Advancing Women in Engineering and Technology:

Final Report – March 31, 2021

ASTTBC TECHNOLOGY PROFESSIONALS

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Executive Summary

This report outlines the work undertaken as part of the Advancing Women in Engineering and Technology Project during its two-year period (February 15, 2019 – February 15, 2021).

The Advancing Women in Engineering and Technology Project is a Sector Labour Market Partnerships project, funded through the Canada-BC Labour Market Development Agreement. The main objective of the project is to increase the participation of women in the engineering, geoscience, technology and technician occupations by the implementation of diversity and inclusion strategies to recruit, retain and support career development of women within these professions.

The first year of the Project was led by Applied Science Technologists and Technicians of BC (ASTTBC), in partnership with Engineers and Geoscientists BC and the Association of Consulting Engineering Companies of BC (ACEC-BC). The partners worked collaboratively to develop the foundational components required for successful implementation and delivery of project activities however, due to prior commitments to other initiatives aligned to increasing recruitment of women into the sector, as well as the greater than anticipated level of engagement, the partners resigned at the end of year one. Following the resignation of the partners ASTTBC continued the Project independently.

Year one of the Project focused on the recruitment of Champions, development of Regional Action Committees and hosting/attending activities and events. The events/activities included career/job fairs, webinars/workshops and Lunch & Learn sessions. The Project was successful in its recruitment of individual Champions, meeting 96% of its target and 100% of its target for the development of the four regional action committees. The recruitment of employer, secondary school and post-secondary school champions proved challenging due to regulations and rules of the organization or overseeing boards.

In year two, the Project direction shifted due to partner resignation and the Covid 19 pandemic and the efforts of the project team were redirected to create online only initiatives/activities to support the Project objective and a new research component was introduced.

The online initiatives/activities including career profiles, whitepapers, webinars and podcasts were successful and achieved or exceed their targets.

The research component was undertaken by Social Research and Demonstration Corporation Canada (SRDC), and included a summary of the project evaluation, literature review, jurisdictional scan, key findings, insight from interviews and focus groups including recommendations on the next steps and implication for policy and practice.

ASTTBC will implement a sustainability plan to maintain the Project website and deliverables and in addition to this, are exploring potential ways of supporting the next steps introduced as part of the jurisdictional scan.

Introduction

The Advancing Women in Engineering and Technology Project's (the Project) final report provides a summary from the start of the project to the end (February 15, 2019 – February 15, 2021). It includes details on the achieved activities and milestones, participant feedback, description on the involvement and nature of input from the steering group and provides details of the sustainability plan for continuation beyond the term of the Project.

In addition to the details on the Project activities the report provides an overview of the work undertaken by the project evaluators, Social Research and Demonstration Corporation Canada (SRDC), including a summary of the Project evaluation, literature review, jurisdictional scan, key findings, insight from interviews and focus groups including recommendations on the next steps and implication for policy and practice.

This Project report is the final in a series of four, with the interim reports providing details on the work completed during following periods:

- Interim Report #1 (November 15, 2019) – February 15, 2019 – November 15, 2019
- Interim Report #2 (February 7, 2020) – November 15,2019 – January 30, 2020
- Interim Report #3 (October 9, 2020) – February 1, 2020 – July 31, 2020

Background

The Advancing Women in Engineering and Technology Project (the Project) is a Sector Labour Market Partnerships project, funded through the Canada-BC Labour Market Development Agreement. The main objective of the Project is to increase the participation of women in the engineering, geoscience, technology and technician occupations by the implementation of diversity and inclusion strategies to recruit, retain and support career development of women within these professions.

Applied Science Technologists and Technicians of BC (ASTTBC), in partnership with Engineers and Geoscientists BC and the Association of Consulting Engineering Companies of BC (ACEC-BC) worked collaboratively to develop the foundational components required for successful implementation and delivery of Project activities.

In February 2020, ACEC-BC withdrew their active participation in the Project and redeployed their "resources to focus more directly on recruitment, retention and promotion of women in consulting engineering". The following month, Engineers and Geoscientists BC announced their departure from the Project effective April 3, 2020 to focus on advancement of their *30 by 30* program and Indigenous

engagement. With prior commitments to other initiatives aligned to increasing recruitment of women into the sector, as well as the greater than anticipated level of engagement required for this project, the partners felt their time and effort would be best spent on their respective initiatives.

Following the departure of the Project partners, ASTTBC as the contract agreement holder, responded by amending its contract with the Ministry to continue independent of the partners and remained committed to the implementation of Project activities planned for the remainder of year one (up to July 31, 2020) and introduced the research component to be undertaken by SRDC for year two.

A Governance Committee that was formed at Project initiation to provide guidance and feedback for the Project team to maintain alignment with the Project goals in year one. This committee was disbanded and replaced the group with an Advisory Committee with similar objectives for year two.

Project Direction

At Project initiation a Project Management Work Plan was developed by the Project Team outlining Ministry deliverables and associated milestones. The expected dates for deliverables for the Project Management Work Plan were developed with input from both the Governance Committee and the Ministry and was approved on June 13, 2019.

The Project Management Work Plan outlined, at a high level, the background and context of the Project, the Project purpose, key activities as well as the Project structure, objectives, timelines and deliverables.

The project team progressed the Project in line with the agreed Project Management Work Plan establishing Regional Action Committees, recruiting project champions, hosting webinars and attending career fairs.

Spring 2020 was a time of upheaval for the Project, not only due to the withdrawal of the Project partners and their associated staff, but also the changing global circumstances of the COVID-19 pandemic.

March brought about significant Project changes in response to the COVID-19 pandemic and by mid-April, to meet mandated COVID-19 safety protocols including social distancing requirements, the project team identified exclusively online initiatives to meet the Project objectives.

These significant constraints brought about unique opportunities to strategically shift the Project direction. Feedback that had been gathered from the project team, Governance Committee members, Regional Action Committees, Project activity evaluations and surveys completed during the first year was analysed. Based on this analysis and the COVID-19 pandemic constraints, the decision was made to complete the online project activities and wrap up the Regional Action Committees at the end of July

2020 (year one) and shift the Project focus to research activities from July 2020 to the end of the project, February 15, 2021 (year two).

Changes in the Project and the Covid-19 pandemic constraints resulted in a change of focus for the evaluators (SRDC). In agreement with ASTTBC and the Ministry, it was agreed that SRDC should complete the year one evaluation activities and to use their remaining time to conduct a jurisdictional review which would provide context for the evaluation.

The intent of the jurisdictional scan was to combine the data generated from the Project evaluation, with a new literature review and qualitative interviews with employers, additional interviews, including with key informants, employers and women in the sector to explore the factors that contribute to a successful diversity and inclusion initiatives, identify what are the major barriers and review what insights a GBA+ lens brings to the understanding of diversity and inclusion for equity seeking groups in the sector.

Project Team

A Project Team was established, composed of Provincial Team members along with the Regional Coordinators (RCs). The Provincial Team included a Project Manager and Project Admin/Coordinator from ASTTBC as well as Project Coordinators from each of the original partner organizations (ASTTBC, Engineers and Geoscientists BC and ACEC-BC).

The RCs for the first year of the project included representatives for Mainland/Southwest, Thompson /Okanagan, Vancouver Island and the Kootenay regions. Team members received detailed job descriptions, had criminal records checks, completed Province approved privacy training and GBA+ training specifically required for the project.

The withdrawal of the project partners, ACEC-BC and the Engineers and Geoscientists BC in spring 2020, resulted in the dissolution of the Provincial team as their Project Coordinator roles were no longer required but the ASTTBC Project Manager and Project Coordinator positions remained.

In winter/spring 2020 the Project underwent a number of staffing transitions with the resignation of the project manager and RCs. A new project manager was appointed and the RC positions for the Mainland/Southwest and Vancouver Island/Coast were filled for the remainder of year one activities. The decision was made for the project manager to act as a point of contact for the Thompson-Okanagan and the Kootenay regions' Regional Action Committees and Champions for the remainder of year one activities.

With the resignation of the partners, the change in staff and province wide online activities, the organizational structure changed from Provincial Project Team and RCs to one overall Project Team.

Project Activities, Events and Online Initiatives

The approved Project Management Workplan established timelines and targets for each of the Project activities and milestones. Following the shift in project direction to an online platform, the activities and targets were changed to reflect the online initiatives. The targets were set by the Project team based on the available time to be completed by the end of July 2020 (year one).

Timeline, Targets and Outcomes

Table 1 provides a summary of the project activities achieved under the approved Project Management workplan up until March 2020. With the shift in project direction, the Project team stopped the active recruitment of Champions and no new Champions were recruited from February 2020. Table 1 indicates that overall, 97% of the targeted recruitment of individual champions (58 out of 60), and 44% recruitment of Employers (20 out of 45) were met for the given time period.

Stakeholders & activities	Interim reports				
	Reporting periods 1&2 (up to Feb. 07/20)			Original targets for reporting periods 3&4 (up to Feb. 15/21)	
T = Target; O = Outcome	T	O		T	
Regional action committees	4	4		3	
Recruit individual champions	60	58		20	
Recruit employer champions	45	20	Revised scope – March 2020 – New activities and targets agreed	35	Not applicable – Due to revised scope
Recruit secondary school champions	12	3		20	
Recruit public post-secondary school champions	6	4		10	
Professional, industry, and other supporting organizations	2	1		4	
Training sessions	4	0		12	
Lunch & Learns	3	0		13	
Webinars/workshops	4	5		12	

Career/job fairs (organize or participate in)	**8**	**8**		8	
Virtual career fairs	**0**	**0**		3	

Table 1 – Project Activities, Timelines, Targets and Outcomes

Table 2 provides a summary of the online Project initiatives achieved following the shift to the online platform from March 2020 to July 2020. The table shows the team were able to meet or exceed the targets for these initiatives.

Online Project Initiatives	By 31 July 2020	
T = Target; O = Outcome	**T**	**O**
Career Profiles	20	24
Webinars	4	6
Podcasts	4	4
ASTTBC Virtual AGM	1	1
Whitepapers	1	3

Table 2 – Online Project Initiatives, Targets and Outcomes

Approved Project Management Workplan Activities

Champion Recruitment

Champions were recruited with the goal of supporting the Project initiative through their participation in regional activities and events, as well as supporting the identification of human resources best practices related to diversity and inclusion.

Applications were reviewed and once approved, Champions received a welcoming email, a two-page Project info sheet and the Orientation PowerPoint presentation (Appendix A – Champion Welcome Package). RCs followed up with Champions to discuss opportunities to be involved in various Project activities. The Regional Action Committees were primarily composed of Champions who either expressed interest in participating or were recruited to fill specific roles on the committee to ensure both the engineering and technologist sector employers and other organizations were represented.

Several Champions participated in a total of five in-person events which included presenting with the RCs at events and helping with networking activities in year one.

Stakeholder Engagement Activities

Stakeholder engagement was a key priority in the Project to help inform its development of resources and the implementation of activities within each of the economic development regions of the province.

The Project team and RC's spent the initial period of the Project engaged in outreach activities. The focus was to engage with local organizations, employers and individuals to raise the awareness of the importance of increased participation of women in the sector as well as the need for workplaces to increase diversity and inclusion.

The Project team and RC's attended regional events, met with key stakeholders and employers to explore how best the Project could support them. This information was used to develop the environmental scans and identification of key supporting organizations summarized within the regional action plans.

The outreach efforts supported the recruitment of individuals to participate in the regional action committees in each of the four regions. The Project team leveraged recommendations by the regional action committees of existing relationships and resources to support the identification of additional events and activities. Stakeholder engagement also assisted the team in identifying needs in each of the regions to support content development for Project resources.

Networking Events

Although attending networking events is not identified as a deliverable in the Project Work Plan it was one approach for engagement with various stakeholders to both recruit them to support the Project and identify opportunities to participate in future events.

Training Sessions

The Project initiatives included training sessions for Human Resources (HR) professionals. Year one of the Project was used to engage the stakeholders to the identify and develop training resources to support the Project.

Two training sessions were planned for February and March 2020 however these events did not fully align with the project mandate as the contents would not be publicly available after the event. The decision was made to not take part in them.

Lunch and Learns/Webinars/Workshops

Lunch and learns were intended to educate employers about the opportunity and the importance of recruitment, integration and succession of women in applied science and engineering by sharing best practices related to recruitment, integration and succession strategies.

The webinars/workshops were planned to educate participants on specific topics of interest and importance to women in the field of engineering and technology.

Five webinars/workshops were undertaken under the original workplan but the lunch and learns were unable to be untaken with the reduced timeframe.

Virtual Career Fairs Career/Job Fairs

The Project planned to participate in virtual career fairs focused on educating equity-seeking groups and service providers working with immigrant, Indigenous people and persons with disabilities populations about the opportunities for employment in applied science and engineering.

The attendance at two virtual career fairs was planned for year two of the Project in 2020 including the Indigenous Virtual Career Fair (June 2020) and the Persons with Disability Virtual Career Fair (September 2020) however the change in Project direction for year two resulted in the cancelation of planned attendance at these activities.

The Project participated in career fairs at post-secondary educational institutions (University of Victoria) and job fairs organized by an engineering professional association (SPEAT-BC) and one organized by one of the largest immigrant-serving organization (PICS).

Through these events the Project was marketed to over 1,500 students, 125 engineering professionals and over 2,000 job seekers some of whom were women internationally trained professional in engineering and technology.

Online Initiatives

Career Profiles

AWET worked in partnership with Let's Talk Science, to develop 24 career profiles spotlighting women in engineering and technology careers in British Columbia. The career profiles are representative of a diverse range of engineering and technology occupations across the province with both private and public sector employers. The Profiles are posted on both the Let's Talk Science careers page and the AWET career profiles page.

Webinars

AWET developed a series of webinars offering a wide range of interesting and relevant topics. The webinars were recorded and posted to the project website for future viewing.

These webinars are an integral part of the project's sustainability plan as ASTTBC offers Continuing Professional Development (CPD) credits to registrants who attend and/or watch these webinars.

Podcasts

AWET worked in partnership with Westcoast Women in Engineering, Science and Technology (WWEST) to create a series of podcasts to highlight the career paths of women within the Project.

Volunteers from the Project Team and Regional Action Committees from three of the regions took part in the podcasts.

The podcasts are posted on the WWEST Best of the WWest webpage and the AWET Podcast page.

ASTTBC Virtual AGM

ASTTBC hosted its first virtual AGM & Conference on June 4th using a virtual platform (VFairs) in response to COVID-19 social distancing parameters.

ASTTBC's virtual AGM and annual conference remained open for two months for registrants and stakeholders to visit remotely at their leisure, wrapping up August 4, 2020. Hundreds of attendees from across Canada participated in the two-month event, and the AWET tradeshow booth was visited 123 times during that time.

Whitepapers/Infographics

AWET partnered with WWEST to design career white paper with the purpose of educating high school students about the careers as Technicians and Technologists, Technical Specialists and Specializations for Technicians and Technologists. These whitepapers were launched on to the AWET Whitepaper page and WWEST website in October 2020.

Summary of Project Events & Activities: Feb 15, 2019 – July 31, 2020

Table 3 provides the details of the Project activities and initiatives undertaken achieved by each region from Project initiation through to the end of year 1 (July 31, 2020).

Type of Activities / Initiative	Title	Date
Mainland/Southwest Region		
Networking	Women in STEM Leadership	April 11, 2019
Networking	WWEST Constructing Change: Policy Vs. Culture	May 3, 2019
Networking	SCWIST Job Fair for Women in STEM Job Fair	May 23, 2019

Display Table	ASPECT - Employer/Employment Program Summit	June 5, 2019
Display Table	ASTTBC Annual General Meeting	June 13, 2019
Presentation, Banner and Pamphlets	BC Plan Symposium (KPU)	June 14, 2019
Networking	Supporting Women in Trades	June 17-18, 2019
Display Table	Summer Labour Market Report Conference	August 1-2, 2019
Display Table	PICS Mega Job Fair Surrey	August 8, 2019
Display Table	SPEAT Job Fair and Technical Seminar (KPU)	September 14, 2019
Display Table	HR Tech Group: 2019 Tech Talent Conference	September 26, 2019
Display Table & Workshop	BCTEA Provincial Conference	October 25, 2019
Display Table	TechAbility Employer Inclusion and Diversity Meeting	October 29, 2019
Display Table	Girls and STEAM Telus World of Science	November 2, 2019
Display Table	ASPECT Annual Conference	November 4-5, 2019
Networking	ASTTBC Schmooza Palooza Networking Event	November 7, 2019
Networking	Working Effectively with Indigenous People	November 19 & 22, 2019
Display & Workshop	Career Education Society Conference	November 25-26, 2019
Mentor/Facilitator/Role Model for Breakout Sessions	JABC TechWorks: Women in Technology	January 21, 2020
Online Networking	ASTTBC's Virtual AGM and Annual Conference	June 4, 2020
Thompson/Okanagan Region		
Networking	ACEC-BC Kelowna Golf Tournament	September 11, 2019
Booth	Public Works Association of BC Conference	September 15-18, 2019
Project Introduction	Women in STEM Club (TRU)	October 10, 2019
Project Introduction and Networking	Division of Women in Engineering and Geoscience Networking Event	October 16, 2019
Networking	Engineers and Geoscientists BC Annual Conference	October 17-19, 2019
Presentation	COTA Conference Workshop and Presentation	October 25, 2019

Display Table & Workshop	Okanagan College Career Fair	November 3, 2019
Presentation	Sahali Secondary Career Talks	December 12, 2019
Workshop	School District 73 Career Talks – Bringing STEM into the classroom	January 14, 2020
Vancouver Island/Coast Region		
Networking	Public Works Association BC: International Women's Day Conference	March 1, 2019
Presentation	UVIC & City of Langford meeting	September 19, 2019
Display Table	University of Victoria Career Fair	October 1-2, 2019
Networking	ACEC-BC and MLA Event	October 22, 2019
Networking	HeroWork Radical Renovation Peers VICTORIA RESOURCE CENTRE	November 10, 2019
Networking	Women in Leadership: Stand out as a leader	November 28, 2019
Mentor/Facilitator/Role Model for Breakout Sessions	JABC TechWorks: Women in Technology	December 5, 2019
Kootenay Region		
Display Table	Selkirk College Open House	November 2, 2019
Networking	High School Mentoring @ JL Crowe (SD20)	November 28, 2019
Networking	AWET Networking Event (Nelson)	February 25, 2020
Panel discussion/workshop	Quantum Leaps, a GLOWS program by KAST	March 2, 2020
Province Wide		
Career Profiles	Six career profiles were launched to the website	May 2020
Webinar	Women in Engineering Leadership	May 26, 2020
Career Profiles	Nine career profiles were launched to the website	June 2020
Webinar	Work Life Integration During COVID-19	June 9, 2020
Webinar	Importance of Inclusion and Diversity - A Look at FortisBC	June 16, 2020
Webinar	Coaching for Resiliency	June 23,2020
Podcast	Erin Karaim, CTech, Civil Engineering Technician	June 30, 2020
Career Profiles	Nine career profiles were launched to the website	July 2020

Webinar	Positive Performance Management	July 8, 2020
Webinar	Intersectionality: HR strategies to Impact Greater Diversity	July 14,2020
Podcast	Sheryl Cumming, P.Eng, Professional Engineer	July 14, 2020
Podcast	Rebecca Sorbara, AScT, Director of Building Science	July 28, 2020
Podcast	Anne Simonen – recorded in July and launched August	Aug 11, 2020

Table 3 –Project Activities/Event (Feb 2019 – July 2020)

Participant Feedback on Project Activities

Feedback on Events

Vancouver Island Workshop Event - January 2020 – Vancouver Island RC partnered with University of Victoria to host a workshop which included a session on Working with Challenging People. The participants were asked for their feedback and 19 responded. Over three quarters of the respondents thought the objects of the event were well communicated and that it was interesting and useful. Four fifths reported the event was well organised and presenters were prepared and the same amount of people said they would apply information they leaned in the event. Two fifths said they got all or most of what they wanted from the event and the same proportion for little of what they expected. Over half of the participant would recommend the event to a colleague.

Nelson Networking Event – February 25th, 2020- The Nelson networking event had 19 people attend and 11 feedback forms were received. The feedback for the event was positive with all 11 responses rating the overall level of satisfaction as somewhat or very satisfied with the event ant 9 somewhat or very likely to follow up with contacts made at the event.

Quantum Leaps, a GLOWS program by KAST – March 25th, 2020 – The GLOWS event had 50 participants (Grade 10-12 girls) and 48 feedback responses were received. The feedback for the event was positive with 45 rating the event as enjoyable or very enjoyable.

Feedback on Webinars

SRDC, the Project Evaluator worked collaboratively with the Project Team to develop a series of consistent questions to distribute to webinar attendees. Following each of the webinars, a survey was sent to each attendee to gather their feedback. Survey questions were designed to gauge overall interest

in the webinar topic, the presenter knowledge, and the relevance of discussion topics applicable to the workplace/sector.

A majority of the attendee were engineers or technicians, technologists or technical specialists making up 65% of total audience. Teachers made up the second largest group of attendees at 23%.

"This was an amazing webinar & strongly encourage everyone to view it when it is posted on AWET website. The story of the elephant & the giraffe brings diversity & inclusion to life – and how we need to approach things through the lens of equity. Includes case studies & examples." — Make Possible

Feedback on webinar: Importance of Inclusion and Diversity – A Look at FortisBC

The survey results showed that the overall rating of the webinars was very good (67%) or good (30%).
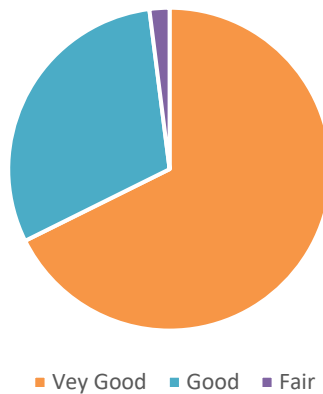
Debbie Pearmain, One Stop HR, facilitated eight AWET webinars

Overall rating of webinar (%)

■ Vey Good   ■ Good   ■ Fair

Figure 1 – Overall Rating of Webinars

The survey also showed that webinar participants found the topics interesting, acquired new knowledge and would apply what they learned.

Participant Feedback on All Webinars (%)

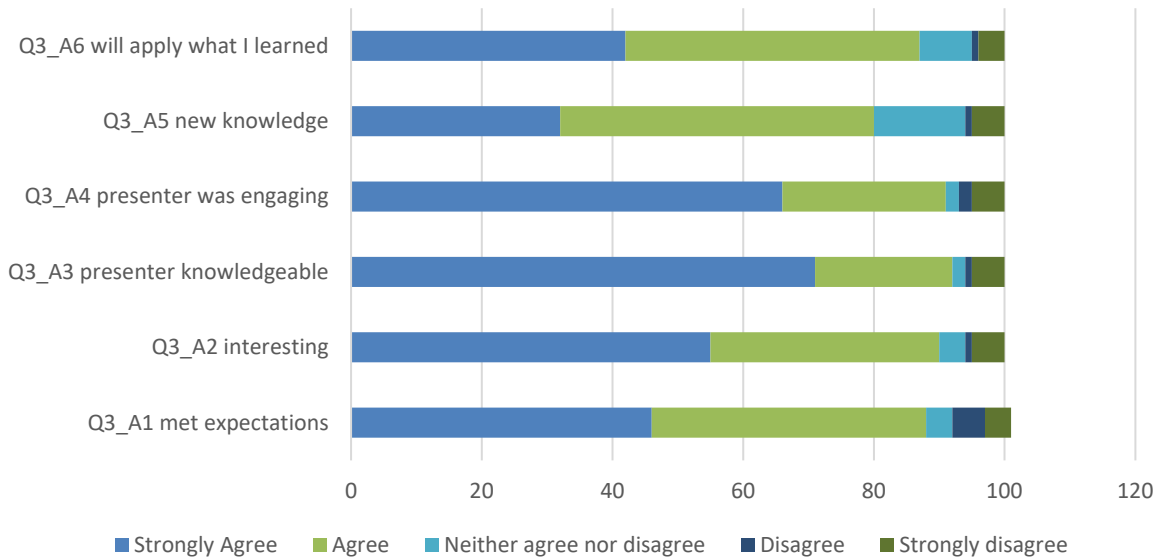*Figure 2– Participant Feedback on All Webinars*

When asked if participants would recommend these webinars to others, 96% said they were somewhat to extremely likely to do so.
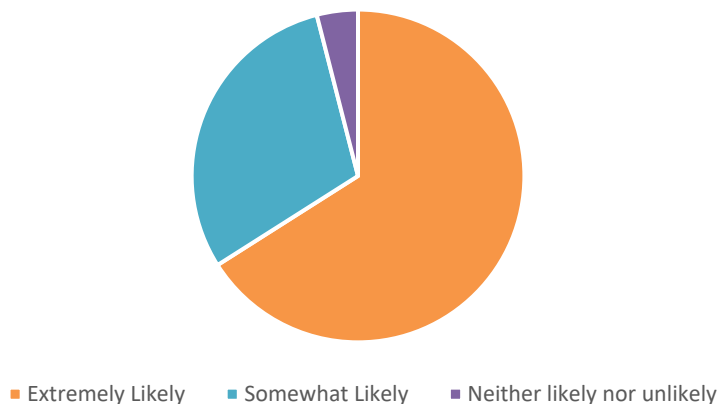
Q4 Recommend Webinar (%)

Figure 3– Percentage likely to Recommend Webinar

The feedback on the webinars series was overall very positive so the project team developed a fall series as part of the Project sustainability plan.

Regional Action Committees:

Four regions were established in year one and each of these regions had a Regional Action Committee (RAC). RAC's varied in composition, depending on the region, and were generally described as a mixture of professional engineers and technologists, employers, educational institutions, supporting organizations and other sectors. RACs ranged in size from five to 15 individuals. The goals of the committees were to raise awareness of the need to increase the participation of women within the sector, to plan events, activities and leverage local resources to achieve this.

The four regions included:

- Mainland/Southwest Region
- Thompson/Okanagan Region
- Vancouver Island/Coast Region
- Kootenay Region

The RACs' met regularly and were integral to providing input on activity developments including webinars, podcasts, career profiles, etc. The members also connected the project team with other organizations to encourage partnerships. Members of the RACs' took part in podcasts, webinars and career profiles.

The intention in the original approved Workplan was to have seven RAC's in total, Thompson/Okanagan Region, Vancouver Island/Coast Region and Kootenay Region for year one and North Coast and Nechako, Northeast and Cariboo for year two. The Mainland/Southwest Region was to continue over the two years. The shift in Project direction removed the need for the recruitment of the year two RAC's and shortened the commitment for the Mainland/Southwest Region to one year.

Sustainability Plan

Champion Engagement Input

During the first year of the Project, it became evident that there are many diversity and inclusion initiatives, groups and organizations throughout the province working to support similar goals as the Project. Many of these groups are working independently and siloed. The project team had the vision to create a sustainability plan that would connect the Champions to these other initiatives, groups and organizations to help maintain momentum and improve their collective efforts to impact increased representation of women in the sector.

Sustainable Activities

The sustainability plan was developed to ensure the online resources compiled/created throughout the Project are maintained and available after the project ends in March 2021.

The following Project activities that will be maintained as legacy components to this sustainability plan include:

- Project website including webpages detailing:
    - Project Champions (employers, secondary and post-secondary educational institutions)
    - Supporting Organizations
    - Sector Resources
- Project Deliverables:
    - Career profiles
    - Summary of *The Advancing Careers in Engineering & Applied Sciences Survey*, conducted by SRDC, the Project evaluator.
    - Podcasts
    - Webinars
    - Whitepapers

Project Activities/Events

Career Profiles

Podcasts

Webinars

Webinars

ASTTBC has identified AWET project webinars as part of their Continuing Professional Development (CPD) program (see ASTTBC CPD policy) and offer CPD credits to registrants and viewers of the AWET webinars.

The Project completed a second set of webinars in the fall (October/November) to cover additional topics of interest brought forward by the project team and RACs. They included:

- Webinar # 1 - Employee Engagement in Covid – Nov 3, 2020.
- Webinar #2 - Mental health: creating healthy work cultures – Nov 10, 2020.
- Webinar #3 – Addressing Unconscious Bias and Effective D&I strategies – Nov 24, 2020
- Webinar #4 – Actively Manage Your Career – Dec 1, 2020

Table 4 provides details on the attendance for the fall webinar series:

Name	Date	Registered	Attended
Employee Engagement: Leading During a Pandemic	Nov. 3, 2020	74	49
Mental Health: Creating Healthy Work Cultures	Nov. 10, 2020	88	56
Addressing Unconscious Bias with D&I Strategies	Nov. 24, 2020	123	77
Actively Manage Your Career	Dec. 1, 2020	123	70

Table 4: Fall Webinar Series Attendance Summary

Sector Resources

Throughout the Project, numerous resources were compiled during engagement with Project Champions, RACs', supporting organizations, project stakeholders including SRDC and the previous project partners (Engineers and Geoscientists of BC and ACEC-BC). The intention was to build the Resources section of the website to showcase these compiled resources which could then be utilized by professionals seeking to advance women in the sector.

The Sector Resources evolved due to the engagement with the Regional Action Committees (RAC's) and Champions, recognizing there were many project participants associated with other sector initiatives, groups and organizations doing similar work as AWET. The Project team conducted a survey of all the RAC's and Champions as part of the *Champions Making Connections* initiative, to review and summarize a list of all groups/organizations the project participants are involved with and they were asked to share their experience as part of the *Champions Perspectives*.

Champions Perspectives

As part of the *Champions Making Connections* initiative, Champions were asked to share their experience on other organizations/initiatives with which they are involved. They were asked to respond to the following questions to develop their "*Champion Perspective*":

- First tell us what the group/organization is and provide the website (or contact details)
- Tell us about your experience with the group/organization you are involved with.
- How has this experience benefited your career in STEM?
- How has the experience benefited you in other ways, or may benefit others interested in joining the group/organization?
- How would involvement in this group/organization support advancing women in engineering and technology?

These Champion Perspectives are highlighted on the [Resources](#) webpage under the group/organization the Champion is involved with, along with the Champion photo and LinkedIn profile link (if provided voluntarily).

Diversity and Inclusion Toolkits

The SRDC jurisdictional literature review of initiatives and supports aimed at increasing the recruitment, participation, and advancement of women in the sector, uncovered useful resources. As part of the sustainability plan, the project team compiled the resources from the literature review, and their own research to share under a Diversity and Inclusion Toolkits section on the [Resources](#) webpage.

Whitepapers/Infographics

The whitepapers are available to download from the to the AWET [Whitepaper page](#) webpage.

Scholarships and Bursaries

The Project team identified a number of scholarships and bursaries that support the advancement of women in STEM. A section was added to the [Resources](#) webpage providing details of the scholarships and bursaries including links to application details.

Financial Support for Sustainability Plan

To ensure the sustainability of the project, ASTTBC is committing to support the maintenance of the identified legacy components (website, career profiles, podcasts and webinars) and will continue for a

two-year period after the project completion date, March 31, 2021. ASTTBC will review the ability to continue maintenance after the initial two-year period in consultation with the Office of the Superintendent of Professional Governance (OSPG).

The Project team have a succession plan for ASTTBC staff to take over the AWET website and social media engagement and maintenance beginning in April 2021. The team will work with the consultant who currently maintains the website and social media content and identified ASTTBC staff to ensure a smooth transition without disruption to the public.

ASTTBC will be utilising the following resources to support the maintenance:

- ASTTBC IT staff to assist in the hosting of webinars
- ASTTBC Communications staff to support social media awareness of the resources
- ASTTBC Communications staff to maintain the website and check for broken links
- ASTTBC Communications staff will monitor and respond to the project info@womeninengtech.ca email

Risks and Mitigation

The following risks and mitigation strategies have been identified:

Risk	Mitigation
ASTTBC are currently undergoing regulatory changes that may affect their ability to maintain the legacy components during the initial two-year period following the end of the Project.	If the ability to maintain the legacy component is compromised, partner with another organization that would be willing take the lead for ongoing maintenance with support from ASTTBC.
After the two-year period the regulatory changes results in ASTTBC being unable to maintain the legacy components.	If the OSPG does not allow for this work to be continued by ASTTBC then they could seek to find another organization that would be willing take on the ongoing maintenance.
Information provided on webinars becomes outdated.	ASTTBC Communications personnel to be tasked with familiarizing themselves with all

	webinars and provide direction to remove outdated webinars.
The external resources linked through the website are providing outdated information.	Add disclaimer on the webpage linking to external resources.
The identified ASTTBC staff responsible for the succession plan to transition the AWET website and social media are no longer available to provide website maintenance services.	Identify another ASTTBC staff member or if needed, identify a sub-contractor that would be willing take on the ongoing website maintenance.
ASTTBC registration dues may decrease significantly due to impact of COVID-19 and/or regulatory body shifts in sector, possibly limiting funds to maintain website.	If the ability to maintain the legacy component is compromised, partner with another organization that would be willing take the lead for ongoing maintenance with support from ASTTBC.
ASTTBC as an organization may have competing priorities that impact ability to prioritize needs associated with AWET sustainability plan (e.g. ongoing website updates).	ASTTBC to incorporate AWET website and social media into strategic communication plan or partner with another organization that would be willing take the lead for ongoing maintenance with support from ASTTBC.
AWET website could have limited engagement due to influx of other industry online content competing for viewers.	ASTTBC will incorporate AWET into strategic communication plan to keep content fresh and social media driving project forward.
Redundancy of AWET website content.	ASTTBC will incorporate AWET into strategic communication plan to keep content fresh and social media driving project forward. Consider combining ASTTBCs BC Women in Technology (BCWit) website content into one website and/or have BCWit members direct content and updates.

ASTTBC not able to maintain website for an extended amount of time, leading to potential for wasted government investment in the Project.	Diversity and inclusion is a priority for the ASTTBC Council, thus at a minimum ASTTBC will incorporate the AWET sustainability plan into operational priorities for upcoming years and allocate staffing to the website maintenance.

Involvement and Input from Governance Committee/Advisory Committee

Governance Committee

The Governance Committee members were involved from project initiation and had regularly scheduled meetings to shape the strategic direction of the Project as follows:

- Governance committee meetings provided guidance and feedback for the Project team and maintained alignment to the Project goals.
- Governance committee meetings included Ministry representation for the purposes of gleaning context, direction and feedback in terms of accountability to the Project and reporting.
- Strategy documents reviews and approvals. Document examples included the Project Work Plan, Project Communications Plan, Outreach and Engagement Strategy, Social Media Strategy, etc.
- All interim reports were reviewed and ensure they work therein evaluated for context, content and submission quality.
- Partners in the Governance Committee were expected to provide and share resources. Knowledge was shared between meeting periods for specific purposes and for the very purposes of collaboration such as on private and secure hubs for the team to share and comment on the work done.

Following the departure of the partners and shift in the project, the Governance Committee was dissolved (February 2020) as it was no longer needed. Members from the Governance Committee gave feedback to ASTTBC, from their perspective there were no governance activities needed for the financials or policy and an Advisory committee would be a better fit.

The Advisory committee was formed in Summer 2020 for year two.

Advisory Committee

Similar to the Governance committee, the purpose of the Advisory Committee (the Committee) was to provide guidance, direction and feedback to the Project. The Committee was formed to broadly represent women leaders who currently are working in the sector to help drive this initiative.

The Committee provided leadership and advice to ensure that the Project's objectives, the activities, deliverables, and the research were accomplished, and the Committee was retained for the remaining duration of the Project.

The Committee provided feedback on the following:

- SRDC – Literature Review – August 19, 2020
- Interim Report #3 – September 21, 2020
- SRDC – Project Evaluation Report – October 27, 2020
- SRDC – Final Research Report – February 11, 2021

Social Research and Demonstration Corporation Canada (SRDC) Components

The Project evaluators, Social Research and Demonstration Corporation Canada (SRDC) undertook strategic components of work including project evaluation and the research component.

Project Evaluation

SRDC were commissioned to evaluate the Project from February 2019 to August 2020. The Final Evaluation report (December 2, 2020) outlines:

- Changes to planned activities
- Information on Engineering and Technology Sector
- AWET Implementation Data
- Event Satisfaction Surveys and Feedback Survey from Webinars

The Project Evaluation Report can be found in Appendix B – SRDC – Advancing Women in Engineering and Technology – Final Evaluation Report (December 14, 2020).

To complete the Project evaluation, SRDC focused on two areas, the sector data and the Project implementation data.

Sector Data

SRDC collected data from members of ASTTBC and the two original partners, Engineers and Geoscientists of BC and ACEC to better understand what's working and areas in which employers need support to increase the recruitment, retention and career advancement of women. The data collection included:

- Baseline survey with member of ASTTBC and Engineers and Geoscientist of BC (October 2019)
- Employer Interviews with member of ACEC – BC (Fall 2019)

The Project Implementation Data

SRDC collected data from five sources to review the implementation of the Project, including:

- Qualitative data with interviews with provincial and regional staff and a focus group with members of RAC's (March 2019 - August 2020)
- Project administrative data including minutes from RACs and project activities (March 2019 - August 2020)
- List of resources developed and activities delivered
- Exit/participant surveys with participants in Project events (November 2019 to July 2020)
- Social Media Data provided by AWET (March 2019 to August 2020)

Successes, Challenges and Lessons Learned

Women's Workplace Experience and Lessons for Employers

In their evaluation report SRDC identified a disconnect between the employers indication of their understanding of the needs of women and other equity seeking groups and the results of the survey data. SRDC outlined the following lessons from the survey and employer interview data: (SRDC, Advancing Women in Engineering and Technology - Final Evaluation Report, Dec 14, 2020)

- *A clear and authentic commitment to diversity and inclusion initiatives with procedures for accountability and data collected to monitor progress.*
- *The need for transparency around hiring policies, promotion criteria and salaries.*
- *Mentors to support the career retention and advancement of women, people with disabilities and racialized employees.*

- *The importance of creating and maintaining a positive, welcoming, and safe work environment was deemed essential to promoting diversity and inclusion. This culture has to be supported by all levels of management.*

- *Developing and implementing diversity and inclusion policies requires resources and organizational capacity. These policies have to be inclusive and supported by training to avoid alienating existing employees.*

- *Employers lacked how-to knowledge in terms of implementing diversity and inclusion policies and practices particularly around issues relating to implicit bias. Employers understood the business case for a diverse and inclusive workplace but struggled to know how to go beyond statements and or one-off training sessions.*

AWET Implementation Lessons

The following is a summary of the lessons learned, challenges and successes of the implementation of the Project (SRDC, Advancing Women in Engineering and Technology - Final Evaluation Report, Dec 14, 2020)

Project Scope – one of the most challenging but successful aspects of the Project was the ability to pivot to meet the new realities of Project delivery during the COVID-19 pandemic. The Project team, with support from ASTTBC and the Ministry were able to change focus and shift the delivery to online. The revised project plan was quickly implemented and the project team was creative and determined to make it work. The extension of the year 1 activities from May to August 2020 allowed the Project time to develop and deliver these online initiatives.

Provincial and Regional Focus – The AWET project model was comprised of a regional team to provide oversight and assist with coordination and the RCs who focused on their unique regional needs. This approach was welcomed by the RAC's but required more time and resources.

Project Management – The Project had three project managers in the first year and while each had their skill set, they each had their own view and approach to delivery and the changes caused frustrations within the Project team and some activities had to be changed. The Project Manager brought in March 2020, remained with the project to completion.

Staffing – During the first year, staffing was challenging and there were delays in recruiting the 4 RC's which delayed the developed of the RAC's. The RC's left the Project over the course of the year and it took time to recruit new staff and the RAC's became disengaged as the RC's had been the main point of contact. The shift to online delivery and one project team solidified the Project team. A further challenge

for the RCs' was the allocated time to achieve their targets. These factors added to the challenges of getting activities going quickly in the first year.

Development and Planning Phase – Additional time was required at the beginning of the Project develop the resources required. An important lesson is ensuring adequate time for building a workplan.

Regional Action Committees – The RACs were an important component of the Project which were facilitated by RC's, the challenge was the time taken to support the committees and difficulties when individuals were unable to attend as this could lead to a change in the planned activity or event.

Development of Resources including Website – The Project was very successful in developing marketing and other material and was consistent with branding. The shortened time frame meant the Project was not able to develop toolkits or guides for human resources professionals.

Delivery of Activities and Events – The event/satisfaction surveys show that the Project was successful in delivering in-person and online events and activities. An important lesson was the time required to deliver the events. AWET did not develop activities and events for employers given the truncated time frame.

Establishing Partnerships and Collaborative Working – The Project benefited from collaborating with other organizations to create career profiles, whitepapers and podcasts. Establishing the partnerships and working collaboratively took time.

Recruiting and Engaging Champions – Champions were intended to be a key component of the Project by participating in and supporting events and activities. The project was successful in recruiting over 90 champions however engaging and involving them in activities and events was challenging. Champions needed clear roles and responsibilities, and a smoother application process. A mechanism was needed to engage them even if they were not involved in the delivery of events and activities.

Sustainability – A very important lesson was the sustainability of the initiative. Individuals did not want to participate in a short-lived or one-off event. They wanted to invest their time and energy in an initiative that had a legacy or plan to sustain some components.

Jurisdictional Scan

Following the shift in direction, SRDC were contracted by the Project to conduct a jurisdictional scan. The intent of the jurisdictional scan was to combine the data generated from the Project evaluation, a literature review and qualitative interviews with employers, key informants and women in the sector to explore the factors that contribute to a successful diversity and inclusion initiative, what are the major barriers and

what insights does a GBA+ lens bring to the understanding of diversity and inclusion for equity seeking groups in the sector.

Literature Review Summary

The following is a summary from the SRDC report. The full report can be found in Appendix C – SRDC – Literature Review (September 18, 2020):

SRDC began the literature review in May 2020 and completed the first draft of the review in August 2020. The draft was reviewed by the Advisory Committee and feedback provided prior to submission to the Ministry.

The intent of the literature review was to explore the barriers faced by women in engineering and technology to identify potential policies and best practices to address these barriers. The review included a search of the SCOPUS database to identify relevant academic papers and a search of grey literature. This literature review will lead into a wider jurisdictional scan to further understand the representation and participation of women in engineering and technology.

The literature review found that there is overwhelming evidence that women are underrepresented in engineering and technology and despite initiatives over the last 30 years, the lack of progress is problematic and continues to expand as the need to grow a skilled and trained workforce increase.

The literature review reported that not all STEM sectors are the same in their representation of women. More than half of people obtaining degrees in biological science are women but engineering and computing continues to be predominantly men. In general, across STEM fewer women are entering the sector, more leave after university, fewer women are in leading, or in decision making roles, women are paid less, promoted less, and win fewer grants compared to men. Fewer girls participate in STEM subjects in high schools and even less continue STEM subjects in university.

The underrepresentation of women in STEM is partly explained by the concept of a "leaky pipeline". While progress has been made in increasing the representation of girls and women studying in high school and university, women continue to leave engineering and technology sectors.

Initiatives have been introduced to try to stop the leaks and focus on mentoring, coaching, networking, education and training, career and professional development, leadership development, and special funding and opportunities. However, despite the introduction of these initiatives, women still continue to be underrepresented in engineering and technology and increasingly the focus of initiatives has shifted to the engineering and technology environment and culture.

The literature review found that the reasons why women leave engineering and technology are complex, inter-connected and throughout their career. The review suggests the main reasons include the following:

- negative stereotypes, bias and discrimination;
- lack of supportive policies and supports which leave women feeling left out and unable to participate fully;
- lack of a shared understanding of experiences with male colleagues;

Research has highlighted organizational culture as a key barrier as this determines which behaviour is acceptable to unacceptable, the rewards for effort and the sanctions for unacceptable behaviour. The review focused on best practices within workplaces and outlines the steps recommended for organizations to follow to increase the representation of women and create a more diverse and inclusive workplace. The steps include analyzing the organization to gain an overview of its current position in relation to diversity and inclusion, design a strategy in relation to its current position and its goals, implementation of the plan, which is supported by leadership, is transparent and has accountability, monitor and review the progress so leadership and employees are informed of the successes and challenges and ensure the data is collected to inform the discussion on next steps.

The literature review echoed a clear message that diversity and inclusion in STEM must go beyond mission statements and policies, it must include intentional and authentic actions that are transparent and measurable. Rather than focusing solely on the leaky pipeline, the organizational culture needs to change to ensure women feel welcome and valued for this skill set the same as other employees and supports women to help them navigate and thrive in the workplace.

The literature review cautioned that changing the organizational culture is no small task, it takes time and requires sustained and consistent effort. It will require challenging conversations and organizations must be convinced of the business rationale for making the workplace more inclusive. The organization leaders must be committed to diversity and inclusion and model their behavior to set expectation and tone for all employees. Finally, the diversity and inclusion strategy must be owned by the organization and not just the human resources department and in the case of small organizations it needs to be championed by someone in a leadership position.

The literature review suggests that the diversity and inclusion strategy must move beyond compliance and by followed up with meaningful and intentional actions, tracking, measuring and reporting on progress to ensure it happens, this is not an event but is process.

Final Research Report Summary

The following is a summary from the SRDC report. The full report can be found in Appendix D – SRDC – Final Research Report (April 23, 2021)

The research confirmed that women are underrepresented in the engineering and technology section and this has been discussed for more than 30 years. The data suggests that there are complex reasons for lack of diversity in the sector, but solutions would require a comprehensive and sustained approach with intentional and authentic actions that are transparent, measurable and there is accountability within an organisation.

There are different approaches to tackling this issue, some initiatives focus on increasing the diversity of those entering the sector with the hope to reduce the gap. However, the literature review and data generated by the Project suggests this approach has limited success, gender and diversity gaps remain in recruitment, participation and career progression.

The leaky pipeline remains with women and diverse engineers and technologists leaving if they feel unwelcome, not belonging or have the same opportunities as their male colleagues. This will result in the continued growth of skills shortage within the sector and the lost opportunity to realise the benefits of having a diverse workforce for the sector and society.

The data review outlined the need to change organizational culture to ensure it is not only diverse but also inclusive with initiatives that are intentional and authentic, remove biases and go beyond legislative compliance.

Changing the culture of an organization will take time and require sustained and consistent effort. The research found that workplace or organizational culture is one of the main reasons women left the sector as it determines what behaviour that is deemed appropriate and acceptable. Research also showed that the difference between the women who stayed and those who left was not a difference in the women but in the culture of the workplace.

Business cases provide substantial evidence that diverse workplaces are more productive, creative, happier and healthier and this is evident on their bottom lines but still some organisations lack the desire to change. Leaders within the organisations must be committed to diversity and inclusion and set expectations and tone for all employees. The diversity and inclusion strategy must be owned by the organization and not the sole responsibility of the human resources department.

The report suggested that it is important to track and monitor organizational data on diversity and inclusion. Equity seeking groups believe the data will demonstrate the lack of diversity and inclusion. Employers need to track and monitor a range of diversity and inclusion indicators and report out using a GBA+ lens based on gender, ethnicity and presence of disability.

The interviews conducted as part of the research supported what the literature highlighted, that the training and support for women and equity seeking groups intended to help deal with the lack of diversity and inclusion will fail if systemic biases are not addressed.

The interviews showed that not all organisations are the same. There are organizations and employers that work hard to create welcoming, safe and respectful workplaces for all employees.

The interviews and research suggested there is optimism that the engineering and technology sector would become more diverse and inclusive. While change has been too slow, there was hope that as more diverse engineers and technologist enter the sector it will drive greater change and transformation.

Key informants speculated that good employers would rise to the challenge as not only is it the right thing to do, but it makes good business sense. The respondents suggested that for other employers it would need a 'burning bridge' and an unavoidable mandate for change but they stated that with skills shortages looming, what choice do they have?

Next Steps

In their Final Research report SRDC provided the following Recommendations for next steps (SRDC, Advancing Women in Engineering and Techonology - Final Research Report, DDMMYY):

1. *The engineering and technology sector has to find the 'burning bridge' that will persuade all employers to address diversity and inclusion within their organizations. Currently the impetus for change is coming from two sources: internally from employees and progressive leaders and externally as customers and contracts require reporting on diversity and inclusion policies and practices.*

2. *Raise awareness about the benefits of diversity and inclusion to the organization and sector. Consider recognizing or rewarding those employers who actively and authentically promote diversity and inclusion in their organizations.*

3. *An array of carrots and sticks will be needed to bring some employers to the table. These should reflect the capacity and context within which they are operating.*

4. *Make how-to information readily and easily available and consider providing supports to employers. Provide workshops on how to make recruitment and career advancement processes more diverse and inclusive as well as what and how to track and monitor progress.*

5. *Empower and train HR professionals to promote and respond to employees who have experienced bullying and discrimination because of their gender or are racialized.*

6. *Provide unconscious bias training that is scenario based and that goes beyond defining bias but helps employers and employees know how to respond to it. Some employers may be concerned about what they discover so training should provide a bridge to action.*

7. *Consider convening a leadership table that focuses on diversity and inclusion in the sector to share best practices and to highlight what is possible.*

8. *Provide support to outreach programs in elementary and high schools to encourage girls and those from equity seeking groups to participate in STEM.*

Conclusion

The objective of Advancing Women in Engineering and Technology Project was to increase the participation of women in the engineering, geoscience, technology and technician occupations by the implementation of diversity and inclusion strategies to recruit, retain and support career development of women within these professions.

The Project was approved as a SLMP phase 4 project which meant it was intended to be in the implementation stage and during the first year of the Project, the team managed to successfully recruit Champions, form Regional Action Committees and attend/host activities and events that supported the Project objectives. However, the project team recognised challenges encountered with implementation.

The Project team felt that quality control and standard operating procedures needed to be established at project initiation as the absence of these guidelines/tools and definitions of roles impacted the ability to implement activities. In general, it was felt the Project was missing foundational information and mechanisms for documentation and tracking.

The Project team also recognised the challenge to achieve a major project goal which was to develop resources/how to guides/toolkits for the recruitment, retention and advancement of women in the sector. The intent was that employer champions would assist in this development of resources however there was a lack of employer involvement which greatly impacted this delivery.

The first year was an opportunity to gather feedback and lessons learned which helped guide the Project in the second year when the withdrawal of project partners and the COVID-19 pandemic required the Project to quickly pivot and strategically shift the project direction.

In the first year the team recognised the siloed efforts from the industry and limited number of subject matter experts created a challenge for the Project to be able to provide guidance and offer support to employers in the implementation of strategies and policies to support women in this sector. The research component (jurisdictional scan) introduced in year two allowed SRDC to explore the barriers and challenges women in engineering and technology reported as part of the AWET Project and explore best practices to support women within the sector to address these.

The jurisdictional scan combined the data generated from the Project evaluation, with a literature review, qualitative interviews with employers, additional interviews including with key informants, employers and women in the sector identified what are the major barriers and reviewed what insights a GBA+ lens brings to the understanding of diversity and inclusion for equity seeking groups in the

sector. The jurisdictional scan introduced next steps that could be considered for supporting women in the sector.

ASTTBC are committed to continuing to drive greater change and transformation for women in the sector. As a next step, ASTTBC will implement the Projects sustainability plan to maintain the Project website and deliverables and in addition to this, ASTTBC are exploring potential ways of supporting the next steps introduced as part of the jurisdictional scan. The supports currently being considered includes the creation of a series of webinars that explore raising awareness about the benefits of diversity and inclusion, providing unconscious bias training and training on how to make recruitment and career advancement processes more diverse and inclusive.

Appendix A – Champion Welcome Package

Appendix B – SRDC – Advancing Women in Engineering and Technology – Final Evaluation Report (December 14, 2020)

Appendix C – SRDC – Advancing Women in Engineering and Technology – Literature Review (September 18, 2020)

Appendix D – SRDC – Advancing Women in Engineering and Technology – Final Research Report (April 23, 2021)