Report from the Inaugural CCWESTT Policy Forum
May 3, 2012
Halifax, Nova Scotia

Moving Forward Together
Who We Are

CCWESTT and the WinSETT Centre are taking action on these important issues

Established in 1987 and stretching from coast to coast to coast, CCWESTT (Canadian Coalition of Women in Engineering, Science, Trades and Technology) promotes women in science, engineering, trades and technology, celebrates their contributions and applies new vision to these fields.

Established by CCWESTT, the Canadian Centre for Women in Science, Engineering, Trades and Technology (WinSETT Centre) is an action-oriented, non-profit organization that aspires to recruit, retain and advance women in SETT. The WinSETT Centre enhances women’s leadership in SETT and helps create more respectful and inclusive SETT workplaces by delivering various services and programs for women and employers.

Call to Action
Support Women in SETT

In the 21st century, it makes financial and societal sense to enhance the number of women working in SETT fields. For these reasons, CCWESTT and the WinSETT Centre invite your organization to partner in actions to build a better Canada.
# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction: Sharing stories, creating change</strong></td>
<td>5</td>
</tr>
<tr>
<td><strong>Part 1: Inspiration</strong></td>
<td>7</td>
</tr>
<tr>
<td>Stories from women in science, engineering, trades and technology</td>
<td>7</td>
</tr>
<tr>
<td>Perspectives from industry, government, labour and the non-government sector</td>
<td>10</td>
</tr>
<tr>
<td><strong>Part 2: Reflection</strong></td>
<td>14</td>
</tr>
<tr>
<td>Challenges and barriers</td>
<td>14</td>
</tr>
<tr>
<td>Opportunities for action</td>
<td>15</td>
</tr>
<tr>
<td><strong>Part 3: Insight</strong></td>
<td>18</td>
</tr>
<tr>
<td>The full spectrum of diversity</td>
<td>18</td>
</tr>
<tr>
<td>Critical points for change</td>
<td>18</td>
</tr>
<tr>
<td><strong>Part 4: Action</strong></td>
<td>20</td>
</tr>
<tr>
<td><strong>Part 5: Direction</strong></td>
<td>22</td>
</tr>
<tr>
<td><strong>Appendix A:</strong></td>
<td></td>
</tr>
<tr>
<td>Moving Forward Together – Policy Forum Evaluation and Feedback</td>
<td>24</td>
</tr>
<tr>
<td>Overall response</td>
<td>24</td>
</tr>
<tr>
<td>What we learned</td>
<td>24</td>
</tr>
<tr>
<td>&quot;On a scale of...&quot;</td>
<td>25</td>
</tr>
<tr>
<td>Recommendations for future forums</td>
<td>25</td>
</tr>
<tr>
<td><strong>Appendix B: Issues</strong></td>
<td>26</td>
</tr>
<tr>
<td>The barriers for women</td>
<td>27</td>
</tr>
<tr>
<td>Selected background resources for the policy forum</td>
<td>30</td>
</tr>
<tr>
<td><strong>Appendix C: Increasing Women in SETT</strong></td>
<td>32</td>
</tr>
</tbody>
</table>
Introduction
Sharing stories, creating change

An inaugural Policy Forum to discuss the participation of women in science, engineering, trades and technology was held on May 3, 2012, in conjunction with the 14th Biennial Conference of the Canadian Coalition of Women in Engineering, Science, Trades and Technology (CCWESTT) in Halifax. Its theme, “Moving Forward Together,” reflected one aspect of the overall theme of the conference, which was “Inspiring a SeaChange.” The focus of the forum was on the experiences of women engaged in the fields known collectively as SETT (science, engineering, trades and technology) and on the policies, programs and practices affecting their participation. Its goal was to inspire a partnership approach to increasing the participation of women in SETT, by moving forward together, from insight to action.

The first step was to listen to the diverse experiences of women – a millwright, a scientist, an engineer and industry consultant, a health sciences manager, the head of Engineers Canada, the human resources manager at Irving Shipbuilding Inc., an electrician and unionist, and the Minister Responsible for the Status of Women in Newfoundland and Labrador. Their stories, drawing tears at times, grounded the forum in the real effect of policies, programs and practices on women’s lives, both positive and negative. As the 150 participants from across Canada listened, talked in small groups, scribbled comments on sticky notes and reported their ideas to the forum, it was evident a sea change was already taking place.

The participants represented government, industry, education and training, unions, not-for-profit organizations, and all aspects of SETT. Donna Clark of the management consulting firm Courage Group International was the facilitator and Janet Rhymes of See What You Mean Graphics provided on-the-spot graphic representations of the presentations and the discussions as they unfolded in the course of the afternoon. Donna styled the discussions on a World Cafe, with groups of three, four or five people gathered at small tables to reflect upon and comment on what they were hearing. As the forum progressed, emerging themes and common threads from the women’s stories were interwoven with the responses being formed in the discussion groups. The result, we hope, was new insight leading to effective action. At the conclusion of the conference, inspired by the stories and galvanized by the discussions, participants were invited to commit themselves to actions to help bring about the radical transformation...
required to make an occupation in SETT a normal part of the range of career choices for women in Canada.

As Nan Armour, the CCWESTT president at the time of the 2012 Conference, noted in her opening remarks at the policy forum, “We’re looking to increase our understanding of the impact of policies, programs and practices on the lived experiences of women in SETT – in science, engineering, trades and technology – and through that, to get the insights from women as to what kinds of policies, programs and practices support the participation of women. Are there gaps, are challenges still there? Building on those insights, building on what we hear from practitioners, how can we move forward and work together to create that sea change?”

This report is focused on these challenges and opportunities, which women are facing as they journey through their careers in science, engineering, trades and technology.

The reasons behind the current low levels of women in SETT are described in an issues paper included in the appendices. It is assumed readers are familiar with those issues or will become so by reading the background document. The focus of this report is on the main themes emerging from these presentations and the response of participants.

Before we come to the women’s stories, however, one remark is required to express a concern raised in the forum. One participant encouraged others to refrain from using the term “non-traditional” when talking about women’s participation in SETT. Out of respect for this point of view, the term will not be used in this report.
Part 1

Inspiration

Stories from women in science, engineering, trades and technology

Kim Andreas – millwright
Kim Andreas worked for almost 10 years as a millwright in Saskatchewan. She faced discriminatory treatment as the only woman on the shop floor, resulting in physical and emotional stress and eventual loss of her job when she felt compelled to quit her chosen trade. Seated in a comfortable armchair on a stage with the other presenters at the forum, Kim shared her story. She loved her apprenticeship training and earned her Red Seal certification along with a provincial award for being the female journeyperson with the highest mark in her examination. But in the shop where she worked, Kim was teased and tormented by her co-workers because of her sex and deprived of opportunities to use her skills. When she objected, her supervisor told her to “suck it up.” A human resources manager advised her against making a formal complaint, because it could worsen her working conditions. Kim said she began to lose confidence in her abilities and would become physically sick in the mornings, because she dreaded going to work. She felt like her job, for which she had apprenticed and been certified, had been “sabotaged” by her immediate colleagues. Her health was also jeopardized by the stress and so, on medical advice, Kim took a break from work. Still determined to succeed in her chosen field, however, she returned to her job for two more years until she realized she would not be made welcome. She resigned and took a new job as a production planner, but with a significant pay cut and reduced benefits. Kim said she missed being a millwright, but she had regained her health and she praised her husband and Saskatchewan Women in Trades and Technology (SaskWITT) for their support. Her experiences convinced her of the need for better support for women in trades.

Find work that is big enough for your soul.
– Forum presenter
Linda Campbell – scientist

Linda Campbell is a senior research fellow at Saint Mary’s University in Halifax, where she is examining environmental contaminants in the Great Lakes of Canada. To set the scene for her presentation, Linda posed a series of questions to participants. “Were you born in Canada? Do you work in a male-dominated field? Do you speak a language other than English or French?” Based on a show-of-hands, Linda suggested the participants at the forum were “not very representative of a diverse population.” She returned to this issue later in her presentation, after explaining her career path.

Linda grew up in Alberta and studied ecology at the University of Alberta. She said being a woman had not been an obstacle in her studies or career, but her use of sign language and interpretation services had raised a challenge for colleagues who were not accustomed to other ways of communicating. Speaking through an interpreter, Linda observed, “Diversity is important in terms of communication, because we are not all the same and we don’t all communicate in the same way.” She drew an analogy between habitual ways of communicating and traditional ways of viewing gender roles in the workplace, pointing out the need for doing things in new ways.

Linda also addressed the process by which women are integrated in the labour force in male-dominated careers. Reflecting on her own experiences, Linda noted how often she was “accommodating” other people, but “people were not accommodating me.” She encouraged people to think of accommodation in education, academia and throughout the workplace as a “two-way” process. She concluded her presentation with a positive challenge to employers and colleagues in the workplace to adopt new, inclusive practices.

Lianne Lefsrud – engineer and industry consultant

Lianne Lefsrud, an environmental engineer who now works as a consultant to industry, recounted her varied career in construction, water resources, oilfields, environmental consulting and in operations at Canadian National Railways. She also recalled the difficulty of resuming her career after maternity leave. Lianne said she was assigned a position “a couple of steps down,” which she interpreted as a test of her loyalty. She also observed how the increasingly 24/7 cycle of the corporate world is increasing the difficulty of balancing work and home life. Now pursuing her PhD at the Department of Strategic Management and Organization at the University of Alberta, Lianne emphasized “the business case” for diversity and posed the critical question “How can senior executives be motivated to embrace diversity?” She urged women pursuing a career in SETT to make the business case for why they would be an asset to an employer. For their part, she said, senior executives ought to be making diversity a strategic initiative by linking it with corporate objectives and performance measures. Lianne suggested if companies want to become more innovative, profitable and efficient, then “diversity is the direction they need to go.”
Kara Paul – health science manager
Kara Paul’s story was upbeat and cast a very positive light on her Mi’kmaq First Nation community of Eskasoni in Nova Scotia. Serving now as a program manager for the Aboriginal Health Science Initiative at Dalhousie University, her career began when she graduated with a science degree and went to work as a fishery biologist with the Eskasoni Fish and Wildlife Commission and the Unama’ki Institute of Natural Resources. Kara said her community-based employers had fostered trust among colleagues and created a supportive environment in which she was empowered to make decisions. While much of the healthcare in Aboriginal communities is delivered by women, and Kara has often worked predominantly with women, at times she has been the only woman “at the table” among fishermen. She found that experience “challenging and intimidating,” but discovered how a female voice at the table could create a more positive dynamic. Speaking more broadly on behalf of other Mi’kmaw women, Kara said their communities’ needs have been traditionally under-funded by government, leaving them at a disadvantage in education, especially. As a result, it was harder for her people to pursue higher education or a career in science or technology. Kara also identified a challenge arising from the great importance placed on families in her culture, where starting a family often begins at a younger age. In the face of this cultural practice, a lack of appropriate childcare imposes an additional barrier to entering the workforce and higher education.
Perspectives from industry, government, labour and the non-government sector

Anna Marenick – human resources manager
Anna Marenick is manager of human resources at Irving Shipbuilding Inc. in Halifax, which is preparing to increase its workforce to take on a major federal government contract. With this big picture in mind, Anna pointed out that “women’s issues aren’t women’s issues… this is a workplace issue, a social issue, and a just-good-business issue.” Drawing on her own experience, Anna also suggested women should not have to choose between the “mummy track” and the “career track.” Yet among all the remaining obstacles in the way of women’s advancement, she regarded the “belief that things can’t change – that it’s too difficult” as the greatest barrier. To change that mindset and the actual ratio of female employees, Irving Shipbuilding is partnering with Techsploration, a not-for-profit organization that provides opportunities for female high school students to explore science, trades, technical and technology-related occupations and promotes the significance of math and science for their careers. This was a great example of how to “change the conversation for girls going through school,” said Anna. And the opportunity to support the program had motivated her employer to do even more. She said Irving “started to push the envelope forward on women (when) we really talked about it as a partnership.” Anna encouraged women to go to work with an attitude of making positive changes and she passed on a piece of advice once given to her “find work that is big enough for your soul.”

The Honourable Charlene Johnson MLA – Minister Responsible for the Status of Women, Newfoundland and Labrador
Charlene Johnson, a forest engineer who once worked in a logging camp in northern British Columbia, brings a unique perspective to the cabinet table in Newfoundland and Labrador, where she is Minister of Child, Youth and Family Services and Minister Responsible for the Status of Women. She is also the youngest woman elected to the province’s House of Assembly, where she serves under a female premier. Charlene also brings her experience as a mother to her voice at the cabinet table. She had a child while serving as a minister, when there was no provision for maternity leave, making her acutely aware of the need for adequate and affordable childcare. “I lived the nightmare,” she recalled in her presentation. Charlene said she was particularly proud, therefore, when her government announced a 10-year, $457-million childcare strategy to diminish this barrier confronting women who want to enter and remain in the labour force.
In her presentation to the forum, Charlene also explained the variety of provincial equity and access policies implemented in resource development, in particular, to build a stronger labour force with greater participation of women. In the province of 500,000 people, about 70,000 jobs will need to be filled in five years. The former Minister of Environment also noted how Newfoundland and Labrador had built a women’s employment and equity plan into the environmental assessment process for resource-development projects. So far the government has negotiated six such agreements and set targets for female employment in the construction and operation phases of a project. The government is now adding to those requirements by building in provisions for business access and supplier diversity. It has also been negotiating the world’s first offshore diversity plan with the developers of the Hebron oilfield. “It’s great for companies,” Charlene suggested. “There was a bit of reluctance in the beginning, but now they’re bragging about the numbers and what they’re doing.” For example, she said, “we required 20 per cent (female employees) in the first operational phase of Vale Inco, which is a nickel processing facility… they achieved 37 per cent.” The policies have led to creative responses from employers and unions. For every hour worked at the Vale Inco Long Harbour site, for example, 20 cents is put into a diversity training fund, which has also been used to recruit high school students to a career in unionized trades. As well, the Hebron developers have launched a $1 million scholarship to increase the participation of under-represented groups in science, engineering, technology and trades. The province also funds a wage subsidy for hiring female apprentices in trades and technology and supports programs for matching apprentices with employees.

**Terry Weymouth – electrician and unionist**

Terry Weymouth is an electrician who began her career in the late 1980s as an apprentice in the construction industry and later worked in the automotive sector. Having chosen her job for economic gain and skill satisfaction, Terry reminded the forum that these factors – good pay, job security and job satisfaction – are strong selling points for promoting a career in trades to women. “Skilled trade jobs are wonderful jobs, especially for a woman,” she said. Her own apprenticeship, however, was a protracted and difficult process. It took more years than normal, because of a reluctance of senior staff to credit hours she had worked. Yet Terry regarded her difficult integration into the labour force “not so much as a personal attack, but a transitioning.” She said men had to get used to having her there and she had to learn traditional ways of working.

The hardest part of her career choice was the isolation of working in a male environment with no formal support networks. She relied instead on her sister’s “kitchen table” therapy. “There just were no other women out there. There was nobody to call, there was nobody to talk to. I didn’t have a voice back then, I didn’t have a network back then.”
When Terry eventually left the construction industry and took a job in the automotive sector, she joined a union shop and it was “like night and day.” She discovered a working environment supported by women’s and family-oriented policies and practices and a concerted effort to develop women in leadership roles. Terry said the support networks for women in trades have advanced significantly since the 1980s. Now a national, skilled-trades union education coordinator for the Canadian Auto Workers union, Terry is engaged in programs and campaigns to break down barriers and change perceptions of who does these types of jobs and who can do them. As well as reaching out to women, she collaborates on the design and delivery of outreach programs for students as well as the creation of educational tools, such as a board game for schools to raise awareness about careers in trades.

Terry left participants with three pieces of advice. First, “rather than just talking about how we’re going to change it, we need the tools to change it.” Secondly, she suggested efforts should be directed to changing perceptions as well as breaking down barriers. Finally, Terry acknowledged there was a tendency to “keep looking at how far we’ve got to go,” but she encouraged participants to also “look at how far we’ve come.”

**Marie Carter – Engineers Canada**

Addressing the forum as the interim Chief Executive Officer and Chief Operating Officer of Engineers Canada, Marie Carter accentuated the importance of working through a wide range of partnerships and establishing mentors and role models in the workplace. Marie is steering Engineers Canada towards its target of “30 by 2030,” which is the slogan for its campaign to ensure women comprise 30 per cent of professional engineers in Canada by 2030. The goal was chosen, explained Marie, because “research has shown that the tipping point at which something becomes the norm, when you’re no longer a subset of the group, is 30 per cent.” Yet addressing the issues influencing women’s participation in the profession “is like trying to hug a cloud,” said Marie. The task was especially challenging for engineers, she observed, because as a group they are more accustomed to making precise measurements and generating precise solutions to problems and are inexperienced in tackling this more intangible social and economic problem.
Marie underscored the need to make strategic changes and then decide if they are working. She also observed “there is a strong business case for diversity” and noted some significant social adjustments were already being made as employees demand changes in the workplace. Parental leave for fathers as well as mothers is one example. To help attain its goal of 30 by 2030, Engineers Canada is working with partners to reach into the school system to reposition engineering as a creative career based in solving problems. Mentors and role models will also play a big part in the plan to reach the target. Marie highlighted the need for girls and young women to be able to identify with “people who are kind of like us,” which requires an increase in “gender visibility” among engineers. She also picked up on an emerging theme in the policy forum, by locating the need for more women in SETT within a broader program of building diversity in the workplace. Marie echoed other statements throughout the forum when she suggested, “it’s not just about women, it’s about diversity.”
Part 2
Reflection

Participants were encouraged to think about common themes or threads running through the presentations and to identify which issues and experiences left an impression on them. The presentations were divided into two sets of four. After each group of presentations, the forum participants, who were seated at tables in small groups of three to five, discussed their ideas and recorded their reflections on sticky notes. Their responses are summarized here under the headings of Challenges and Barriers and Opportunities for Action and arranged according to common themes. As you will see, some issues, such as human-resource development, fell under both headings. For instance, the lack of an HR department within a small firm may be a challenge, while the presence of a strong, progressive HR department could create opportunities for change.

Challenges and barriers

Key barriers identified in the discussion groups related to diversity, the personal cost of wanting to work in a “man’s domain,” and the lack of human-resources capacity to address diversity issues within small and medium-sized enterprises. Participants also pointed out the need for employers and colleagues to adjust their practices to embrace the participation of women, rather than expecting women to “fit in” with the dominant practices at work or in academia. Participants introduced the phrase “accommodation is a two-way process” to express this idea. There was general agreement that champions and high-level commitments were needed at every level in government, the workplace and in academia to eliminate barriers to women’s participation.

Here are some examples of concerns raised in the discussion groups.

Legislated diversity pushes change.

Leaders’ good intentions need to show up on the shop floor.

Good policies need good champions.

– Forum participants
• Diversity is still not recognized as an asset. Diversity can be accepted, but it needs to be valued to promote change.
• There is a strong emotional effect when women encounter barriers to inclusion – a cycle of abuse may erode self-confidence and there may be a fear of retribution.
• The lack of a critical mass of women in SETT makes the participation of individual women much harder; building critical mass will build its own momentum to move society towards equality of opportunity in these occupations.

Entrenched attitudes and jaded perceptions of change may present a more subtle challenge that still needs to be overcome, as indicated by comments such as
• “Good men still allow this to happen?”
• “Still happening in 2012?”
• “Why is the old-white-male syndrome still a problem?”
• “Where is the progress?”

Opportunities for action

Participants noted many more opportunities than challenges and barriers. There was widespread support for working through partnerships to identify and achieve clearly articulated and measurable goals. This section summarizes themes around which there was high agreement or strong opinion on how to advance the participation of women in SETT. The responses are grouped under the headings of diversity, leadership, policy-making, human-resources development, supports, awareness-building and individual agency.

Diversity
Diversity in an industry, field or sector is evident when participation reflects the true diversity of the population, especially in terms of visible minorities. While a lack of diversity imposes a challenge for women trying to break into or establish a career in SETT, communicating the value of diversity was seen as an opportunity to open up more doors for women.

In support of this goal, participants said women need to be seen and heard within their fields, to give voice to their perspectives and inspire other women to consider a career in science, engineering, trades and technology.

Given the overall objective of making the whole field of SETT more inclusive, one participant pointed to the need for funding to help bring about the change envisioned at this forum.
Leadership

There was overwhelming endorsement for organizational leaders to initiate change and be made accountable for increasing the participation of women in SETT and for providing respectful work environments.

At the same time, the opportunity for anybody to become a positive role model was affirmed. The forum also affirmed the important role of mentors, who can offer technical and continuous support all the way along a woman's education and career path.

The need for more women in leadership roles in government, industry and unions was also emphasized, as was the need for workplace education and training to support the creation of inclusive workplaces and to equip mentors and leaders.

Policy-making

Not surprisingly, the need to improve the policy environment to support women in SETT was a major topic of conversation at the forum. Some participants favoured negative approaches that impose consequences for failing to conform with progressive policies, or even “zero tolerance” approaches to responding to harassment. Others advocated a balanced approach, employing incentives and disincentives.

There was general agreement that leaders in government and industry have a role in setting goals and following through. “Legislated diversity pushes change,” observed one participant, while another commented, “Leaders’ good intentions need to show up on the shop floor.”

Participants also identified a role for governments in setting firm equity goals for employers and advancing the provision of childcare and maternity leave. They also stressed the need for careful measurement and assessment of the effect of policy measures, including “the social return on investment.” The private sector was encouraged to include progressive goals in performance measurements. Such goals should extend to the percentage of women who are employed and under contract as well as to businesses in the supply chain that are led or owned by women.
Human-resource development
Human-resource programs and policies were considered to be foundational for strengthening the attachment of women to the labour force, both in terms of recruitment and on-the-job development. Among the particular suggestions on this topic were the need to screen for interpersonal skills in the hiring process, as a way of limiting conflict and fostering respectful workplaces; to encourage more strategic and progressive human-resource policies; and to maintain consistent standards for hiring to avoid perceptions of bias. Participants also wanted to see more flexibility in the workplace and a new definition of “full-time” to accommodate the roles women play as caregivers in their families. They pointed to parental leave as a step in the right direction.

Supports
The provision of accessible, flexible, quality childcare was identified as a critical means for increasing and supporting the participation of women in SETT. Mentoring was identified as another way to support women in SETT, as well as being an opportunity for women to support one another in their chosen fields. Participants also suggested there should be advocates to support women employed in so-called “toxic” workplaces and they pointed out the potential for partnerships that could work together to “break down one common barrier” at a time.

Awareness-building
It was generally agreed that building awareness would help bring about the sea change being sought. As one participant pointed out, “Education leads to awareness, commitment and action.” Suggestions on this topic included promoting the social benefits of SETT, communicating the benefits of diversity, celebrating successes, and broadening the dialogue to engage men.

Individual agency
The role and responsibility of individuals in making changes and resisting unacceptable behaviour and conditions was expressed in many affirming statements, such as, “fight not flight – feel and know you’re empowered” and “don’t settle for less.”
Part 3

Insight

The full spectrum of diversity

Several “high-level” themes emerged in response to the discrepancy between diversity in the population and diversity in SETT. One was the need to affirm the diversity and differences among women. Various participants encouraged others to recognize the way colour, culture, and economic and social disadvantage create particular challenges and choices for women. This concern was expressed in such statements as, “The women’s community is not one community,” and in this observation, “In Aboriginal communities our issues are so much different from what I’m hearing around the table. Our issues are just getting us to the doors.” Another high-level theme was the need to embed the issue of women in SETT within the broader need for diversity in the workplace across all groups and not only gender. This concern was reflected in comments from presenters and participants, such as, “There is a strong business case for diversity” and “How can senior executives be motivated to embrace diversity?”

Critical points for change

In her opening remarks to the forum, CCWESTT president Nan Armour used the metaphor of “the journey” to convey the various decision points at which a woman’s education and career is influenced by policies, programs and practices in education, in the community and in the workplace. Opportunities or road blocks in this “journey model” – which include access to training and education, job selection and perception, employer response and work environments, support networks, childcare and myriad other factors – all provide critical entry points for change. This section of the report restates key insights gleaned from the presentations and discussions and applies them to three critical points – decision points, pivot points, and tipping points – to suggest where opportunities might lie for effective and positive intervention in policies, programs and practices.
Decision points (focus on individual choices)

- Choosing a trade for the high level of skills satisfaction, job security and economic reward; responding to difficult work environments; resolving to be a change-agent; remaining in a “toxic” working environment and hoping for change
- Choosing to balance motherhood and a career
- Taking on pioneering roles

Pivot points (focus on changing the story)

- Creating tools to create changes, such as the *The Business Case* booklet published by CCWESTT
- Fostering and supporting women’s resources, such as the WinSETT Centre or women’s workplace committees in unionized shops
- Workplace committees in unionized shops
- Establishing equity policies for women in industry, modelled on initiatives in Newfoundland and Labrador
- Building partnerships
- Changing the perception of trades and professions to make them more appealing career choices
- Supporting women entering and remaining in difficult work environments
- Mentoring women in the workplace to change their on-the-job experience
- Adopting diverse practices to foster diversity in training, education and the workplace
- Accommodating flexibility, e.g., so women can continue to be caregivers (childcare, eldercare)
- Establishing workplace champions
- Giving voice to women’s diverse experiences and supporting services and programs to make sure diverse voices are being heard
- Bringing men into the conversation

Tipping points (focus on building critical mass)

- When SETT reflects the diversity of the population, including diversity among women
- When “non-traditional” is no longer part of the discourse
- When there is political will among employers, government and other change-makers to increase the participation of women in SETT
- When effective policies and programs are in place with appropriate incentives, consequences, measurement and evaluation
- When there is commitment from leadership right down to the “shop floor”
At the conclusion of the forum, and in keeping with CCWESTT’s commitment to individuals taking responsibility for change, participants were encouraged to consider what actions they could take within their organizations to advance the role of women in SETT. By posing this challenge to presenters, the forum organizers sought to complete the process of moving from inspiration to action. The ideas captured in this section show the range of individual responses to this challenge and point to opportunities for ongoing dialogue.

Many individuals indicated they were inspired to take ownership of problems and solutions and become advocates for change, while some stated their commitment to take up the challenge in specific ways. In recognition of this, CCWESTT pledged to maintain ongoing communication with forum participants to lend encouragement and support. Marilyn More, Minister of Labour and Advanced Education in Nova Scotia, who attended the forum and made an opening address, stated she would engage senior staff with the issues contained in this report and bring them to the attention of a government committee dealing with jobs and the economy. Other responses were much more personal. One participant, for example, said she had...
resolved to remove the words “blame” and “fault” from her vocabulary and another had decided to give SaskWITT (Saskatchewan Women in Trades and Technology) the proceeds from sales of “tool” earrings.

These wide-ranging responses brought the forum to a conclusion on a very enthusiastic note. Hopefully, they show that immediate opportunities for change lie within reach and everyone can play a part, collectively and individually, in bringing about a sea change.

Here are some examples of the ways participants said they wanted to move forward in partnership to increase the participation of women in SETT.

**Key Actions**

- Strive to make collective agreements more equitable and diverse in unionized workplaces to reflect the diversity of communities
- Work collaboratively on issues pertaining to racial diversity in the women’s community
- Explore the potential to adapt the Newfoundland and Labrador model for women’s employment and business access requirements in other provinces
- Present options to a senior executive team based on insight gained from this forum
- Build awareness of SETT careers at the junior high/high school levels
- Host a knowledge-sharing conference for government, women and employees
- Partner with government to develop policies to create employment and business access for women in industries
- Make opportunities known to women by working with the associations who represent them
- Deliver a “Becoming Leaders” workshop in a home province
- Figure out how to engage more men in the “sea change”
- Work with Techsploration and Women Unlimited every year
- Become a source of policy information to colleagues
- Encourage young women to pursue careers in SETT

We will engage senior staff with the issues contained in this report and bring them to the attention of a government committee dealing with jobs and the economy.

– Marilyn More, Minister of Labour and Advanced Education in Nova Scotia
Leadership, political will and workplace buy-in emerged as key factors in determining which policies might be most effective in supporting and increasing the participation of women in SETT. We also heard of the critical importance of fostering respectful workplaces, where diversity among colleagues is welcomed and valued.

There was strong affirmation of the need for policies to be made effective through "compliance" and measurable results. There were differing opinions, however, as to whether positive or negative consequences were the best driver of change. The overall tenor of the discussion was inclined towards positive messaging to promote the benefits of diversity, as highlighted in *The Business Case* published by CCWESTT. This booklet was frequently referred to by participants as a good tool to have in their kit.

The presentations and discussions at the forum also emphasized the importance of industry generating its own policies to support women in SETT. As well, when an economy or sector is expanding, as is the case in Newfoundland and Labrador, there is an opportunity to introduce provincial equity targets to support industry’s own needs for recruitment in a time of expansion.

One word that sums up the types of win-win policies being advocated at the forum is “mutuality.” The best policies, programs and practices in this field should meet the needs of women, employers and society. Mutuality also acknowledges accommodation as a two-way process, in which employers and colleagues adjust their practices to accommodate women and women adjust to the workplace and their colleagues. Stakeholders have an opportunity to collaborate to establish policies, programs and practices to increase the mutual benefits of embracing diversity in science, engineering, trades and technology.

The experiences shared in the forum suggest the presence of workplace supports and workplace champions has been critical in supporting some women in SETT, while the absence of these critical programs and practices has thwarted the aspirations of other women, especially in trades. Some women have been left to fend for themselves in difficult working environments, while other women have found strength and encouragement from programs designed to support their career choice. Among these necessary supports, the availability of childcare is clearly fundamental to the advancement of women in SETT and its absence or availability has dramatically shaped the experiences of women in these fields.
The advancement of women in SETT also depends in large part on increasing their visibility, promoting SETT as a career choice, and engendering a critical mass of women in occupations in SETT. Holding up “best practices,” such as the women-friendly industry policies in Newfoundland and Labrador, would help raise the ratio of women to the tipping point required to make their participation a normal part of these trades and professions.

One of the gaps in the story so far is the experience of Aboriginal women and girls, who, in the words of one participant, are still “at the door, knocking.” Many women, through colour, culture or physical attributes, face significant and distinct barriers in their quest for a career in SETT. Programs and practices must meet the real needs of particular women to support their career choices and goals.

Perhaps the most significant insight gained from this inaugural policy forum is encapsulated in the theme set for the CCWESTT conference as a whole – Inspiring a SeaChange. A sea change sometimes catches people by surprise, but the term usually applies to radical change, and radical change usually means change from the bottom up. Although many participants focused on the role of leaders and champions, exercising their influence from the top down, the women’s stories were a powerful reminder that change also comes from the bottom up, when individuals hold their ground, hold their head high, and fix their vision higher. Ideal policy objectives then, as suggested by the discussions at this forum, should create opportunities for change from the bottom up and the top down.

In summary, policy should aim at creating the right environment – through awareness-building and focusing on the mutual benefits that come from diversity – so that government, industry and institutions are poised and ready to embrace the specific policies, programs and practices needed to support women in SETT and eradicate identifiable barriers to their progress.

Whose responsibility is that? It is all of ours. We can change the story and achieve full participation of women in SETT by working in partnerships with government, employers, industry, unions, women’s organizations, and individuals who are engaged in, or who want to become engaged in, a career in science, engineering, trades and technology.

The forum organizers and sponsors extend an invitation to all the forum participants, and all those they represent or who read this report, to take up the challenge of increasing the participation of women in occupations in science, engineering, trades and technology, by moving forward together, from insight to action.
Appendix A
Moving Forward Together –
Policy Forum Evaluation and Feedback

At the conclusion of the forum, participants were invited to make a written evaluation. They were asked how they felt about the event, what they learned, what surprised them, what disappointed them, and what changes they would recommend for similar events in the future.

Overall response

Participants found the forum to be informative, eye-opening, inspiring, provocative, shocking, fun, motivating, well-facilitated, welcoming, action-oriented and necessary. It left them feeling optimistic, connected, more aware, inspired, encouraged, excited, enlightened, empowered, and included. They were sometimes saddened to hear the accounts of women’s experiences and relieved that others had similar experiences to themselves. Others were challenged by how much remains to be done.

What we learned

Participants found the overall state of women’s participation in SETT disappointing, as shown in responses such as this, “Even in 2012, women in trades are facing unbelievable discrimination.” They also learned about best practices that were increasing women’s participation rates. The progressive women’s policies in Newfoundland and Labrador were a shining light on the horizon for many participants. Others were alarmed to realize, “there are so many layers to the problem” and “that bullying that bad still happens.” For still others, the forum drove home the need “to do better when it comes to diversity issues” and to “step up” with a personal response to the issues raised, by asking, “What can I do to effect change?”
“On a scale of…”

Participants were invited to score the forum on a scale from one to seven and 66 responded. Of those, 54 gave the event a rating of six or seven, 12 gave it a rating between five and three-and-a-half, and no one gave it a lower rating.

Recommendations for future forums

The forum could have been longer, suggested participants, to allow more time for discussion and networking and to address specific initiatives, policies and practical solutions. Many wanted to see the forum repeated at every CCWESTT conference. Some suggested it should be carried out in each province and taken up by organizations or industry to help them identify and develop more inclusive practices in the workplace. Participants also wanted to see a follow-up report.

Others would have liked to have seen more women of colour to be in attendance and would have appreciated more attention to the distinctions between government and industry-led policy reforms. The helpful graphic-recording used for communicating the proceedings at the forum was a big hit (“Love the graphics… much better than texts.”) and should no doubt be repeated at similar events. There was a suggestion made to break down “big themes” into more manageable pieces for discussion. Overall, there was a desire to encourage more senior politicians, employers, policy makers and academics to join in such events in the future – and more men.
Canada's work force is becoming more diverse. Over the past three decades, women's participation in the work force has more than doubled, and their representation has increased in many fields that were once male-dominated, including medicine, law and finance. Women have been graduating with advanced professional degrees at rates that are equal to or greater than that of men. However, in the fields of science, engineering, trades and technology (SETT), there persists a marked under-representation of women, especially as decision makers. According to results from the 2006 Census by Statistics Canada, 25% of Canadians employed in computing science occupations were women, 11% in engineering fields, and 5% of workers in construction trades. This under-representation continues despite the many young women who are excelling in post-secondary education.

In universities, the number of women faculty members in the sciences and engineering do not reflect the progress that young women are making at the undergraduate level. For example, in biology, 63% of undergraduate degrees were awarded to women in 2009–10, whereas women represented only 17% of full professors in the sciences. In mathematics women represent 26% of undergraduate students but only 9% of professors. In addition, only 13% of undergraduates enrolled in computer science courses were women. (Canadian Association of University Teachers).
Among other consequences, the low participation rates of women in SETT lead to:

[1] women not reaching their full potential as partners in SETT
[2] lower economic prosperity for women
[3] persistence of systemic barriers
[4] stereotypes in the workplace

It also results in frustration for women whose career progress is slow, and leads to a lack of role models for younger women who don’t see themselves reflected in leadership positions in sciences, engineering, technology and trades.

Not only does the scarcity of women in SETT leadership directly affect women, it also affects the productivity of Canadian companies who are facing a shortage of skilled engineers, scientists, technologists and trades workers. According to research by the non-profit organization Catalyst, there is a very strong business case for having gender diversity in leadership. Catalyst has shown that greater gender diversity in leadership results in increased innovation potential, a stronger financial and governance performance, and higher employee satisfaction with lower turnover rates. (www.catalyst.org/file/369/2009_fp500_core_report_final_021910.pdf). The voices of women who are trained in the sciences and engineering are needed to solve the increasingly complex problems our society faces.

What are some of the underlying reasons for the low participation rates of women in SETT? The barriers for women are diverse, far-reaching and systemic. The challenges are less about the women themselves, their abilities and interests, and much more about the systems they have to navigate to prepare for, obtain and retain employment in SETT. As often stated, it’s not about fixing the women, it’s about fixing the systems.

**The barriers for women**

Much has been written about the systemic barriers women face. While clearly not applicable for each individual woman or work setting, the numerous barriers can be grouped into four categories:

**Images, stereotypes, attitudes**

- Persistent underlying attitudes, images, stereotypes and expectations (held by men, women, parents, educators, employers) about the role of women in our communities and their capacity to participate in non-traditional SETT occupations
- Lack of role models, mentors, coaches and sponsors for women in SETT
- Lack of knowledge about opportunities for women in SETT occupations
- Lower self-confidence of women and their reluctance to promote themselves in non-traditional occupations
Environment/culture in education institutions

- Culture of male-dominated education/training programs, classrooms and institutions
- Financial barriers related to costs of tuition, books and materials, transportation, and childcare
- Restrictive nature of some funding programs enabling women to access training – Employment Insurance, Income Assistance, student loans

Workplace culture

- “Unfriendly” workplace culture for women, including harassment, discrimination, and bullying
- Recruitment and hiring practices that favour white, male applicants
- Occupational health and safety issues including ill-fitting clothing and other safety equipment required for the job
- Lack of support and promotion for work-life balance, particularly in relation to child-rearing and elder-care
- Lack of recognition of workplace diversity as a critical component of employer business plans
- Advancement and promotion policies and practices that place women who take maternity leave at a disadvantage compared to men
- Different valuation of women’s communication and management styles
- Workplace evaluation systems that reward performance of women differently than men, particularly for women interested in advancement, promotion and leadership
- Limited access of women to key assignments, professional development and leadership training needed for promotion and advancement
- Formal and informal workplace networks that limit the participation of women
**Equity policies**

- Lack of government, workplace and education equity policies designed to eliminate systemic barriers for women in SETT
- Lack of monitoring and enforcement of existing equity policies

The cumulative effect of these systemic barriers creates a strong exclusionary force limiting the participation of women in SETT. While significant challenges continue to exist, efforts are being made to develop progressive policies and practices to create more diverse, welcoming, respectful and supportive workplaces for women in non-traditional fields.

About 35 years ago, a number of community groups arose across the country to take action to improve the situation for women in SETT. Since then, a range of programs has been devised and implemented to engage girls from elementary to high school in the sciences and engineering, including the production and distribution of information about SETT careers, and the availability of female role models to speak with interested young women. These community groups later formed CCWESTT – the Canadian Coalition for Women in Science, Engineering, Trades and Technology – to share information and learning, and to find inspiration in others’ initiatives. In 1989, the Natural Sciences and Engineering Research Council established a Chair for Women in Science and Engineering, and in the mid-1990s this developed into five regional chairs. The chairs have made significant progress in attracting and retaining young women in the sciences and engineering.

In addition to national efforts, programs and initiatives designed to address the systemic issues have been implemented at provincial levels. Many research studies and reports have been prepared documenting the experiences of women in SETT – a few of them are cited in the attached bibliography. In addition, the CCWESTT website (www.ccwestt.org) contains enrolment and employment statistics, national and international studies and CCWESTT member experiences. Due, at least in part to these activities, women’s participation in SETT careers has been slowly increasing over the past 30 years. However, the movement of women into leadership positions has been particularly slow and Catalyst reports only 3.8% of Canadian Company CEOs are women. Creative new initiatives are needed to support women and to ensure a competitive Canadian economy.

*If we want different outcomes than we have currently, if we want more women in SETT education programs and occupations, we have to do things differently.*
Selected background resources for the policy forum


Forty-one percent of highly qualified scientists, engineers, and technologists on the lower rungs of corporate career ladders are female. But more than half (52%) drop out. Reasons include the “macho” culture, isolation, unsatisfactory career paths, risk aversion, time intensive work constraints, and the intersection of career hurdles with family pressures at about the 10 year mark. The book describes 13 company initiatives that can lower female attrition.


This is a comprehensive document on women in construction trades, and the six-page Executive Summary provides key information on women’s participation, career interest, education and career pathways, and effective practices.

www.csc-ca.org/en/products/state-women-construction-canada
www.csc-ca.org/fr/products/tat-de-la-situation-des-femmes-dans-la-construction-au-canada


This report presents a brief review of statistics on women in science and engineering in Canada. From pre-university to post graduation, the gender preferences for science and engineering education and careers are highlighted. Section 2 looks at the supply side of women in science and engineering through the education stream and immigration. Section 3 examines the career outcomes for women educated in science or engineering, with particular emphasis on academic and research careers. Section 4 presents an overview of NSERC funding to women and special programs or initiatives to help increase the number of women in science and engineering. Finally, Section 5
Moving Forward Together

briefly reviews some current literature on the topic and presents a summary of the issues and possible solutions.

www.nserc-crsng.gc.ca/_doc/Reports-Rapports/Women_Science_Engineering_e.pdf


This document is a concise summary of research and Canadian data that make the social and economic case for increasing women’s participation in science, engineering, trades and technology.

www.ccwestt.org/LinkClick.aspx?fileticket=C%2bBwQijjaRK0%3d&tabid=82

The French version of an earlier document is available at

www.ccwestt.org/Portals/0/winsett/L'analyse%20de%20rentabilisation%20-%20Femmes%20en%20SGMT%20June%202006.pdf

The Conference Board of Canada and the Centre of Excellence for Women’s Advancement (2003). *Workplaces that Work: Creating a Workplace Culture that Attracts, Retains and Promotes Women*

www.gnb.ca/0037/report/workplacesthatwork-e.pdf
Appendix C
Increasing Women in SETT

The Business Case

Canada’s changing economy and aging labour force have resulted in significant skills shortages within the SETT sector (i.e., science, engineering, trades, and technology). While women make up more than half the nation’s population, they are still largely under-represented in these fields.

Women’s increased participation and advancement in the SETT workforce will bring significant economic benefits to women, organizations, communities, and the Canadian economy as a whole.*

Women in SETT
7 Key Benefits

1. Labour Shortage Solution
2. Broader Talent Base
3. Increased Innovation Capacity
4. Expanded Market Influence
5. Greater Return on Human Resource Investment
6. Stronger Financial Performance
7. Increased National Economic Growth

* The full document, Increasing Women in SETT: The Business Case, with complete references to statistics and reports, is available at www.ccwestt.org and www.winsett.ca.
Benefit 1
Labour Shortage Solution

Canada needs a larger, technically skilled workforce, yet women continue to be under-represented in many SETT fields.

Future Labour Shortages

- The mining sector will have a labour shortfall of 60,000 to 90,000 unfilled positions by 2017.
- Between 2011 and 2016, Canadian employers will need to hire approximately 106,000 information and communications technology workers – an annual hiring rate of around 17,700 persons.
- Canada’s construction industry will need to recruit an estimated 320,000 new workers from 2011 to 2019.
- A sector of the oil and gas industry in Alberta estimates that it may have to hire 116% of its current employment levels due to retirements, turnover and industry expansion.

Women represent the largest untapped human resource in the SETT sector. With labour shortages looming, it is increasingly important to train new workers and hire from the widest possible talent pool.

Women in Canadian Labour Force

2011

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>All occupations</td>
<td>47.3%</td>
</tr>
<tr>
<td>Natural &amp; applied sciences including engineering</td>
<td>21.9%</td>
</tr>
<tr>
<td>Practising professional engineers</td>
<td>10.5%</td>
</tr>
<tr>
<td>Trades, transport, equipment operators, &amp; related</td>
<td>6.5%</td>
</tr>
<tr>
<td>Construction trades</td>
<td>3.5%</td>
</tr>
</tbody>
</table>

Canada’s construction industry... is looking to all sources of labour to meet its needs for a skilled, competent and adequate workforce in the future, including women.

– Construction Sector Council
Benefit 2
Broader Talent Base

Women are entering post-secondary education programs at a steadily increasing pace, representing the largest percentage of new entrants overall. With women’s educational participation growing in many SETT fields, savvy employers are tapping into this large, well-educated source of talent.

Women, Education & SETT

Today’s companies are competing for employees and have implemented progressive practices to do so, including flexibility in work arrangements and family-friendly policies.

An employer who supports women in the workplace will have a competitive advantage in attracting and retaining other highly qualified individuals from an increased pool of talent.
The modern workplace is highly integrated with technology and constantly adopting new ways of thinking and working. Studies show that diverse groups are less likely to exhibit groupthink,* and thereby generate more ideas and creative solutions. Researchers also found that female employees can enrich an organization’s capacity for innovation by bringing different life experiences, perspectives, values, and communication, management and leadership styles.

Only when its workplace reflects the diversity of the population can an organization reach its maximum innovation potential.

Benefit 3
Increased Innovation Capacity

Benefit 4
Expanded Market Influence

Regardless of what sector an organization falls under, women are an important audience worth considering. Now, more than ever, women have a significant impact on the economy as wage earners, consumers and business owners.

Women Influence Consumer Spending

- Women influence 80% of consumer purchases in Canada.
- Women retain ownership in 47% of Canada’s 1.6 million small and medium-sized enterprises (SME) and majority ownership in 16% of Canadian SMEs; self-employed women numbered more than 900,000 in 2010.

An organization whose employees reflect the diversity of its client base will be better equipped to understand the needs of their market and identify new opportunities within it.

* GROUPTHINK
A psychological phenomenon that occurs within groups when the desire for harmony in decision-making overrides free thought and limits creativity.

…different types of thinking stem from different dimensions of diversity. The more demographically, functionally, and culturally diverse an organization is, the more innovative its employees will be.

– Georgia-Pacific Corporation
Benefit 5
Greater Return on Human Resource Investment

Organizations invest significant resources in the recruitment, training and professional development of their employees. Yet, women in science and engineering occupations are twice as likely to leave these fields to pursue other careers than men.

Creating workplaces that support, develop and retain female employees provides a return on the organization’s investment in valuable human resources.

It cost roughly four times as much to continually hunt for and train replacement staff than it did to provide optimal conditions for job satisfaction and motivation of existing personnel.

– Australia’s Commonwealth Scientific and Industrial Research Organization

Benefit 6
Stronger Financial Performance

In recent years, researchers have found strong correlations between organizations with women in leadership positions and higher profitability. For example, a study of US Fortune 500 Companies established that: **Women In Leadership = Increased Profitability**

- On average, companies with the highest number of female board directors (WBD) outperformed those with the lowest by 16% on return on sales (ROS) and 26% on return on invested capital (ROIC).
- On average, companies that sustained high representation of WBD significantly outperformed those with sustained low representation by 84% on ROS and by 60% on ROIC.*

The Conference Board of Canada studied corporations with at least two women on their board for a period of six years. The study concluded that these companies ranked higher in both revenue and profits than those with all male boards.

* Study was conducted by Catalyst in 2011 and measured growth trends between 2004–08.
For those organizations that foster gender diversity at all levels of the organization, the rewards are great – bottom-line results, lower turnover and employment branding that is attractive to talented, successful women – the kind of employees that all Canadian organizations seek.

– The Conference Board of Canada

**Benefit 7**

**Increased National Growth**

The benefits of women’s increased participation in the SETT workforce extend well beyond that of the organization and enhance national competitiveness in the global economy.

The World Economic Forum measured the gender gap in 58 countries and reported a link between women’s success and a nation’s long-term growth opportunity.

As the national average of women in SETT increases, so will Canada’s ability to stay competitive in the ever-changing global economy.

Countries that do not capitalize on the full potential of one-half of their societies are misallocating their human resources and compromising their competitive potential.”

– World Economic Forum