

FINAL REPORT

NSERC Chair for Women in Science
and Engineering | Prairie Region
2011 - 2020

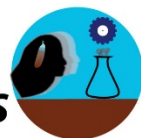
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University
of Manitoba



NSERC
CWSE-Prairies



HIGHLIGHTS OF THE CHAIR PROGRAM

Dr. Annemieke Farenhorst served as the NSERC Chair for Women in Science and Engineering (CWSE) in the Prairie region from 2011-2020. Dr. Farenhorst was the first agrologist and the first Manitoban to be awarded this Chair. The Chair program had a strong focus on advancing women in agriculture, and on strengthening the recruitment and retention of Indigenous students in university programs. The agricultural sector is key to the Prairies and in a global context, if women had the same access to resources as their male peers in agriculture, the resulting increased total agricultural production could reduce world hunger by an estimated 12 to 17%. As well, in Manitoba (18%) and Saskatchewan (16%), Indigenous peoples (First Nations, Métis, Inuit) account for a greater percentage of total population than in any other province in Canada. Indigenous peoples are the fastest growing population in Canada and hence the recruitment of new talent to natural sciences and engineering (NSE) professions can be sought in this demographic.

Through quantitative and qualitative indicators, including a Performance Management Strategy evaluation, there is evidence that the Prairies program achieved the three objectives that were outlined in the 2010 call for proposals for the NSERC Chairs Program. Specifically:

[1] The Prairies program raised the level of participation of women in NSE as students and professionals by introducing girls to NSE fields through youth outreach activities; encouraging Indigenous youth to enter university programs; mentoring women in undergraduate NSE programs to pursue graduate studies; and creating opportunities and access to leadership and development resources for women NSE faculty and university administrators. By providing graduate student opportunities for Indigenous (women) students, a *“multiplier effect”* resulted; simultaneously creating Indigenous women role models, who are inspiring and encouraging other Indigenous youth to pursue NSE careers.

[2] The Prairies program provided women role models by thoroughly integrating students with academic and industry NSE professionals. The impact of the Chair activities on such participants extended beyond NSE career inspirations to include *“real impact feeling”* of increased self-confidence to succeed in a range of life possibilities.

[3] The Prairies program ensured regional and national impact. For example, the Chair program positively impacted members of First Nations communities; and the social science research initiated by Dr. Farenhorst resulted in better understanding the burdens placed of inequity on women [faculty]. Such improved knowledge influenced women retention by influencing thought and behaviour at both the institutional (university) and individual (professor, administrator) levels. It also informed the Dimension Charter for post-secondary institutions in Canada under the leadership of the Honourable Kirsty Duncan.

During the decade that Dr. Farenhorst was the Chair, the enrollment of Indigenous undergraduate students grew from 2.7% (2011/12) to 7.0% (2019/20) of the total student population in her home unit (Faculty of Agricultural and Food Sciences, FAFS), so that FAFS became University of Manitoba’s NSE unit with proportionally the largest Indigenous student population. The percentage of women undergraduate and diploma students enrolled in FAFS increased from 42% in 2011/12 to 59% 2019/20. The percentage of women academics in FAFS steadily increased from 17.6% (2011/12) to 28.4% (2019/20) and is now exceeding 30% (2020/21).

1. Outcomes and Impacts

1.1. The Chair and her experiences

Dr. Annemieke Farenhorst earned her Ph.D. in Geography at the University of Toronto in 1998. She was hired by the Department of Soil Science, at the University of Manitoba in December 1997 and served as a Lecturer before being appointed tenure-track assistant professor in July, 1998. Dr. Farenhorst earned tenure in 2003 (the first women to do so since the department commenced in 1927), just after she had been appointed Associate Professor. She became Full Professor in 2008 and was nominated in 2011 for the NSERC Chair for Women in Science and Engineering in the Prairie region.

Dr. Farenhorst served as the NSERC Chair for Women in Science and Engineering in the Prairie region from 2011-2020. Appendix A lists the Chair's professional accomplishments during that time. The Chair led and engaged in a multiple of programs and activities that tied into the three objectives of the overall NSERC CWSE program. Dr. Farenhorst is grateful for the numerous learning opportunities gained during her role as the Chair in the Prairie region. These experiences had a profound impact on her career.

During the decade that Dr. Farenhorst was part of the NSERC CWSE program, she received enormous support from senior administrators across the Prairies, such as University Provosts, Vice-Presidents, Deans and Associate Deans. The experience ultimately led Dr. Farenhorst to consider a future in senior administration. Dr. Farenhorst was appointed Associate Vice-President Research in 2021. She continues to play a leadership role in advancing equity, diversity, inclusion and accessibility strategies, particularly through strengthening (modifying) institutional policies and procedures, and through daily interactions with internal and external academic stakeholders. She is a member of the University of Manitoba Indigenous Identity Consultation Working Group, upon invitation from the Vice-President Indigenous.

Being part of the NSERC CWSE program, as a Chair, allowed for much personal and professional growth. It is a unique experience in one's career.

1.2. Program objectives

The specific objectives of the Prairies program were developed to cover the three objectives of the NSERC Chairs for Women in Science and Engineering Program were defined as (in 2011):

1. Develop, implement, and communicate strategies to raise the level of participation of women in science and engineering as students and as professionals.
2. Provide female role models who are accomplished, successful and recognized researchers in science and engineering.
3. Develop and implement a communication and networking strategy to ensure a regional and national impact on opportunities for women in science and engineering.

1.3. Impact assessments

Prairies program metrics have been previously cited in Chair progress reports including the 24-month progress report (November 2013) and 48-month progress report (August 2016) in Term 1, and the 24-month progress report (June 2019) in Term 2. The renewal application (February 2017) of Dr. Farenhorst seeking a second term also provided information about the accomplishments of the

Prairies program. Much of these metrics were quantitative indicators as decided by the Chairs network. There were reoccurring discussions among the Chairs about which quantitative indicators to add and which ones to remove from the list. Some quantitative indicators were consistent across years regardless of the activity (e.g., the number of participants). As well, the five Chairs considered “quotes” from program participants to be valuable qualitative indicators when reporting to NSERC and other stakeholders.

The evaluation committee that reviewed the renewal application of Dr. Farenhorst indicated that in term 2, the Chair is required to prepare a performance measurement strategy that would provide for in-depth impact measure of the Prairies program. Following this recommendation, Dr. Farenhorst initiated discussions with the Chairs network and the five Chairs agreed to work together under the leadership of Dr. Jane Whynot. Dr. Whynot (nominated by the University of Ottawa) was seen as the most qualified candidate to work with the Chairs, in part, because her doctoral studies at that time was exploring the integration of Gender-based Analysis Plus (GBA+) in the Canadian federal government evaluation function.

The COM-B theory of change model was selected as the basis for the performance management strategy (Whynot et al. 2018 – see refereed publications in Appendix A). To assess the impact of the Prairies program, a basic interview guide was developed by an evaluator to address the ten qualitative indicators developed by Dr. Whynot. The evaluator was Dr. Jennifer Dengate, a sociologist specialized in gender and work, as well as qualitative methods and analysis, including in-depth interviewing. For organizational purposes, Dr. Dengate assigned each of the ten indicators to one of four corresponding levels of analysis: Chair activity-level, institution-level, region-level, and systemic-level (Table 1). Supplementary questions were developed by the evaluator for example for specific stakeholder groups (e.g., Chair program staff).

The evaluator conducted a total of 19 in-depth semi-structured interviews (in-person, over the telephone, and through video conferencing) between December 2019 to February 2020. Interviews were 30 to 150 min in duration with the interview participants representing a variety of stakeholder groups, namely: NSE students and faculty who attended or participated in one or more of the Chair activities; Prairies program administrators, coordinators or staff; and current and prospective CWSE Chairs. Collectively, the interview participants were able to specifically speak to the impact of the following program activities: youth outreach (e.g., Girls’ Club and Make Your Move); Agricultural Mentorship program; ICAN-WISE undergraduate scholarship program; NSERC CREATE H2O First Nations Water and Sanitation Program; the Verna J. Kirkness Education Program; House of Women Scientists (HoWS) videos; the WinSETT leadership and career development workshops; and the Faculty workplace climate surveys – Prairie and Atlantic regions.

Table 1. Qualitative Performance Measurement Strategy Indicators based on Whynot et al. (2018)

Relevant PMS Indicators (desired level of impact)

Level of Analysis I. Chair activities

1. Chair perceptions of intersectional dimensions represented by girls/women during tenure (e.g., language, gender, visible minority status, ability, Indigenous identity, etc.)
2. Reaction of girls/women/influencers/stakeholders (academic, industry, professional associations, non-profit, funders) attending/participating in CWSE sessions and events (directly influence)

3. Reported changes in girls'/women's knowledge and awareness in and about NSE fields (influence to some extent)
4. Perception of changes in girls'/women's NSE skills/competencies (influence to some extent)
5. Number of girls and women reporting increased confidence, feeling welcome, and being comfortable entering NSE field studies (influence to some extent)
6. Chair accounts of changes noted in one participant during the duration of each Chair (influence to some extent)

Level of Analysis II. Institution

7. Number of policy changes within Chair's academic institution(s) that support girls'/women's recruitment and retention in NSE (indirectly influence)
8. Alignment between CWSE strategic direction and home academic institution priorities (indirectly influence)

Level of Analysis III. Region

9. Chair perceptions of changes in "leaky pipeline" landscape in their regions (influence to some extent)

Level of Analysis IV. Systemic issues influencing women's underrepresentation in science and engineering

10. Chair's perceptions regarding the number and nature of barriers to women studying, working, and remaining employed in NSE (indirectly influence)

1.4. Brief program description and timelines

Among the early successes of the Chair program (2011-2013) was to secure the human resource collaborations and funding necessary to initiate and expand on youth outreach capacities in First Nations reserves. This was important to the Prairies program as, for example, more than one-half (53%) of First Nations in Manitoba and Saskatchewan live on reserves; and there are 133 First Nations reserves in this region. This included successfully securing several grants as a principal investigator (Health Canada: \$50,000; NSERC CREATE: \$1,650,000), as well as establishing professional relationships within the University of Manitoba's WISE-Kid-Netic Energy program and University of Saskatchewan's Science Ambassador Program. Much of the collaborations centered around strengthening science and engineering outreach programming to reach more Indigenous youth. Early in the Prairies program (2011-2013), the Chair also organized her first WinSETT leadership workshop in the region.

From 2013-2016, the Chair particularly focused on improving networking opportunities for girls and women, and on providing for role models to women at various stages in their careers. The CREATE



H2O program particularly helped to recruit and retain Indigenous women in science and engineering programs who all became important role models for Indigenous youth and junior students. This included Taylor Morriseau (see photo to left) who became a Vanier Scholar in 2018. About one-third of the students (33%) enrolled in the NSERC CREATE H2O program self-identified as Indigenous. Women accounted for almost two-third (63%) of the total one hundred trainees. Trainees in the CREATE H2O program

often served as ambassadors to youth programs in schools on First Nations reserves, and most

trainees also play important roles in hosting Indigenous grade 11 students as part of the Verna Kirkness science and engineering program.

In 2014, the Chair designed Girls Club to test for an outreach program in which a cohort of grade 3-8 girls connected every Saturday to meet with role models in science and engineering (see insert below)

At the university level, the Chair established a Prairie-wide scholarship (ICAN-WISE) for undergraduate students to find their research mentors in academia. In addition, the Chair helped create a (new) reoccurring MCWESTT conference that allowed for hundreds of NSE professionals to network while also learning from professional and personal development workshops. In addition, the Chair initiated the Agricultural Mentorship Program whereby women role models (mentors) interacted with each other in addition to providing mentorship to undergraduate students (mentees) who also gained an environment to interact with their peers.

Chair Program Activity: Girls Club
<p>Description: Examples of activities are: Welcome to Girls Club; Forensics Theme Day; Field trip to Fort Whyte Alive; Atmosphere and Astronomy Theme Day; Mad Scientist Day - Be sure to wear your Halloween costume; Codemakers Day #1, 2 & 3; Girl's choice theme day; Manufacturing Factory Field Trip; Entomology Theme Day; Community Outreach Day; Spaghetti Bridge Construction; Engineers Geoscientists Manitoba Spaghetti Bridge Competition; Assiniboine Park Zoo Field Trip; and Science Fair.</p> <p>Participants: Many girls that signed up for Girls Club had notable interests in science from day one and 87% of participants wanted to return to Girls Club the next year. The number of participants (grades 3-8 girls) increased each year with 9 girls in 2014/15 (18 Saturdays), 19 girls in 2015/16 (18 Saturdays), 28 girls in 2016/17 (18 Saturdays), and 34 girls in 2017/18 (18 Saturdays). It was determined that the program best run with a cohort of a maximum of ~ 20 youth so that in 2018/19, 20 girls from grades 3-5 participated in 10 Saturdays, and 21 girls from grades 6-8 girls participated in 10 different Saturdays. Caregivers were present for part or the entire event, depending on the comfort of the child and caregiver. Feedback surveys included the following quotes:</p> <ul style="list-style-type: none"> • "It surpassed our expectations. The leaders made a tremendous impact on my daughter. It wasn't just learning interesting things each week - the team actively mentored and inspired her every step of the way." Girls Club parent, 2017-2018 program. • "I enjoyed EVERYTHING!! But to name a few: coding (especially the last session with the robots) making slime, going to the zoo, holding and learning about the bugs, bridge building...there were so many great things!" Girls Club participant, 2017-2018 program. <p>Sustainability: The program has become very popular and is now also offered in French. The program had been integrated into the baseline offerings in the https://www.wisekidneticenergy.ca</p>

The final phase of the Chair program (2017-2020) focused on strengthening regional and national communications to celebrate women role models, and on research that resulted in enhancing equitable opportunities for academics in NSE fields across Canada. To highlight women role models, the Prairies program developed ten professional videos ranging in duration from a few minutes to 25 minutes. Five videos centered around the theme of what struggles graduate students might



experience during their journey (e.g., isolation, work life balance with young children, islamophobia) and how they found the strength to continue to succeed. These HoWS (House of Women Scientists) were featured at various conferences and on-line. Another example is a video series highlighting the important roles that women in agricultural professions play in society (see photo to left) and these professional videos are now on permanent display in the Bruce D. Campbell Farm and Food Discovery Centre that provides programming to hundreds of elementary and high school students

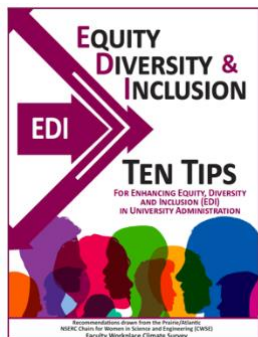
each year. This Centre is also distributing the youth activity booklets that the Chair developed (*Way to Grow* (English) / *Cultiver son Avenir* (French) – see insert to right) which feature 16 women in varied careers related to agriculture and shares a brief personal reflection of their work and an activity when they were young. In addition, the Chair generated a 25-min memorial video to honor the profound impact that Dr. Margaret-Ann Armour made on the NSE community in Canada, and this video was featured



during COVID at special virtual events that attracted a few hundred women. The video has also been made available to various stakeholders for permanent displays, e.g., at the University of Alberta.

During this final phase (2017-2020), the Chair also initiated social science research to examine the workplace climate as experienced by natural scientists and engineers at Canadian universities.

Surveys were developed and administered in 2017 at five universities in the Prairies and in 2018 at



seven universities in the Atlantic provinces. More recently (2021), these surveys were also administered at nine universities in Ontario with added questions related to the impact of COVID on academics. The results generated are seen as among the most comprehensive data available to inform Canadian universities on the need for systemic change towards improved gender equity. This research resulted in a wide range of refereed publications, as well as reports and tips for administrators (see insert to the left) (Appendix A lists these contributions); and these informative materials helped shape the Dimension Charter for post-secondary institutions in Canada under the leadership of the Honourable Kirsty Duncan.

1.5. Results of the performance management strategy

The performance management strategy results are divided into three sections: 1.5.1 shows examples of the impact of the Chair program as it relates to each of the three NSERC Chair program objectives; 1.5.2 addresses the impact of the Chair program according to the ten qualitative indicators (Table 1); 1.5.3 describes additional themes identified through inductive analysis of the 19 interviews performed by Dr. Dengate.

1.5.1. Evidence that the overarching three Chair Program objectives were met.

NSERC CWSE objective 1. Develop, implement, and communicate strategies to raise the level of participation of women in science and engineering as students and as professionals.

The interviews indicated that the Chair activities increased women's participation in science and engineering by introducing girls to NSE fields through youth outreach activities; encouraging young Indigenous women to enter university; mentoring women in undergraduate NSE programs to pursue graduate studies; and enhancing the career participation of women NSE faculty by creating opportunities and access to leadership and development resources. These impacts were particularly felt to have occurred through activities associated with the Verna J. Kirkness program, the CREATE H2O program and WinSETT workshops. Examples of the impact felt were:

Introducing girls to NSE fields

"If we have many [activities], each slightly different, then together that's where the impact is"

The Chair sponsored and developed a number of youth outreach activities targeted at girls in grades 3-8, including Girls' Club and Make Your Move. One individual with extensive knowledge of the design and delivery of these science and engineering activities stated that *"each activity [on its own] is not going to be the thing that changes everything; each have their own strengths . If we have many [activities], each slightly different, then together that's where the impact is"*. Another interviewee recalled that the girls *"always loved the activities"*; they often made friends and learned a lot.

Participation steadily increased over the years [in Girls Club – see photo insert to the left], indicating the activities’ success and popularity. Indeed, many of the same girls returned year after year; and such retention may have been related to the program organizers’ efforts to listen and respond to the girls’ interests (e.g., asking them to list the kinds of activities they would like to try on the sign-up forms).



Encouraging young women to enter university

“Could see the interest and excitement of the students”

The Verna J. Kirkness program volunteers stated that the immersive, week-long introduction to different NSE fields and campus life/resources may be the *“only reason”* that Indigenous youth, particularly those from remote areas, entertain the possibility of attending university and moving to a large urban centre. Similarly, another individual commented that they *“could see the interest and excitement of the students”* who were involved with Dr. Farenhorst and her laboratory group. They observed that *“a real bonding [took] place”*; that the experiences were *“totally brand new”* to the Verna J. Kirkness program youth and *“opened their eyes to what is possible”* in NSE and for their educational futures, in general.

Encouraging the pursuit of graduate NSE studies

“Wasn’t in the realm of possibilities, before”

Multiple graduate students remarked that the research experience they acquired as undergraduates in CREATE H2O was *“the only reason”* that they considered pursuing graduate studies in NSE and other disciplines. One, in particular, noted that no one in their family *“had been in graduate school before”* and, for them, graduate studies *“wasn’t in the realm of possibilities, before”*.

Enhancing the career participation of women NSE faculty

“It’s not just me”

One way in which the Chair activities enhanced the career participation of women NSE faculty was through her sponsorship of the WinSETT leadership and career development workshops. These workshops offer tools to successfully navigate NSE workplaces, including leadership skills, effective communication, emotional intelligence, negotiation skills, gender bias, strategic leadership, and networking. The workshops include multiple speakers to *“demonstrate the incredible varieties of pathways to leadership”* in NSE. They are evaluated very highly and one respondent noted that, *“even just the ability to be in a room with all women, for some, that’s the first time they’ve had that”*. Accordingly, these events can help reduce some of the isolation that women in NSE careers may be feeling because they help illustrate that *“it’s not just me”* [who is experiencing gender-related challenges], which can be *“paradigm shifting”*. In addition to fully sponsoring some individual workshops, the Chair also teamed up with others to organize entire workshop series in collaboration with the Universities of Alberta and Calgary, and the Southern Alberta Institute of Technology (SAIT). By purchasing seats, which the Chair then made available for free, some academics chose to take the entire series while others picked selected workshops. One individual suggested that this would have required *“a lot of commitment on [Dr. Farenhorst’s] part”* to find and confirm attendees on given dates; and recalled that Dr. Farenhorst also showed her commitment by volunteering as a guest speaker, which enabled her to connect with a large number of Prairie NSE faculty. The same individual also suggested that this approach showed that the Chair *“understands that academics may have limited access to professional development funds”*.

Integrating professionals and students

“Made a huge difference”

Overall, the Chair activities created numerous opportunities to build connections and relationships between students and both academic and industry NSE professionals, supporting future graduate studies or NSE employment. The Agricultural Mentorship program provided each student with two academic and/or industry mentors who helped *“to give [students] confidence in themselves and in the decisions that they are making”*. Women in agricultural studies may not have family or friends in agriculture (or those who know about that field). Thus, they *“need a network”*. Speaking from personal experience, one interviewee recalled that she did not have a network in agriculture until graduate school and *“having a mentor is huge”*; for example, undergrads may not have anybody to have a lunch date or meeting with and the Agricultural Mentorship program helps to build those kinds of connections and relationships. Similarly, one ICAN-WISE scholarship recipient stated that, in her field, it is *“really necessary”* to make those connections. In her first couple of years in school, she was a bit isolated (e.g., didn't really know anyone and was not easily able to connect with the *“stereotypical bros”* in her classes). However, after joining her ICAN-WISE mentor's laboratory, which had a very high percentage of women members, she had a network and support system. Having a support system *“made a huge difference”*. She had a better experience and a better grade point average, as well. The student noted that, even though her network of women is small, it is *“strong and helpful”* and *“a great resource”*. She developed *“solid relationships”* with her ICAN-WISE mentors and continues to work with them today. These mentors have helped give her more confidence to ask for and pursue opportunities and, as a network, they have helped her navigate academic NSE (e.g., where to publish her work).

NSERC CWSE objective 2. Provide female role models who are accomplished, successful and recognized researchers in science and engineering.

A variety of women role models were thoroughly embedded within the Chair activities. Girls and female university students were able to observe, interact with, and/or conduct research with other women role models; and multiple layers of mentorship often existed within individual activities (e.g., Girls' Club and ICAN-WISE mentorship research projects). The Chair also served as a mentor herself, to NSE students and women faculty members.

Provide women role models

Role models would have helped...*“overcome mental stigmas”*

Youth outreach activities, such as Girls' Club and Make Your Move, included *“multiple layers of mentorship”*. For example, youth attendees were mentored by both university students and professionals from NSE fields. Similarly, one ICAN-WISE mentor stressed that her graduate student research assistants mentored undergraduate students, in addition to learning from their faculty mentors. As part of her effort to create a *“safe space”* for students to be themselves, the mentor emphasizes collaboration and cross-disciplinary interactions, which produces a *“space for being different”* and an opportunity to negotiate those differences. In her laboratory, everyone is a non-expert, in some way, and has to learn from someone else. Accordingly, different perspectives and different kinds of expertise are respected; and everyone is expected to tutor someone else. An agricultural Mentorship participant said that they *“liked the opportunity to connect with one another”*. The mentors wanted to show their passion [for agriculture] and connect with students, while students liked the opportunity to network and have a relationship. One interviewee elaborated,

commenting that the mentor/mentee interaction *“solidifies what these women [the students] are hoping to do with their lives”*; and that the mentors who are established in their careers *“want to share with students”*. The women mentors are *“honest about how they’ve gotten where they are”* and a *“little bit of negative”* can benefit [female students] in the long run (e.g., *“now I know how to deal”* with challenging events that may occur).

With respect to NSE faculty, the WinSETT workshops both provided women attendees with role models; and, perhaps, helped them to become role models to their students and co-workers, especially if they were encouraged to pursue senior leadership roles. One workshop attendee remarked that she did not have women role models early in her career. Although she’s been successful, role models would have helped her *“overcome mental stigmas, such as ‘this isn’t the type of career for you...it’s hard [...] and what to choose [regarding family]’”*. Indeed, interviewees who praised the WinSETT workshops emphasized that a *“multitude”* of role models are important for women in NSE because they show you the *“different ways of being authentic”*; the *“plasticity”* or *“mutability”* of careers in NSE (i.e., there’s not just one pathway).

Prairie Chair as role model

“Crafted a Chair that was authentic to her” and showed *“how to do it”*

The Chair served as a role model for both NSE students and faculty members. Specifically, Dr. Farenhorst was one CREATE H2O student’s first female mentor; someone to look up to who helped to build her confidence. *“Seeing”* herself in that role [senior position in NSE] was crucial to her continuation in the program. Moreover, this student maintains that even though *“it’s been years [since she was in CREATE]”*, she still feels like she could go back to ask a question or share what she’s doing and Dr. Farenhorst would be supportive, interested, or try to help. Similarly, another CREATE student recalled that, during a visit to one First Nations community, she was able to have an informal conversation with Dr. Farenhorst. This allowed the student *“to learn a lot about her”*, which, she said, set her *“experience [with the Chair] apart from other professors”*. It *“humanizes her”* and the student maintained that it was very important that this happened organically, which is similar to how knowledge is shared and passed down in Indigenous culture (e.g., through story telling). Overall, this student sees Dr. Farenhorst as a good role model, especially since she’s *“one of the few women with such a high position”*.

With respect to women NSE faculty, interviewees said that Dr. Farenhorst motivated them to pursue influential senior roles. Specifically, one interviewee stated that she was encouraged to consider applying for a Dean’s position; and several others noted that Dr. Farenhorst influenced their decisions to apply for a CWSE Chair, in some way. This latter group of women observed that Dr. Farenhorst *“crafted a Chair that was authentic to her”* (i.e., tailored to her own interests/passions) and also served as a role model for *“how to do it”* with an already heavy academic workload. Another NSE researcher emphasized that Dr. Farenhorst was a great role model for future CWSE Chairs specifically because she accomplished *“a lot while still being a productive researcher”*. One (of several) *“things she did right”* was maintaining her own research while *“still provid[ing] leadership of the Chair”*. In this individual’s opinion, Dr. Farenhorst is *“a very good scientist”* and *“that characteristic is critical for the Chair...we need good, solid role models in the Chair positions across Canada”*. Moreover, women NSE faculty said that they hoped to extend Dr. Farenhorst’s progress on intersectional representation in their own future work: *“Annemieke did a tremendous job, particularly around recruiting Indigenous girls. I really think that’s fantastic [and] how can we build on that?”*. Likewise, another faculty member characterized Dr. Farenhorst’s work with Indigenous girls/youth as *“her signature area”* and remarked that it *“works so well because she approached it in multiple ways”*.

(e.g., CREATE H2O and the VJK program)". She "built a number of initiatives together" and "made a significant contribution" [to recruiting Indigenous girls/youth], now we need to keep them". Still others noted that Dr. Farenhorst helped to "role model how to work with Indigenous groups" which has inspired others "to include Indigenous youth" and "do more with respect to Indigenous issues".

Finally, some interviewees also remarked that, due to Dr. Farenhorst's efforts around CREATE H2O and the Faculty Workplace Climate Surveys, they were now interested in submitting their own CREATE grant application and are thinking about what other surveys or data collection can be completed in the future to advance equity, diversity, and inclusion (EDI) in Canadian NSE.

NSERC CWSE objective 3. Develop and implement a communication and networking strategy to ensure a regional and national impact on opportunities for women in science and engineering.

She "put herself out there and connected with women"

With respect to regional impact, the interviewees indicated that the Chair was "good at reaching across the [Prairie] provinces", especially through the WinSETT workshops; and attending other events at different universities, for example. Another noted that Dr. Farenhorst also reached across the Prairie region through her CWSE website and "put herself out there and connected with women" (e.g., at CCWESTT conferences and by creating the HoWS profiles of women in science and engineering). Overall, she was "a strong spokesperson" and "accessible and present".

At the national-level, the five CWSE Chairs worked together to influence federal policy; for example by establishing a relationship with Minister of Science and Sport, Kirsty Duncan. Indeed, the Minister was invited to and subsequently attended events with the Chairs; and the Chairs have been repeatedly invited back to Parliament in Ottawa. Likewise, the Chairs have consulted on the development of Canada's Dimension Charter for post-secondary institutions; and advanced EDI within the Canada Research Chair program, which now requires universities to write a clear EDI plan and hit their targets in order to receive the funding. As a result, one interviewee stated that there has been a lot of university change, with all institutions "hitting their [EDI] targets within six months". Finally, the Chairs also developed a Performance Measurement Strategy (PMS) for the NSERC CWSE Chair Program, which one individual characterized as "extremely important". It is something that "gives structure, order...and makes things clearer for the next Chairs"; and will help "show the scope of what the Chairs do".

1.5.2 Impact of the Chair program according to the ten qualitative indicators (Table 1).

Level of Analysis I. Chair activities

1. Chair perceptions of intersectional dimensions represented by girls/women during tenure (e.g., language, gender, visible minority status, ability, Indigenous identity, etc.)

The Chair engaged multiple underrepresented groups in the Prairie region (2011-2020). Specifically, Dr. Farenhorst included or emphasized: girls/women, particularly young First Nations and Métis women; and immigrants, many of whom were international students in NSE. With respect to the latter group, the Chair sought opportunities (e.g., HoWS videos) to highlight the gender-based cultural challenges faced by foreign-born women scientists of colour who may experience greater pressure to leave NSE work once they have children, as compared to other women. Accordingly, the Chair directly addressed maternal wall bias, which is one of the key barriers to retaining women in NSE careers; and did so by emphasizing the experiences of women negotiating multiple marginalized identities. In the final phase of the Chair program, Dr. Farenhorst began branching out into LGBTQ2-

related activities, such as sponsoring an LGBTQ2 event that was also attended by (international) students who are “in the closet”, some students for-safety reasons. The participants of the event stressed the importance of creating safe spaces for LGBTQ2 students on campus. In the Chair opinion, one of the key items that Canadian universities continue to struggle with is violence against LGBTQ2 (student) members, particularly trans students.

2. Reaction of girls/women/influencers/stakeholders (academic, industry, professional associations, non-profit, funders) attending/participating in CWSE sessions and events

Overall, girls, women, and other stakeholders asserted that the Chair programs and activities were successful and should “*absolutely*” or “*definitely*” continue in the future. Many of the interviewees offered detailed suggestions as to how to improve specific activities, based on their first-hand experience as participants. However, many of these suggestions reflect “*perfect world*” scenarios (e.g., assuming continuous and generous funding were available). As such, the suggestions are possible ways to fully maximize the success of the Chair’s, for example to repeat or continue the already positively-viewed events and programs. Finally, interviewees unanimously agreed that Dr. Farenhorst was “*absolutely*” and “*definitely*” an effective advocate for underrepresented groups in NSE; an effective CWSE Chair; and all said that they would like to continue working with her in the future.

Reaction of girls/youth *“Their enthusiasm increased”*

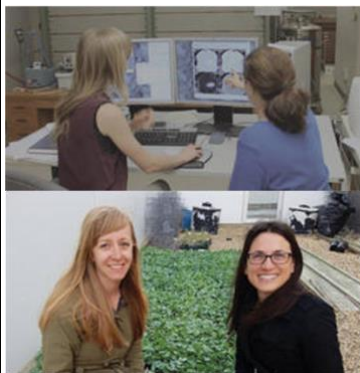
Dr. Farenhorst indicated that comparisons of pre- and post-activity surveys for the youth outreach activities showed more girls wanting to go into science and engineering; “*their enthusiasm increased*” and these activities were “*definitely confidence-boosters*”. Those involved with the design and delivery of the Make Your Move program stated that “*girls who never saw themselves going into engineering*” expressed interest in pursuing engineering after participating. The post-activity surveys revealed that girls “*overwhelmingly*” said they could see themselves in a NSE career. The activity organizers credit this, in part, to “*not overwhelming them with information*” but letting them “*explore at their own pace*”. With respect to suggestions to improve, some interviewees noted that it would be ideal to expand and offer the youth outreach activities to more children, especially in northern Manitoba and First Nations communities. Upon reflection, one coordinator said the experience emphasized “*the privilege of getting to choose to be interested in science*” (e.g., some schools do not have science labs, while others do). She continued, saying that it would be ideal to be able to identify those underprivileged schools and offer these activities to youth in these schools. It would be great to find a way to select “*students who need more support*”, those that may not be interested in NSE or those that do not know if they are interested in NSE.

Reaction of women university students *“Really positive experience”*

CREATE H2O program: Students described the CREATE H2O program as “*a success in a lot of ways*”, particularly “*from a trainee perspective*”. The program encouraged students’ interest in research, lab work, and community-based research projects; and, in some cases, undergraduate CREATE research projects became “*the foundation*” for future graduate studies. One student stated that it is “*the people in CREATE that make it successful*” (e.g., peers, faculty, and the coordinator); they were supportive of each other, “*really went above and beyond, out of their way for you and to push you to do more, nominate you for opportunities*”. Another felt that the program “*works well*”, overall; and

positives include *“the opportunity to travel and meet people from First Nations communities [...] and the emphasis on collaboration”*. However, some also held the opinion that the program has not yet *“entirely fulfilled”* its purpose (research and development). The research objective was fulfilled, as most research projects explained communities’ water problems, but that there was relatively less emphasis on the applied side (e.g., concrete solutions that can be implemented to solve water problems). Accordingly, suggestions to improve reflect the perceived benefits of expanding the program. Specifically, future iterations of CREATE may want to include more engineering students; and *“people who are good with policy and human health research”*, to work on solutions for reserve communities. Other suggestions reinforce the need for faculty members to spend more time in First Nations communities; to ensure students receive training in all aspects of the research (e.g., lab and field work); and to, ideally, involve [more] Indigenous youth from the participating communities in the research projects, too. Those interviewed said that they would like to see the program continue and, one in particular said that she would still be in it if her present research opportunity had not arisen. Another stressed that it is actually very important that CREATE continues because, even though the relationships between the First Nations communities and university researchers *“are brand new, [...] some trust has been established, so they can continue to work together in the future”*. The communities *“know what they need”* now and the foundation has been laid, so they can *“change things up”* in the future (e.g., new community projects that focus on the *“next steps”* necessary to solve the water safety issues).

ICAN-WISE Undergraduate Scholarship Program: One student said that she had a *“really positive experience”* and characterized the program as *“a good stepping stone”*. Indeed, she has recently applied to a graduate NSE program and will be continuing to work on the research she first began



with the support of the ICAN-WISE scholarship, having received an NSERC award to continue her work. Both the students and mentor interviewees commented that this scholarship program is a good complement to NSERC competitions. The student noted that the ICAN-WISE option *“felt more accessible”*. This student also *“really hopes”* that it is offered again; she was going to recommend it to a fellow student, but was disappointed that it was not available. Overall, she said that the program *“did its job”* and is *“strong as a research scholarship [...] a stepping stone to get people into research”*. Similarly, the mentors interviewed said that they would participate again in the future, if the program were to continue.

Again, suggestions were offered to maximize the success of the program for the future, including developing a way to match faculty with students looking for a research project; and expanding the program to include industry placements. As one mentor observed, *“most students won’t go into academia”*. Moreover, an industry placement might *“give them [the student] a leg up for graduation or future co-op placements”*.

Agricultural Mentorship Program: Participants expressed to program officials that they *“liked the opportunity to connect with one another”*. The mentors, in particular, *“want to show [their] passion and connect with students”*, whereas students liked the opportunity to network and have a relationship. Many of the mentors returned and participated for multiple years. Those that did not participate every year declined due to other commitments, not a lack of interest in the program.

HoWS Videos: One participant reflected positively on her experience being featured in one of the videos. In the course of filming, her current peers/colleagues felt they could ask her questions; getting

to know her better and understand her research better, in the process. She *“formaliz[ed] her passion through the videos”*, which, she felt, also helped her to understand herself better (e.g., *“why I made the decisions I made”* in pursuing science). Moreover, her mother shows her video around, and she remarked that *“it really does travel”*. Indeed, her video inspired a colleague’s young daughter. Even though this young girl was already interested in science and math, the video *“gave her a sense of confidence”*. She would like the videos to continue and add more because she *“loves hearing what other women are doing”* and wants to show them to the women in her life: *“It’s how you inspire”*.

Reaction of women faculty

“Uniformly” positive feedback

WinSETT workshops: One WinSETT workshop attendee thought that they were *“great”*, remarking that she *“enjoyed the content, the facilitator, and the guest speakers; and that they were very constructive [...] and well-attended”*. Moreover, she feels the workshops are important because *“we lack formal training for students [and] early career professionals up to faculty. There [are not] very many opportunities to get that formal [leadership] training and exposure unless individuals seek it out on their own”*. Similarly, another participant felt they were *“really good”* and particularly liked that the workshops were interactive, as opposed to a lecture-style. She felt that they were good at addressing personal leadership qualities (e.g., negotiation and communication); and said that other colleagues of hers were *“really happy”* with them, as well. Likewise, an administrator who sponsored a workshop series received *“uniformly”* positive feedback from attendees; and noted that they especially enjoyed the session tackling conflict resolution/difficult conversations.

Faculty Workplace Climate Surveys: Along with her emphasis on increasing Indigenous representation in NSE, interviewees praised the Faculty Workplace Climate Surveys as part of Dr. Farenhorst’s *“legacy”* as Chair. Senior NSE faculty felt that they surveys were *“definitely”* successful and provided very useful information. *“People (e.g., university administration) are very interested in the survey results”*, which *“[align] well with university priorities”* (e.g., how pervasive are [EDI] issues?). Similarly, one administrator shared the results with faculty at her institution and said that the ability to *“look at data for the Prairies (as opposed to the United States)”* was *“really, really powerful”* and *“really makes an impact”*. Indeed, one faculty member remarked that she would *“like it to be made available to other universities and faculty from other disciplines”* in the future. She would be especially interested in regional comparisons, such as comparing the level of faculty stress between regions with different levels of federal funding support. Generally, interviewees noted that the surveys will positively impact women in NSE fields because the data is the *“necessary first step before the issues can be addressed”*. In addition, the survey data is *“really important because it enables us to speak to the facts [...] and [lends] credibility, too”*. *“When the listener doubts...or has no experience [with gender inequality issues], it’s easy for them to dismiss”*.

Reaction of program stakeholders

“The most effective relationship I’ve had...”

One Verna Kirkness Education Foundation representative offered very high praise for Dr. Farenhorst, commenting that she *“brought innovation and novel ideas”* that supported the program’s objectives, such as a map of Canada showing every place that Canadian university students have come from, including small/remote places; and developing booklet that *“not only helps students see the opportunity available but their parents, as well”*. With respect to recruiting Indigenous youth to join the Verna Kirkness program, this individual noted that Dr. Farenhorst’s outreach experience and

contacts/networks were very beneficial; and that she was instrumental in identifying mentors and even mentoring the mentors, herself. Moreover, Dr. Farenhorst's "leadership" on the pre- and post-program surveys "really helped fine-tune the program; provided feedback to donors; and helped explain the program (e.g., that it's not about having the best/highest grades but the motivation and potential)". Overall, this representative concluded that "this relationship was the most effective relationship I've had in 50 years of doing business and volunteer work". Unsurprisingly, they would "definitely" like to continue working with her in the future; "certainly on the board", for her networks and contacts, and would like her "to serve as a sounding board". With respect to networks and contacts, the interview stressed that the Verna Kirkness program "often [has] few options when it comes to volunteers" and that the quality of volunteers varies (e.g., 1, 4, or 8/10). In comparison, they have found that all of Dr. Farenhorst's suggested volunteers "are 9/10 when it comes to quality".

3. Reported changes in girls'/women's knowledge and awareness in and about NSE fields

The "scope of my view of science really expanded"

Overall, the individuals interviewed concluded that Dr. Farenhorst's Chair activities increased knowledge and awareness of NSE fields, which resulted in change for some participants. For example, students in the Agricultural Mentorship program often "asked their mentors about summer jobs" and possibly changed their initial plans, as a result. They may have "switch[ed] their focus" to a job/field they had not previously considered. One CREATE H2O student recalled that she was previously interested in microbiology, but the program pushed her into learning about new areas, such as antibiotic resistance. As an undergraduate in CREATE, "doing fieldwork really opened [her] eyes to science". Likewise, the CREATE H2O conference showed another student different "research possibilities". She was "100% so amazed that other people were doing what we were doing"; and said that the "scope of my view of science really expanded", as a result. Specifically, participating students got to think about biology, soil science, and microbiology and gained concrete knowledge of field work, water testing and laboratory work during their time in the program. Similarly, one recipient of an ICAN-WISE scholarship said that the best part of the experience was "getting to try out" research in a new field. She did not know what exact field/area she wanted to go into or if she was even interested in doing research. The scholarship ended up being a "push to try" something new. Similarly, youth activity organizers explained that one of the core goals in designing the youth outreach was to give participants new or "outside-of-the-box" experiences in science. The youth activity organizers also strove to make sure the girls "had something to bring with them afterwards", such as resources or a craft that they had made. Their hope was that having something to take with them would help keep NSE in the girls' minds for the future.

4. Perception of changes in girls'/women's NSE skills/competencies

A "genuine, honest look at what it's like to work in a lab"

The interviewees generally concluded that the Chair activities increased girls'/women's NSE skills and listed a number of new skills they had learned, as a result of their participation. Youth outreach activities, such as Girls' Club and Make Your Move, were described as a "really good first introductory experience". Organizers noted that the intent was to "make it playful" and "exploratory", rather than school-like. All of the Girls' Club activities were inspired by real world science and included a balance between crafts and real lab experiences, introducing girls to physics, biology, microbiology, and ecology labs. They were also able to use "real" equipment (e.g., microscopes). Similarly, Make Your Move provided some "real experience with the engineering design process" and included relevant topics that engineering students deal with in their classes. The Verna Kirness program students

observed and took part in laboratory analysis activities during their visits to different campuses. One program representative recalled seeing *“their excitement at learning”* and noted that most students *“probably came [in] with no idea”*. This individual asserted that Dr. Farenhorst provided real lab experience; a *“genuine, honest look at what it’s like to work in a lab”* (e.g., water sampling and testing for microbes). Furthermore, CREATE H2O university students said that they learned a lot from the *“hands-on”* side of the program: basic laboratory skills that, for one undergraduate student, served as a crucial foundation for *“where I am now”*. Another student said that CREATE had a *“medium impact”* on her skillset because she mainly did field work. Nevertheless, field work taught her how to use and clean instruments and taught her about measurement quality, which were new skills. Finally, one ICAN-WISE scholarship recipient learned new computer science skills including web development and user modelling. In addition, she stressed the value of picking up more general skills in the course of her ICAN-WISE sponsored research experience, such as project leadership and mentoring junior students.

5. Number of girls and women reporting increased confidence, feeling welcome, and being comfortable entering NSE field studies (influence to some extent)

“It wasn’t as scary as I thought it was”

The evaluator asked interviewees to describe the impact that the different Chair activities had on the confidence and comfort of participants to pursue NSE studies. The youth outreach activity organizers concluded that girls’ confidence and comfort was *“definitely”* impacted because the hands-on experience and less intimidating environments allows them to see themselves doing [NSE work]. The organizers wanted to create a welcoming environment in order to build relationships, for the girls to feel safe, to vocalize, and to explore their interests. One agreed that creating such an environment could positively affect comfort with NSE fields if the girls feel able *“to ask science questions and follow [their] interests”*. The Girls’ Club science fair was singled out as a confidence-builder, specifically. *“A lot [of the girls] haven’t done presentations before or at least in science”* so the science fair is an opportunity to build their confidence *“to be able to do something like that”*. The girls get positive/supportive feedback from the judges and, even though, some of the youth *“may seem a bit nervous... all push through”*. Moreover, the girls also provided *“really positive feedback”* about their experience after it was over. One CREATE H2O university student recalled that she *“didn’t think I could do it; I didn’t see myself in them”* [graduate students in NSE]. However, her thinking changed after meeting and talking with another Indigenous female graduate student enrolled in CREATE H2O.



Still another described the program as vital to her decision to pursue a doctorate. More specifically, CREATE H2O *“tipped”* her interest in community-based projects (see photo insert to the left), that are strongly connected to the people that the research is intended to benefit. Similarly, seeing all of the different role models (professors and students) at the CREATE H2O conference increased another student’s comfort and confidence to pursuing NSE studies further. In addition, the conference helped demonstrate what it was like to give a presentation and one

student could see that *“it wasn’t as scary as I thought it was”*. As such, the conference was *“a good starting point”*, which has since helped her give another 4-5 conference presentations. One individual involved in the ICAN-WISE scholarship program asserted that the benefit, especially for students from underrepresented groups, is *“the confidence factor”*. The students *“get an extra four months of full-time work and skills experience/practice that their peers will not have”*. She further explained that this

extra time has the potential to reduce stereotype threat and for the student to think, *“I have the experience that they [other students] don’t”*. For another, the research opportunity enabled by the scholarship *“cemented”* what she was going to study in the immediate future, as well as her decision to pursue graduate school, as opposed to an industry job. Moreover, *“true mentorships [were] formed in many cases”* (e.g., some undergraduate recipients have gone on to graduate school and are still working with their mentors), which was described as a *“very positive”* outcome.

6. Chair accounts of changes noted in one participant during the duration of each Chair
“They’re very happy she’s there”

Dr. Farenhorst reflected on the progress made by two Indigenous female graduate students that participated in the CREATE H2O program. One was *“extremely shy”* when she first joined the program and it now *“an extremely successful Master’s student”* who makes a difference in the First Nations communities she works with. The community members, particularly the Elders, *“really value seeing her, hopefully, make a positive impact [...] they’re very happy she’s there”*. Through CREATE H2O, another student discovered her interest in *“research that applies to Indigenous people”*. She is now a PhD student and has won prestigious national awards. Dr. Farenhorst noted that her confidence also increased greatly and *“I would like to think CREATE helped”* that happen.

Level of Analysis II. Institution

7. Number of policy changes within Chair’s academic institution(s) that support girls’/women’s recruitment and retention in NSE
“She’s critical to the overall program”

As compared to 2011 (when her first Chair term began), Dr. Farenhorst emphasized that EDI, in general, is *“definitely a bigger priority now”* at the University of Manitoba; there’s *“a lot more appetite now”*. To illustrate, she pointed to a recent salary review that the University undertook to examine men versus women pay equality. In addition, *“a lot of [other] things within the system [are] happening”*, such as task forces which are reporting to the President on EDI and sexual harassment. With respect to Dr. Farenhorst’s impact, one representative from the University of Manitoba strongly emphasized how central she has been to advancing EDI within her own Faculty, asserting that *“if you want to know about women in science, automatically go to Annemieke”*. One specific illustration of her success is that implicit bias training is now required for every search/hiring committee within the Faculty of Agricultural and Food Sciences. Moreover, the individual also emphasized that Dr. Farenhorst has also impacted EDI across the University of Manitoba: *“She’s critical to the overall program; the depth and breadth of her knowledge”*. Dr. Farenhorst has been *“a fantastic resource”* who provided a *“new way of looking at things [and] helped [this university representative] to understand better”*. This was crucial for initiatives at University of Manitoba because *“you can’t share what you don’t know”*. Dr. Farenhorst has *“enhanced my work, what I bring to the table”*.

8. Alignment between CWSE strategic direction and home academic institution
“We are at a shift; shifting towards a better environment for all”

Dr. Farenhorst asserted that there has been good alignment between the CWSE strategic direction and the University of Manitoba’s EDI priorities since 2011. Specifically, she noted that there is *“total alignment”* between her Chair (and the CWSE program) and University of Manitoba’s goal of increasing the representation of Indigenous individuals. With recent Tri-Council developments requiring progress on EDI matters, there is *“more alignment now”* than ever before but there are still challenges in how progress is sought. For example, engineering units often prioritize outreach

programs for girls which is expected to be done by women academics [only] rather than engaging their male peers; and these same units do not necessarily address the “chilly campus climate” that women academics in engineering units continue to experience. Nevertheless, Dr. Farenhorst feels that her CWSE Chair program “has been part of the change” in the region: “We are at a shift; shifting towards a better environment for all”. In terms of particular Chair activities, Dr. Farenhorst concluded that the results from the Faculty Workplace Climate Surveys have been essential to her influence on EDI issues. Specifically, she has shared these findings with federal government representatives, NSERC representatives, and senior university administrators.

Level of Analysis III. Region

9. Chair perceptions of changes in “leaky pipeline” landscape in their regions *“Pockets of success”*

Interviewees asserted that the title of “Chair for Women in Science and Engineering” helped to legitimize women’s underrepresentation as a real systemic problem that deserves attention and resources. Indeed, even Dr. Farenhorst felt increased confidence sharing the Faculty Workplace Climate Survey results with government and university administration representatives. As Chair, she felt that she was “allowed to put this to your attention”. Dr. Farenhorst agreed that “quantitatively” the leaky pipeline analogy still applies in the Prairie region. However, she says that there have been “pockets of success”. Specifically, she stated that the “retention aspect has gotten better”, possibly because women might be “more persistent because they feel encouraged”. Dr. Farenhorst also drew upon the success of the CREATE H2O program to illustrate a “pocket” of recruitment success. She was initially hoping to attract 15% Indigenous students, but ended up with 1/3 Indigenous students and 2/3 women enrolled in the program. Overall, Dr. Farenhorst said that CREATE H2O “has done really well compared to other NSE programs”, likely because it is flexible in terms of what students could choose to do in the program. In addition, when asked what role her Chair has played in improving regional conditions, Dr. Farenhorst pointed to the Faculty Workplace Climate Survey results, specifically. She has shared the results with university administrators across the region, who have expressed interest in sharing them with their own EDI committees, calling them “useful for discussions”. Moreover, she has received feedback that the results have made individual professors “think” about their own behaviour. Accordingly, the surveys may contribute to positive future regional change in retention by influencing thought and behaviour at both the institutional (university) and individual (professor) levels. However, Dr. Farenhorst also noted that the “leaky pipeline” analogy is somewhat “old-fashioned”, and risks giving the impression that women’s underrepresentation in NSE is “the women’s fault” (e.g., they could not take the pressure of an NSE career and left). The leaky pipeline does not necessarily communicate that women are significantly more likely than men to have non-linear career trajectories. Accordingly, it is paramount to focus on ways to support women to re-enter NSE careers.

Level of Analysis IV. Systemic issues influencing women’s underrepresentation in science and engineering

10. Chair’s perceptions regarding the number and nature of barriers to women studying, working, and remaining employed in NSE

“Need to get more women into the system in order to retain the ones that are already there”

Dr. Farenhorst noted that the biggest barriers to women pursuing NSE education remain isolation and gendered cultural expectations that are fueled by media stereotypes; for example, that women are sexual objects and should be caregivers to children and the elderly. Similarly, a lack of spousal support

may impede women from pursuing high-level degrees in STEM. With respect to women applying for and being hired into NSE employment, Dr. Farenhorst cited the continued lack of role models, hostile climates, isolation, diminished confidence, which may discourage women; and implicit bias on the part of those responsible for hiring. In terms of retaining women in NSE employment, Dr. Farenhorst, again, noted the detrimental effects of hostile workplace climates, sexual harassment, exhausting work demands, and a lack of supports for women (e.g., role models, access to good quality childcare, encouragement, and opportunities). Nevertheless, Dr. Farenhorst did state that there has been progress on hiring women in academia. Specifically, she noted that there is a “*greater understanding of the burdens placed on women*” (e.g., service loads and caregiving responsibilities); and universities better “*recognize that they need to get more women into the system in order to retain the ones that are already there*”. Without such efforts, administrators know that women will be more likely to change jobs, find new opportunities, and move away. Finally, with respect to top priorities for the future, Dr. Farenhorst highlighted the importance of discussing quotas for accepting proportionally more qualified women and Indigenous students in university programs, as well as stronger efforts to diversify the composition of senior leadership in the academy. Moreover, she emphasized that intersectional equality should become a priority within leadership; for example, the women in senior leadership cannot only be white and heterosexual.

Interviewees overwhelmingly agreed that the CWSE Program is needed and should continue. Indeed, the general consensus was that there is still so much work to be done to improve women’s representation and working conditions that the number of Chairs should be increased because “*it’s too much work for five people*”. However, there was strong disagreement on how many Chairs are needed, which was partly related to the status that comes with the title of “Chair”. One individual specifically referred to the effect that “*the stamp of the Chair*” had on women faculty when they saw that Dr. Farenhorst was sponsoring activities. They stressed that the Chair “*brand is really well known in the academic community*” and it brings with it “*respect and credibility*” when trying to market activities to participants. It “*really enhances the value*”. As such, some interviewees were concerned that having too many Chairs might dilute the status/influence of the title of CWSE Chair; and one offered a compromise, suggesting one senior and junior Chair per region. As well, NSERC might want to consider offering more and different-sized grants, in addition to the CWSE Chair Program, to inspire “*more creativity to see what works*”. Such an approach may encourage everyone’s input towards improving women’s (and other groups’) representation and success in NSE fields.

1.5.3. Additional themes identified through inductive analysis of the 19 interviews

Two themes emerged from the interview data through inductive qualitative analysis. The first is the potential for a “*multiplier effect*”, resulting from prioritizing the participation of Indigenous youth/women. The second is “*the real impact feeling*” of the Prairie Chair activities, which interview respondents described as having a far-reaching effect on Indigenous youth, in particular, that went beyond learning about NSE fields or practicing NSE skills.

The multiplier effect: The CREATE H2O and Verna Kirkness programs exemplify the multiplier effect in two ways: at the student participant-level and at the faculty-level. As detailed in previous sections of this final report, many of the Indigenous women interviewees emphasized how transformative it was to “*see themselves*” working/studying in NSE fields, inspiring them to pursue graduate NSE programs. Thus, in the course of training the Indigenous women students who signed up for CREATE H2O, the program simultaneously created Indigenous women role models, who can inspire and encourage other Indigenous youth to pursue NSE careers. Indeed, some of Dr. Farenhorst’s Indigenous female

CREATE H2O students also volunteered as chaperones for the Verna Kirkness program. Thus, the Indigenous Verna Kirkness high school student participants not only had the opportunity to learn about different NSE fields, but were also able to “*see themselves*” in the undergraduate and graduate student chaperones, which supports the program’s goal of “*creat[ing Indigenous/women] role models and young leaders*”, who can then influence others. Further, by making Indigenous (women) representation a priority of her Chair program, Dr. Farenhorst “*open[ed] up [this] large area we [CWSE Chairs] weren’t working in*”. As a result of her efforts, other NSE faculty members have also made Indigenous representation a priority, writing it into their own grant proposals, for example. In addition, one faculty member explicitly stated that Dr. Farenhorst’s experience with Verna Kirkness program inspired her to become involved with the program, as well. She had a “*rewarding experience*” with the Verna Kirness program and remarked that her university “*had more volunteer mentors than they could use*”. Happily, she later found out that one of her Verna Kirkness participants enrolled in university.

The real impact feeling: Even though Dr. Farenhorst’s Chair program activities emphasized NSE fields and skills, their impact on youth, students, and Chair program staff (e.g., activity coordinators) extended beyond NSE to include increased career/life possibilities, self-confidence, and ability to succeed in any chosen field of work/study. With respect to the impact on career/life possibilities, one student volunteer commented that the Verna Kirkness program “*may be the first time many of these [Indigenous] youth have left home*”, which are, in many cases, remote locations. The experience can help these students “*see the reality and opportunity of a university education*” and students might feel that it is “*a lot less scary*” because they are safe and protected by experiencing it in the context of the Verna Kirkness program. Similarly, another interviewee explained that some things (like university) seem unrealistic “*until you try it*”. Some participants “*didn’t know what to expect before but can now imagine at least*”. Because of their Verna Kirkness program experience, the students can feel more confident in making future decisions about their education and employment, recognizing that instead of “*two possibilities...it’s basically unlimited*”. Indeed, one student volunteer shared the story of a young Inuk girl who visited the University of Manitoba, recalling that she gained a great deal of confidence through the experience, even making a speech at one of the dinners. Specifically, the Verna Kirkness program youth said that her experience had “*opened her eyes and helped build her confidence to pursue university/college*”. One ICAN-WISE participant stated that she learned foundational scholarly skills: “*My writing got hugely better*”. Through her undergraduate research experience, she also learned how to read, identify the quality of, and write about [scholarly] papers, and link the research they were doing back to that literature. Moreover, by participating in CREATE H2O, one student established networks that subsequently resulted in a paid job. She recalled that her experience working with First Nations communities while in CREATE helped her develop many professional skills that she uses in her current role, including knowledge translation/communication, community relations and outreach, hosting community events, and having tough conversations. Finally, Chair activity coordinators listed a wide variety of new skills they had acquired as a result of working on Dr. Farenhorst’s Chair activities, including event organizing, networking, communication skills, graphic design, and volunteer management. As a result, one interviewee noted that she can now apply for office administration, communications, outreach, and teaching-oriented jobs because she has “*a little experience in a lot of different areas now*”.

2. Expected Sustainability

The Prairies program offered a wide range of activities between 2011-2020, involving a wide range of communities in Canada, and in the Prairie region in particular (Appendix B). Examples of Chair program activities are provided in Table 2, along with references to program sustainability. There are a range of programs that will continue, including Girls Cub and the Agricultural Mentorship program that were initiated by the Chair.

Table 2. Examples of Chair program activities and their quantitative indicators. The table shows Chair activities that are sustainable over the medium- and long-term, as well as other examples.

2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
YOUTH OUTREACH							
Verna Kirkness Program							
8 youth (60% girls)	14 youth (64% girls)	32 youth (72% girls)	49 youth (49% girls)	76 youth (67% girls)	69 youth (64% girls)	115 youth (66% girls)	141 youth (62% girls)
<p>Program description: The goal of the Verna Kirkness program is to increase the number of Indigenous students graduating from science and engineering programs at Canadian Universities. The Verna Kirkness program launched at University of Manitoba in 2012 with the Chair appointed the academic champion for the program. Within seven years, the program grew from one university and less than a handful of mentors to eight universities and 53 participating mentors so that the number of youth participants also could grow, by 17-fold from 2012 to 2019. Some youth travel from remote communities over long distances and each youth is accompanied by a chaperone (e.g., teacher or community member). Dr. Farenhorst has been assisting the Verna Kirkness program by leading survey design/data collection, designing annual impact report; recruiting youth and mentors to the program, including youth in remote communities; developing a communication strategy to share program information more broadly; providing on-site human resource assistance to the program operations at four universities (facilitate evening and extracurricular activities for the students, supervised students in their dorms, and visited/assisted with lab activities); finalizing a T-Shirt design with a competition for youth to help in the design; sponsoring travel of girls visiting universities in Prairie provinces, and girls from the Prairies visiting universities across Canada; mentoring girls visiting the Chair's research team and laboratories. Students visiting Dr. Farenhorst's laboratories were from Manitoba, Saskatchewan, Alberta, British Columbia, Nunavut, and New Brunswick.</p> <p>Program Sustainability: This program will continue through the Verna J. Kirkness Education Foundation. Dr. Farenhorst has been a Board member on the Foundation since 2020 and remains actively involved in advancing the national program, and as a mentor to youth in her laboratories.</p>							
Other examples of Chair program engagement with youth							
<p>The youth outreach activities that were part of the Prairies program from 2011-2020 reached an estimated 62,800 youth, the majority of whom were girls. The level of the involvement of the Chair program varied from being the key host or active participants, to merely providing financial support to others to enable a wider reach for selected activities. Examples:</p> <ul style="list-style-type: none"> The Chair reached more than 3,000 youth in 129 schools across Canada in a single webinar in 2017. Most trainees that were part of the CREATE H2O program from 2013-2019 incorporate into their projects, outreach programming to youth in First Nations schools. These outreach activities reached hundreds of First Nations youth and were done in collaboration with community members, including Elders. The Chair participated from 2017-2019 in Science Rendezvous, the biggest science festival in Canada. About 440 youth and chaperones participated in the outreach activities of the Chair program that focused on soil protection and water sampling. The Chair reached more than 500 youth in 2018 and 2019 through DOTC Tipi Teachings. In the participating communities, few members (<30%) hold a high school degree or higher diplomas/degrees. Program Sustainability: This Program is maintained, organized, and delivered by community leaders, who seek the assistance of university researchers as needed. See Girls Club on page 4 above. At the University of Manitoba, the Chair program staff was involved in the delivery of a wide number of special events such as Go Code Indigenous, Go Code Girl, Go Eng Girl, Engineering IS For Girls, and Make your Move. In addition, the Chair program provided financial support for the delivery of additional summer science camps on First Nations reserves, and for the delivery of additional science outreach in inner city schools with a large enrollment of Indigenous youth. Program Sustainability: Such special events continue to be offered through the Wise Kid-Netic Energy program, University of Manitoba. Similarly, for the University of Saskatchewan, the Chair program provided financial support for expanding on the delivery of science outreach in First Nations reserves and in inner city schools, and also attended a school to meet with the youth for an afternoon. The outreach staff at the University of Saskatchewan assisted the Chair with the distribution of promotional booklets for the Verna Kirkness program. Program Sustainability: The College of Arts and Science, University of Saskatchewan, continues these outreach activities through the Science Ambassador and Nutrien Kamkeénow programs. 							
Post-secondary and post-graduate students							
Agricultural Mentorship Program							
-	-	-	-	-	20 mentees 40 mentors	20 mentees 44 mentors	16 mentees 31 mentors
<p>Program description: The Mentorship Program for Women in Agriculture matches university students with professionals in their field in a 1:2 (prior to COVID-19) or a 2:1 and 2:2 ratio (currently). Mentees are mainly undergraduates but also diploma or graduate students registered in the Faculty of Agricultural & Food Sciences at the Univ. Manitoba. As of 2019/20, students can earn a co-curricular university recognition upon participation. Mentors include professionals from industry, government, universities and other. Examples of in-person events include a chat with agricultural leaders; speed mentoring; obtain your professional profile photo; ink crafts; round table-discussion on selected topics; scavenger hunt outdoors; and learning about implicit bias. Since 2020, the program has been running virtually, whereby participants meet more frequently (bi-weekly) than what occurred in the past through in-person events. Examples of virtual events include just saying hello; what do graduate student do; make your own pizza with a movie night; writing as a tool of transformation; meet women in various stages of their careers. The limitation of the program in all years was the challenge of finding sufficient mentors (particularly during COVID) so that not all students that apply for the program can be accepted.</p>							

However, there are many success stories, for example mentors-mentees doing “mock” job interviews and cold calls, and mentees subsequently being successful in their real job applications. In addition, a number of students were sponsored by the Chair to go to major conferences such as the Advancing Women in Agriculture conference that attracts hundreds of role models from across Canada.

Program Sustainability: Dr. Farenhorst has continued the program after the end of her Chair, with funding from the Province of Manitoba and the University of Manitoba. Although not initially planned for, the program is in its second year of running in a virtual mode and this has been a rewarding experience for all participants involved. The virtual program can be offered at less cost than an in-person program and is likely the model that will continue to be used in the future.

Other examples of Chair program engagement with students

About 2,150 students directly engaged in the Prairies program from 2011-2020. Their interactions often involved longer-term projects with assigned mentors role models. Examples are:

- The ICAN-WISE scholarship program supported undergraduate students enrolled at universities in the Prairies to conduct research projects with a mentor at these universities. Preference was given to applicants active in advancing women in science and engineering and who self-identify as Indigenous. ICAN-WISE awardees (\$6,000 each) were from Mount Royal Univ. (1); Univ. Alberta (1); Univ. Brandon (1); Univ. Calgary (2); Univ. Manitoba (2), and Univ. Saskatchewan (2). Awardees documented their experiences through a photo blog shared on the Chair website, presented their research at a high school of their choice, and also at scientific conferences (posters).
- The Chair program provided financial support to the CIPWIE (**Committee for Increasing the Participation of Women in Engineering**) Engineering Mentorship Program that enrolled 180 students in total from 2017-2019.
- Five undergraduate and graduate students participated in the HoWS video series, with each spending several weeks with a film crew to showcase research and discuss their life experiences and choices.
- The Chair provided full sponsorships to about 50 students between 2011-2020 to attend conferences such as the Advancing Women in Agriculture Conference, and the Manitoba Community for Women in Engineering, Science, Technology and Trades (MCWESTT). These opportunities have long-lasting impacts on students. For example, see photo on page 3; as well as one of the students wrote: *“Throughout this past year I have been drawing strength and recalling lessons I have learned during the conference to help push me forward in my academic, professional and personal life.”*
- 384 undergraduate and 248 graduate students participated in surveys that were aimed to better understand how different genders perceive the underrepresentation of women in science and engineering fields. A non-NSE student analyzed the data and published the results with the Chair (see Appendix A).
- From 2011-2020, tens of undergraduate and graduate students assisted the Chair program with outreach activities, particularly in First Nations communities, and with a series of annual outreach events that take place on University of Manitoba grounds. A portion these students were supported to pursue research projects under the NSERC CREATE H2O program. The NSERC CREATE H2O program enrolled 100 trainees and resulted in hundreds of publications, conference presentation and community reports.

Academic, Industry, Government and Not-for-Profit Professionals

WinSETT workshops

	1 workshop	1 workshop			9 workshops	10 workshops	9 workshops
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Program description: WinSETT workshops are designed to retain and increase the leadership of women in NSE fields, and to achieve a more positive workplace culture for all. Having experienced the benefit from participating in professional workshops throughout her career, the Chair fully sponsored some WINSETT workshops, and also sought the collaboration of universities and other partners in the Prairies to offer additional WinSETT workshops. In these later cases, the Chair advertised the workshops to women academics and provided sponsorships for them to attend their selected workshops (i.e., purchasing seats). The Chair also assisted with the recruitment of sponsors, for example to provide for a venue and food options during workshops, and assisted with suggesting quest speakers. Each workshop reached maximum capacity (~25 to 30 participants).

Program Sustainability: WinSETT is a well-established not-for-profit organization that continues to provide a wide range of options for women to gain professional and personal strength, while providing options for supportive networks in doing so.

Other examples of Chair program engagement with professionals

- An estimated 5,880 professionals directly engaged in the Prairies program from 2011-2020, and these professionals were primarily women academics in science and engineering fields. Examples are:
- The 80+ Mentor project was created by the Chair in response to her discussion with an undergraduate student who indicated that there was a lack of academic women role models in her chosen field within the University of Manitoba, while the Chair knew of such role models at other universities. A total of 86 profiles were created with each profile being highlighted though social media (twitter, Chair website). These profiles (anecdotally) helped women to connect.
- In 2017/18, the Chair developed a workshop on Maternity Leave for professionals working in the agricultural sector. Workshop participants were employees of a large company, including live broadcasting to satellite locations. The Chair also offered these workshops twice at the (national) Advancing Women in Agriculture.
- The Chair program worked with a professional film crew company to develop life-size videos of employees in the agricultural sector. Collectively, the women leaders in agriculture tell what their job is all about, in a way that is understandable to youth. Manitoba. Following an official launch that was attended by about thirty industry stakeholders, the videos have become permanent displays in the Bruce Campbell Farm and Food Discovery Centre that is often visited by youth.
- In addition to supporting her trainees and nominating them for awards, the Chair successfully nominated a number of women in NSE fields for awards: Chantal Bassett (July 2019) President's Award, University of Manitoba; Filiz Koxsel (March 2019) Competitive Research Award - Good Food Institute; Marina Gavrilova (Aug 2018) 'U Make A Difference' Award - University of Calgary.
- The Chair initiated a workplace climate survey in the Prairie region, and the study was subsequently expanded to include the Atlantic region and Ontario. With more than 1,200 respondents (not counted as part of the 5,880 professionals in total), this work is seen as among the comprehensive data available in Canada. Please see Appendix A for the titles of refereed articles, reports and pamphlets that were generated from this research.

3. Best Practices

CWSE Chairs should collaborate with social scientists who have expertise in surveys and interviews, as these skills can support the design and evaluation of different Chair activities. Moreover, collaborations with social scientists are also essential to help produce “*better research quality*”; for instance, because they know the scholarly literature on intersectional inequality, they can identify important issues and can also help natural scientists and engineers develop good research questions to investigate/impact the equity issues that are important to diverse populations.

The written feedbacks of the evaluation committee on both the progress reports and renewal application were essential for Dr. Farenhorst to continuously improve on her programming during her tenure as the Chair. However, since only written comments were provided by the evaluators, and there were no formal feedback mechanisms by which the Chair could provide feedback to the evaluators, there were lost opportunities. In terms of best practices, future CWSE Chairs are encouraged to engage in discussions with NSERC program coordinators, to enable face-to-face (virtual) discussions with evaluators to provide for greater learning opportunities for all.

The Performance Measurement Strategy developed by Whynot et al. (2018) is a very useful tool to evaluate the impact of a Chair program. Historically, the Chair programs have utilized simplistic quantitative and qualitative metrics to measure impact, for example the number of participants attending an event; and quotes from participants. Although such metrics are useful, the real impact is made based on a collection of activities; and their cumulative impact can be measured using the ten qualitative indicators developed by Whynot et al. (2018) (Table 1).

4. Obstacles

The program allowed for networking with other women; this was rather unique for Dr. Farenhorst who had been often the only woman in the room in her workplace and workspaces. The interaction with other women, helped Dr. Farenhorst to understand that much of the experiences that she had encountered as a graduate student and academic were the same experiences which other women had been struggling with. Because of this knowledge, the Chair felt extra motivated to do well in the region and bring change so everyone can thrive. Unfortunately, although the number of men interested in EDI is increasing, their numbers are not nearly enough. For example, at conferences that are to support women, or workshops that offer insights how to advance EDI in NSE fields, it is still relatively rare to see men in the room. We need to engage more men in learning opportunities and discussions, so they start to truly understand the issues that women academics are facing in their workplaces, as community awareness is needed to trigger systemic change.

Appendix A

(pages 25-58 are omitted from this on-line report)

Appendix B

List of communities impacted by Prairies program activities

LOCATION	LONGITUDE	LATITUDE	INTERVENTION*
Altona (MB)	49° 6' 16" N	97° 33' 45" W	1
Anola (MB)	49° 53' 6" N	96° 38' 8" W	1
Argyle (MB)	50° 10' 52" N	97° 27' 16" W	1
Beausejour (MB)	50° 3' 44" N	96° 30' 58" W	1
Beauval (SK)	55°08'42"N	107°36'44"W	1
Benito (MB)	51° 54' 50" N	101° 32' 54" W	1
Berens River (MB)	52° 21' 50.4" N	97° 1' 37.2" W	1
Birch River (MB)	52° 23' 46" N	101° 6' 14" W	1
Black Lake (SK)	59° 8' 0" N	105° 36' 2" W	1
Blumenort (MB)	49° 36' 16" N	96° 41' 20" W	1
Boissevain (MB)	49° 13' 50" N	100° 3' 30" W	1
Bowsman (MB)	52° 14' 9" N	101° 12' 26" W	1
Brandon (MB)	49° 50' 0" N	99° 57' 0" W	1
Brochet (MB)	57° 52' 47" N	101° 40' 16" W	1
Brokenhead First Nation (MB)	50° 20' 42" N	96° 36' 14" W	1
Bruxelles (MB)	49° 29' 15" N	98° 55' 7" W	1
Buffalo Narrows (SK)	55° 51' 14.4" N	108° 29' 2.4" W	1
Bunibonibee Cree Nation (Oxford House) (MB)	54° 55' 0" N	95° 19' 49" W	1,2
Calgary (AB)	51° 3' 0" N	114° 4' 0" W	1, 2
Camperville (MB)	51° 59' 18" N	100° 8' 34" W	1,2
Canupawakpa Dakota (MB)	49° 37' 17.4" N	100° 56' 6.72" W	1
Carman (MB)	49° 29' 57" N	98° 0' 3" W	1
Carry the Kettle (SK)	50° 19' 11" N	103° 21' 10" W	1,2
Cartwright (MB)	49° 9' 38" N	99° 34' 15" W	1
Churchill (MB)	58° 46' 9" N	94° 10' 9" W	1,2
Clandeboye (MB)	50° 14' 31.7574"N	96° 58' 28.5924" W	1
Cranberry Portage (MB)	54° 35' 10" N	101° 22' 38" W	1
Creighton (SK)	54° 89' 80" N	101° 22' 38" W	2
Cross Lake (MB)	97° 46' 48" N	54° 37' 32" W	1
Cumberland House (SK)	53° 56' 29" N	102° 18' 45" W	1,2
Curve Lake Ontario (ON)	44° 27' 41.76" N	78° 22' 14.16" W	1
Dauphin (MB)	51° 11' 57" N	100° 3' 48" W	1
Deloraine (MB)	49° 11' 27" N	100° 29' 38" W	1
Domain (MB)	49°36'52"N	97°19'13"W	1
Dominion City (MB)	49° 8' 31" N	97° 9' 20" W	1
Duck Bay (MB)	52° 10' 35" N	100° 8' 57" W	1
East St. Paul (MB)	49° 58' 38" N	97° 0' 37" W	1
Edmonton (AB)	53° 32' 0" N	113° 30' 0" W	1,2
Elm Creek (MB)	49° 40' 32" N	97° 59' 33" W	1
Enilda (MB)	116° 18' 41" W	55° 25' 1" N	2
Erickson (MB)	50° 29' 53" N	99° 54' 41" W	1
Ethelbert (MB)	51° 31' 45" N	100° 23' 36" W	1
Falun (AB)	52° 95' 98" N	113° 82' 53" W	2
Fisher River Cree Nation (MB)	51° 26' 20" N	97° 22' 0" W	1, 2
Flin Flon (MB)	54° 46' 5" N	101° 51' 51" W	1
Fond du Lac (SK)	59° 19' 0" N	107° 11' 0" W	1,2
Fredericton (NB)	45° 57' 0" N	66° 40' 0" W	2
Garden Hill First Nation (MB)	53° 52' 17.04" N	94° 38' 26.88" W	1,2
Gift Lake (AB)	55° 88' 21" N	115° 81' 45" W	2
Gillam (MB)	56° 20' 50" N	94° 42' 28" W	1,2
Ginew (MB)	49° 7' 41.2752"N	97° 14' 35.2242"W	1
Goodfish Lake (AB)	54° 30' 0" N	111° 83' 33" W	2
Grand Rapids (MB)	53° 12' 30" N	99° 18' 0" W	1
Grandview (MB)	51° 10' 27" N	100° 41' 52" W	1
Grassy Narrows (ON)	50° 11' 0" N	94°02'W	1
Green Lake (SK)	54° 17' 27.28" N	107° 47' 13.63" W	1
Grosse Isle (MB)	50° 3' 42" N	97° 26' 20" W	1

Grunthal (MB)	49° 24' 24" N	96° 51' 29" W	1
Hatchet Lake (SK)	58° 38' 1" N	103° 40' 2" W	1
High Prairie (AB)	55° 43' 29" N	116° 48' 87" W	2
Holland (MB)	49° 35' 51.07" N	98° 52' 45.98" W	1
Hollow Water First Nation (Wanipigow) (MB)	51° 10' 5" N	96° 16' 59" W	1
Hudson (ON)	47° 32' 14" N	79° 49' 27" W	1
Ile a la Crosse (SK)	55° 27' 0" N	107° 53' 0" W	1
Ile des Chenes (MB)	49° 42' 38" N	96° 59' 18" W	1
Inwood (MB)	50° 38' 24" N	97° 29' 42" W	1
Joussard (AB)	55° 23' 52" N	115° 57' 8" W	2
Kenora (ON)	49° 46' 0" N	94° 29' 0" W	1
Killarney (MB)	49° 11' 0" N	99° 39' 46" W	1
Kinonjeoshtegon First Nation (MB)	51° 54' 10.7994" N	97° 18' 28.8" W	1
Kleefeld (MB)	49° 30' 5" N	96° 52' 29" W	1
La Broquerie (MB)	49° 31' 23" N	96° 30' 38" W	1
Lac du Bonnet (MB)	50° 15' 13" N	96° 3' 38" W	1
Lake Manitoba First Nation (MB)	50° 54' 50.4" N	98° 34' 26.4" W	2
Landmark (MB)	49° 40' 18" N	96° 49' 18" W	1
Leaf Rapids (MB)	56° 28' 0" N	99° 44' 59" W	1
Lethbridge (AB)	49° 41' 39" N	112° 49' 58" W	1
Lorette (MB)	49° 44' 21" N	96° 52' 18" W	1
M'Cheegeng First Nation (ON)	45°50'N	82°10'W	1
Manto Sakahikan (God's Lake) (MB)	54°33'17"N	94°28'35"W	1
Manto Sipi (God's River) (MB)	54°50'11"N	94°03'23"W	1
Mathias Colomb (Pukatawagan) (MB)	55° 44' 43" N	101° 17' 18" W	1
McLennon (AB)	55° 71' 16" N	116° 90' 43" W	2
Merritt (BC)	50° 11' 13" N	120° 78' 62" W	2
Miami (MB)	49° 22' 16" N	98° 14' 38" W	1
Minot (MB)	49° 24' 27" N	100° 1' 16" W	1
Mistawasis First Nation (SK)	53° 9' 46" N	106° 48' 10" W	1
Mitchell (MB)	49° 32' 3" N	96° 45' 43" W	1
Moose Lake (MB)	53° 42' 0" N	100° 17' 59.99" W	1
Morden (MB)	49° 11' 31" N	98° 6' 2" W	1
New Bothwell (MB)	49° 35' 26.9" N	96° 53' 20.9" W	1
Nisichawayasihk Cree Nation (Nelson House) (MB)	55° 47' 0" N	98° 53' 18" W	1
Niverville (MB)	49° 36' 20" N	97° 2' 30" W	1
Northlands Dene (Lac Brochet) (MB)	58° 36' 58" N	101° 30' 0" W	1
Norway House Cree Nation (MB)	54° 1' 20" N	97° 45' 5" W	1,2
O-Pipon-Na-Piwin Cree (South Indian Lake) (MB)	56° 46' 49" N	98° 55' 49" W	1
Oakbank (MB)	49° 56' 29" N	96° 50' 35" W	1
Oakville (MB)	49° 55' 46" N	98° 0' 14" W	1
Ochre River (MB)	51° 3' 44" N	99° 46' 48" W	1
Olds (AB)	51° 47' 34" N	114° 6' 24" W	1
Onanole (MB)	50° 37' 21" N	99° 58' 5" W	1
Opaskwayak Cree Nation (MB)	53° 48' 57.6"N	101° 15' 7.1994"W	1
Ottawa (ON)	75° 41' 0" W	45° 25' 0" N	1
Paqua (SK)	50° 79' 33" N	103° 96' 25" W	2
Peguis (MB)	51° 12' N	97° 29' W	1,2
Penticton (BC)	49° 49' 91" N	119° 59' 37" W	2
Pine Creek First Nation (MB)	52°03'34"N	100°11'48"W	1,2
Pinehouse Lake (SK)	55° 30' 49" N	106° 35' 55" W	1
Pipestone (MN)	44° 0' 2" N	96° 19' 3" W	1
Plum Coulee (MB)	49° 11' 28" N	97° 45' 38" W	1
Poplar Point (MB)	50° 05' 36" N	97° 55' 48" W	1
Port Alberni (BC)	49° 23' 39" N	124° 80' 55" W	2
Portage La Prairie (MB)	49° 58' 22" N	98° 17' 31" W	1
Powell River (BC)	49° 83' 52" N	124° 52' 47" W	2
Punnichy (SK)	51° 37' 12" N	104° 29' 74" W	2
Regina (SK)	50° 27' 17" N	104° 36' 24" W	1
Reston (MB)	49° 33' 27" N	101° 5' 36" W	1
Roland (MB)	49° 21' 59" N	97° 56' 24" W	1

Rorketon (MB)	51° 23' 22" N	99° 35' 19" W	1,2
Roseau River (MB)	49° 10' 4" N	97° 15' 58" W	1
Rosser (MB)	49° 59' 24" N	97° 27' 33" W	1
Sagkeeng First Nation (MB)	50° 36' 23" N	96° 17' 38" W	1
Saint-Jean-Baptiste (MB)	49° 15' 56" N	97° 20' 23" W	1
Sandy Bay First Nation (MB)	50° 33' 1" N	98° 39' 57" W	1
Sanford (MB)	49° 40' 57" N	97° 26' 39" W	1
Sapotaweyak Cree Nation (MB)	52° 51' 14" N	100° 30' 16" W	1,2
Saskatoon (SK)	52° 8' 0" N	106° 41' 0" W	1,2
Selkirk (MB)	50°08'37"N	96°53'02"W	1
Shamattawa (MB)	55° 51' 11" N	92° 5' 11" W	1
Six Nations of Grand River (ON)	43°03'04"N	80°07'21"W	1
Skownan (MB)	51° 57' 0" N	99° 36' 0" W	1
Slave Lake (AB)	55° 17' 7" N	114° 46' 14" W	2
Smithers (BC)	54° 78' 24" N	127° 16' 86" W	2
Split Lake (MB)	56°14'43"N	96°05'38"W	1
Split Lake (MB)	56°14'43"N	96°05'38"W	1
Spruce Woods (MB)	49°42'07"N	99°09'37"W	1
St. Andrews (MB)	50° 16' 12" N	96° 58' 29" W	1
St. Francois Xavier (MB)	49° 54' 46" N	97° 32' 30" W	1
St. Malo (MB)	49° 19' 2" N	96° 56' 56" W	1
St. Pierre Jolys (MB)	49° 26' 25" N	96° 59' 4" W	1
Starbuck (MB)	49° 46' 20" N	97° 37' 2" W	1
Steinbach (MB)	49° 31' 33" N	96° 41' 2" W	1
Stony Mountain (MB)	50° 5' 11" N	97° 13' 8" W	1
Stony Rapids (SK)	59° 15' 17" N	105° 50' 19" W	1
Surrey (BC)	49° 19' 13" N	122° 84' 90" W	2
Swan Lake First Nation (MB)	49° 23' 15" N	98° 53' 28" W	1
Swan River (MB)	52° 6' 21" N	101° 16' 0" W	1
The Pas (MB)	53°49'30"N	101°15'12"W	1
The Pas (MB)	53°49'30"N	101°15'12"W	1,2
Thicket Portage (MB)	55° 19' 5" N	97° 41' 13" W	1
Thompson (MB)	55° 44' 36" N	97° 51' 19" W	1,2
Tootinaowaziibeeng Anishinabe First Nation (MB)	51° 13' 37.2" N	101° 13' 12" W	1
Tyndall (MB)	50° 8' 34" N	96° 31' 55" W	1
Vancouver (BC)	49° 28' 27" N	123° 12' 07" W	1
Victoria (BC)	48° 25' 19" N	123° 21' 54" W	1
Virden (MB)	49° 51' 3" N	100° 55' 54" W	1
Wabowden (MB)	54° 90' 94" N	98° 62' 94" W	2
Wabowden (MB)	54° 54' 32" N	98° 37' 47" W	1
Wasagamack (MB)	53° 53' 30" N	94° 57' 5" W	1
Wasagamack (MB)	53° 53' 30" N	94° 57' 5" W	2
Winkler (MB)	49° 10' 54" N	97° 56' 23" W	1
Winnipeg (MB)	49° 53' 58" N	97° 8' 21" W	1
Wollaston Lake (SK)	58° 6' 18" N	103° 10' 8" W	1
Woodlands (MB)	50° 12' 26" N	97° 39' 36" W	1
Wuskwi Sipiik (MB)	52° 36' 30" N	101° 23' 26" W	1
York Landing First Nation (MB)	56° 5' 23" N	96° 6' 30" W	1

* Intervention 1 = Program activity took place in the community; Intervention 2 = Participant (s) from the community moved to a central location where the program activity took place.



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