom you know. Those with racist and misogynistic views are in positions of power.
I think there are systemic barriers for indigenous people within their cultures, as documented in the literature of indigenous writers. When you have a chaotic life, it is pretty hard to focus on education. When you live in a community with health issues, financial issues etc. it is pretty hard to look beyond those immediate concerns. I don't think education is not a systemic barrier for women but employment in trades and technical fields is challenging for women because of reluctance of employers and managers to hire them if there are similarly qualified male candidates.
Implementing Respectful Workplace policies.
I don't know
policies that make access to training difficult or inflexible, or make pathways to competence unnecessarily long
Possibly high GPA Requirement to get in to post secondary education. Even though some programs have the space and would welcome diverse learners, the institution has a very competitive admission environment.

Individual educational limitations
Geographic, funding, child care, racism and stereotypes
-Education isn't designed well for mothers or caregivers (ie: typically no affordable childcare on site and the training may be a great distance away from their families -Highschool graduation rates are low for First Nations populations compared to non First Nations making it difficult for First Nations people to access higher levels of education or successfully complete training
The current ratio and lack of indigenous peoples and women in this industry allow for continuous shortfalls in people available for training.
Access, quality of public education (literacy), stereotypes, poor recruitment practices, knowledge of industry practices, cultural differences (eye contact with an older person)
Linear thinking about career paths and even the industry. Not recognizing and supporting flow out of the industry as well as in. Who wants to train for programs in mining when the fly in - fly out lifestyle takes a toll on everyone. And while there might be jobs available, who can afford to move to towns near mines in BC - are there even rentals available? are there homes? would you need to own a car? If you are asking about systemic issues - those are just examples of looking at the system, beyond the workforce supply-demand and training lens.
As stated previously, we can't move past something if we are unwilling to talk about it.
I don't think post-secondary education has 'systemic' barriers leading to exclusion or unequal
5/10/2021 3:21 PM access. But I do think they have an expectation of students entering with courses from high school which often present a barrier. For example, to enter engineering, a student requires high school physics (Physics 12) but many high schools in northern B.C. don't offer Physics 12 -
and students from those schools need to go through remedial programs prior to being able to apply which puts a barrier in the way of their progress.
In my opinion, there is a disconnect between corporate policy and wishes and frontline supervision.
In my experience in a large corporation I believe systemic roadblocks occur mostly at the supervisor/ worker interface. There is often a disconnect between corporate policy and frontline delivery. I have witnessed positive change over my long career in mining and am confident change will continue with perseverance.
"Old boy's club" hiring Financial barriers Time commitment barriers
Colonial and misogynistic institutional hierarchies
male-dominated and white-dominated cultures mean racism and misogyny persist and the under-represented group members have no one to support them
Lack of visions or visions that includes positive action plans for including under-represented people.

Traditional work schedules that are not flexible. If I must be at work at this time, and my family needs me at that time, and if either conflicts with training, I am unable to do it all, but if work and training schedules can be flexible, then I can care for my family's needs and arrange work and training in a schedule that works for me. I do not know enough to comment on systemic barriers limiting Indigenous peoples. Cost Time
There are no motivations for companies to promote women or people of colour, only hire. Women do not progress, and often leave after a few years at site due to sexism, burnout, and discrimination through lack of advancement.
base qualification requirements not being aligned with actual requirements to do the job. Women: lack of gender specific PPE, women not feeling supported through work practices required travel is not family friendly
Distance and costs
License Class 1-2-3-4
I don't believe 'systemic' barriers play a significant role and it is a word that is being bandied about these days, creating a culture of victims rather than empowering people.
we focus on equality, not equity. Training on the difference between the two can be helpful i think.
Fieldwork requirements to move up in seniority or management positions. Lack of continuing educational development for long-term or senior staff who may be very "out of date" with appropriate and respectful behaviour.
If women don't see a career that is compatible with a family at the end-point of training, the motivation to take the training will be reduced. There is a lack of representation of Indigenous persons at foreman/ shifter level and above on mining projects; this may be due to Indigenous persons being viewed as less reliable and not being provided with training opportunities.
Don't know
Without existing senior positions being populated by indigenous people, unintentional biases my develop towards advancement and development. unintended biases against capacity.
Well - honestly the old boys club is fairly alive and well - especially at board levels in industry so until more minority groups are able to participate it will be difficult for the mining industry to improve in this area. The organizations per se are doing a good job - but industry (corporate) is lagging.
HR Hiring policies; written materials lacking role model samples; lack of accountability in hiring decisions; lack of input from affected groups
Male dominated culture creates barriers at all points of entry for women; small numbers of both women and Indigenous people means a lack of ambassadors and supporters from within
Access to mentors and networking opportunities

lack of access to the office policies written by non FN for non FN workers, no accommodation or thought put towards things like cultural holidays, harassment and discrimination policies written with FN people in mind
The expectation that long seasons of field work are a requisite for stable employment in the industry has long been a barrier for early and mid-career employment.
inequality
Inflexible training delivery models - scheduling, location, etc
Cohort requirements from Post secondary institutes prohibit remote indigenous communities from being able to afford community based training, also post secondary institutes are acting counter to DRIPA section 14 to limit high schools from choosing a training partner of their choice, forcing schools to work with the closest training provider.
Very few for women; Indigenous People generally need to be able to travel to larger centres for training and family demands make that difficult. Working as a driller generally requires a drivers license.
location, internet access, childcare
Grade 12 requirements
education sponsorship criteria, living allowance, daycare allowance, high school credentials don't meet minimum post-secondary entry criteria
The historical notion that women can't do the same work as men or perform as well.
not sure
The pay inequality is a large issue. But one of the largest issues I experienced when working in industry was simply the straight up racism/sexism. It comes largely from the on the ground workers, not supervisors/managers, but the supervisors/managers did nothing to make sure this wasn't happening. I've seen a lot of women and First Nations people quit after getting tired of the abuse.
?
Medication such as suboxone
Funding, issues with lack of staffing making it hard to take time off
Can't meeting number requirements for classes so they aren't offered in Community. Logistical issues such as travel for instructors to come into community. Nepotism in mining hiring practices.
None
The myriad corollary effects of growing up in households disproportionately impacted by poverty and the residential school system has meant that disproportionate numbers of Indigenous youth and adults do not graduate high school. The gaps in Indigenous education and skills-training are a labour and business problem. Chronic under-funding on/off reserve,
Discrimination, Workplace bullying, etc.

Do you have any comments on how best to address these barriers? Possible solutions?

RESPONSES
Equalize the entry requirements to other similar careers in trades ie. Carpentry, Millwright etc.
flexible First Nation operated Education Centre for Upgrading; for example - Quesnel Dakelh Education & Employment Society
Industry just needs to get over that stupid way of thinking.
not sure
Every employee needs cultural awareness and gender diversity training. Supervisors/managers need to take higher levels of this and they also need to be the people who shut down that type of behavior. Industry preaches "Zero tolerance" and maybe managers preach this, but supervisors do not enforce.
Education, training
Allow people who are trying to stay clean with medication and allow them to work in camp
Population building by providing more housing in the area for people to move home and help fill these positions
Allow flexibility in numbers - bring training opportunities closer to home and work with Nations hybrid online and in person, include hands on work, support essential skills as qualifier not just academic achievement.
Our organization's policies, practices and situations encourage inclusion
Earlier intervention and pre-employment training; culturally appropriate programming to upgrade essential skills as well as wrap-around services such as transportation support and affordable, accessible childcare, rates of employment and success can be significantly improved. We need more granularity on the data on Indigenous Peoples' skills and employment and experience as entrepreneurs in order to steer evidence-driven policy. A better understanding of the nature of Indigenous labour market data gaps, what works to close them and the many untold success stories can improve opportunities for Indigenous Peoples and boost Canada's economic and social development.
Education in all areas of society
Not sure
N/A
Heavily subsidize online/in person remote training programs. Partner with FN groups to understand which training programs have the highest chance of success prior to launching.
Indigenous workers in particular do not know who to talk to or get advice on how to go through different steps in applications for work or education. Band offices do not know. Need experienced 'career counselor' advisors.

Relax conditions of employment or access to training if it would mean including or not including Indigenous people and/or women. Be more accommodating of people with different backgrounds and situations.
Training for Employees ,Supervisors and Managers on how to complete performance reviews and follow-ups to ensure goals and training are being achieved
better outreach to communities for giving information on how to access training
Training and accountability for all levels of management, including at operations (ie shift supervisors, foremen, superintendents) is needed, to create more inclusive working conditions.
Cultural sensitivity training, unconscious bias training, but done in a way that connects and resonates for people, more creatively that some that I have seen
Flexible work policies, D&I training, more women-friendly facilities at mine sites, High Potential programs for Indigenous & women, more grants/scholarships/grad program funding, targeted attraction strategies - good stories
Training for all, mandatory hiring policies
Continue to educate Companies, board and senior management on barriers. There may be a short term cost but overall long benefit
Individual companies who are advancing mining operations should provide training opportunities to local candidates so that they can access the available positions
Not sure
I think that conversation, time , highlighting best practices, publicizing bad practices, intentional gathering and sharing events, intentional networks of support will break down the biases.
Corporations that report to shareholders need more minority representation on their boards and in positions that are not finance or legal backgrounds. The mining industry needs to seek out minority people and include them in these leadership positions.
score card data that investigates where the " rung in the ladder" is missing to the access. organizations could participate in a culture assessment; review all company/industry media channels and check for role models; find champions - highlight champions - match champions to individuals needing initial support
Collective intent to be more accepting combined with a concerted effort to market the opportunities to youth (women and Indigenous)
opening peoples minds, educating the work force on our history, analyzing policies with inclusion and discrimination in mind.
Flexibility regarding length of stay in the field; balance of office vs. field work may be part of the solution, and may be easier with new technology.
information to the community
Probe barriers, listen and be open to alternative ways to address the barriers

BC needs to publicly state these practices are illegal according to DRIPA
Work with ICBC to develop driver training programs for Indigenous people that addresses the difficulty getting a learners license when they have a record of driving without a license; also they have difficulty accessing a vehicle for practising. This is one of the key difficulties for Indigenous people and it is going to take major work with ICBC to come up with solutions.
More education on diverse cultures in the workplace
As much flexibility as possible, both in the workplace, and in completion of the training.
Quotas to apply to all levels of management for women and people of colour. Tie any government subsidies, tax incentives to these programs.
Ensure there are women focus groups that identify the type of support required -- do not make assumption about the needs. Ensure there are many avenues of support --again different people need different avenues.
The college serving the "Golden Triangle" area is Northern Lights in Fort Nelson - Fort St. John - Dawson Creek - driven by the oil and gas industry. For many years the Regional District has been lobbying for our area to come under Coast based in Terrace to run the Dease Lake campus - they are more mining oriented
All mining company put in the school - shop. Mechanic. Wood working. Welding. Administration. Heo. Safety. Accounting.
See above. As with any lasting changes, it takes individual hard work and determination. Government legislation/training takes the control from individuals and fosters the victim culture.
Training on the difference between the two can be helpful i think. PEA (govt union) had some training that was super helpful to be to better understand these.
Training for senior and long-term staff. Training for people other than supervisors!!! Remind people that Indigenous peoples and women are actually people and that just because people have challenges that are different from yours, that does not mean they are any less valid.
Compassion training perhaps. Enlightenment training!
There needs to be a more women- and family-friendly culture in private companies. Training targeted towards Indigenous persons should not focus solely on "entry-level" positions (e.g. core splitter, driller helper, etc.); additional training courses should be provided for Indigenous people who have started a career in the sector and want to advance to the next level. So things like supervisory training, conflict resolution, budgeting and work planning, etc.
Same as above.
Partnerships with industry.
mentorship programs, provide additional responsibilities

More transparency in hiring practices, training, workshops that address systemic barriers, women and Indigenous people in leadership roles
Not sure. I don't work for operating companies. Consulting firms are, i think, often pro-active and some of the more enlightened operating companies.
Become informed about and implement policies that support UNDRIP
No
institutions examine alternatives to promote access and support for effective and efficient training
Allow programs to admit students who do not meet the GPA requirements.
Academic upgrading that gives University accreditation in the STEM areas
Proper training, education, and funding made "easily" available to all. Remote communities need access
-Provide affordable on-site daycare -Provide support at secondary schools for students to complete their high school diplomas (hire more First Nations support people, incorporate Elder time for counselling supports) -Offer more in community opportunities for adults to complete their GED
Publicly display goals, achievements and progress so this are not just political discussions and they become actions.
Mobile training, developing capacity in community to deliver training, utilizing essential skills, education on both sides,
Broader the conversation. Training could be too narrow and siloed as a major solution to workforce issues. Diversity too. Important - but having them considered with other aspects of the world of work.
Mandatory ongoing training that aids in dispelling racist and sexist views.
Solutions should be arrived at by involving everyone in the conversation. Assuming that someone might not want to participate because they are Indigenous is not fair.
Perhaps one of the benefits of our present on-line culture would be to ensure all students regardless of location - have access to classes and qualified instructors for all courses offered through the K-12 system which would then facilitate the transition to post-secondary. (And the appropriate counselling on the courses they need to take in high school to accomplish their goal.)
More education for women and Indigenous people of their rights . More education of frontline supervisors and workers on human interactions ad rights. it is not enough to simply read company and union policies!
Education of workers and supervisors. Mentorships at the new hire level. More empowering groups like the United Steelworker's Women of Steel.
Keep asking why the systems are skewed and press senior leadership to develop and deliver policies that break down these barriers.

Mentoring programs, elders in residence, role models (if you see it you can be it), ally programs like BCWIT's Bystander Training to turn men into allies for female tradespeople
These visions and missions must be not only created, but also communicated and acted upon to have credibility among all employees. These have to be part of a new way of doing business.
To let each person when arriving on site that everyone works as team players regardless of there gender.
Focus on education at the high school age - ensuring women and youth are exposed and encouraged to pursue maths and sciences, exposed to the opportunities that a strong foundation in those skills will bring. Then mentor over a long period of time. also, alter some of the hiring practice/requirements, such as driver's licenses or criminal record checks.
Make an awareness session
put training into the communities & work sites. subsidize training travel, Reinstate provincial exams, audit companies for bullying and harassment policy and procedures, implement alternative shifts, collect data on gender/indigenous hires & salary with the government annual reporting
More flexible training with regard to part-time vs full-time, hours, dates, in-person vs on-line.
implementing more Culture awareness
Quotas, scholarships, fair hiring practices
Get BC Government to include longer hours in daycares and provide spots to shift workers Improve programs, such as Boys and Girls club to have extended hours for recreational activities that can pick up and drop off from schools
Investigate the need for Professional (P.Geo /P.Eng) in all aspects of management at site.
Does a professional need to manage a remote camp, or can that be done by a qualified person
constant training workshops, marketing, positive encouragement
Management that is aware of their inherent biases, or making more of an effort to include
EVERYONE
Establish programs that develop greater awareness and accountability.
Return to supporting company towns, include accessible daycare, make pay transparent.
Ongoing training / valuation targeted to promote woman and indigenous peoples in the BC Mining Sector would ensure that there would be a return on a Companies investment but ensuring higher employee retention in the BC Mining Sector.
Program for applicants / attendees to talk with past students or advisors (mentorship program) Clear description of application process aimed at individuals that don't have friends or family that have attended training programs Diverse staff / trainers Diversity training for staff (set an example)

not applicable
Greater flexibility for training, top-up on wages during training programs, offer programs company-wide with an inclusion policy, unconscious/anti-bias training, reward people who champion and mentor others
Invest in young employees! Send them to conferences, workshops, etc. I think it builds loyalty and elevates them for future positions/roles
tie diversity and inclusion to senior management pay & performance
-Awareness of cultures, diversity training
networking / mentoring opportunities highlighting women and Indigenous leaders in mining.
promote good people - change attitudes through example

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