

GTAGA Event on Women in STEM: Fixing the 'leaky pipeline' Summary Report

On 9 November 2022 NZT, New Zealand hosted the 3rd Global Trade and Gender Arrangement (GTAGA) implementation event on Women in STEM (Science, Technology, Engineering and Mathematics): fixing the 'leaky pipeline'. The event brought together trailblazing women from New Zealand, Canada, Chile and Mexico to share insights, advice and to exchange views on how we can encourage and support more women in STEM Careers, and how to retain them so the 'leaky pipeline' or the underrepresentation of women in STEM field can be addressed.

The event was organised in two segments: 'Women in Innovation' and 'Technology 4.0', with each speaker given an allocated question to share their unique perspectives and story. The first segment, 'Women in Innovation' showcased [Catherine Clennett](#) from New Zealand and [Dr Poh Tan](#) from Canada, as women who are at the forefront of bringing innovation through science and research including in environment and biomedical sectors. The second segment, 'Industry 4.0', featured [Barbarita Lara](#) from Chile and [Graciela Rojas Montemayor](#) from Mexico, as women in the technology sector highlighting the importance of people-to-people connection and education including through harnessing the power of technology.

The event MC was Anna Guenther, Women in Export Lead at New Zealand Trade and Enterprise. Welcoming remarks were made by Wendy Matthews from New Zealand's Ministry of Foreign Affairs and Trade as a host country. This was followed by remarks from Lydia Antonio De la Garza, from Mexico's Ministry of Economy, Angela Ospina from Colombia's Ministry of Trade, Industry and Tourism and Jose Luis Castillo from Peru's Ministry of Foreign Affairs and Tourism, as newer members of GTAGA.

In the second half of the event a series of five questions were asked by the audience and responded to by the panellists. These reflections have been captured in the report below, including a summary of presentations from each of the segment speakers. The event attracted around 120 participants from 20 countries. A recording of the event is available in both [English](#) and [Spanish](#).

Segment one: 'Women in Innovation'

Catherine Clennett, Managing Director/Co-Founder of Hiringa Energy – ***New Zealand***

Catherine Clennett shared insights about her journey starting out as a mechanical and electrical engineer to a managing director and a co-founder of Hiringa Energy. Catherine co-founded Hiringa Energy; a green hydrogen company based in New Zealand with the aim to address climate change by decarbonising some of the world's most hard to abate sectors, such as heavy transport and industrial processes.

Catherine noted climate change as the greatest challenge of our time, and highlighted that science equips us with the skills to address climate change. In particular, she noted that

engineering has a key role in problem solving and implementation of technology like green hydrogen – which is essential to the change we need to make.

Against this background, Catherine addressed "*Why does STEM matter, and why is it worth promoting careers in STEM to women and girls?*"

She noted that there are direct benefits of having women participate and involved in the work place with their unique strengths and capabilities. Catherine stressed the importance of creating an enabling environment for women to thrive in STEM careers. For example, promoting women to senior positions to allow for a more diverse and interesting pathways; and ensuring a better gender balance for the benefit for us all, particularly in the face of global climate crisis.

Dr Poh Tan, CEO of STEMedge Academy - **Canada**

Dr Poh Tan also presented on the first segment 'Women in Innovation', sharing her views on the issue of the 'leaky pipeline' from her two distinctive lenses as a migrant Canadian; one as stem cell biological scientist and second as a PhD candidate on science education looking at decentring the dominant and male-orientated way of teaching science.

Poh addressed the question, "why does mentorship and representation matter in STEM for youth who are considering STEM as a potential career?" Poh explained that traditional teaching of science has emphasised knowledge transmission through textbook and memorisation, often through a single narrative. Poh shared that in Canada, there is a growing focus on indigenous knowledge, in bringing indigenous interests into areas such as science going beyond the perception of pure technical and objective knowledge.

Poh emphasised the importance of representation and the acknowledgement of the many layers of diversity in STEM sectors. She highlighted that more stories about women scientists in classrooms could be told – what did they discover, what were they like? What did they share with the world? Poh noted that normalizing such narrative into a classroom environment would allow young female students to reduce gender stereotypes and increase the expectations of success or belief that they belong in STEM. Furthermore by educating students about scientists 'who look like them' will also contribute to girls' decision making in hard sciences where it is predominantly male dominated.

Poh noted that everything we do is relational and comes down to relationships. When we teach and learn science that brings together language, culture and relationships, we ultimately gain a deeper and more meaningful understanding of the importance of equity in science.

Segment two: 'Industry 4.0'

Barbarita Lara, CEO of EMERCOM & Leader of S!E Project – **Chile**

Barbarita Lara shared how she became the CEO of EMERCOM & leader of S!E Project as the first speaker of the second segment on 'Industry 4.0'. The theme of her story was to 'hack yourself' where she addressed the question "*how to build diverse teams in STEM*"

industries, why it matters and what is the best way to achieve it?”.

Barbarita shared her experience during an earthquake in 2010 in Chile. During this time, 93% of the Chilean population had been affected and a further tsunami brought about devastating loss of 156 people. She highlighted that the lack of viable network and technology at the time had led information being slow to reach the people that needed it. In response she created S!E, a system that allowed people to communicate with the affected population in case of an emergency by using a high frequency radio.

Barbarita noted that the lack of preparedness in education in STEM resulted in lack of opportunities for girls and women. She highlighted that societal expectations have often shaped and established a 'prototype' of what constitutes as a girl or a boy, and what they should 'like' and 'do' emphasizing the inequality of roles. Because of such behaviours, we are losing capability and talent in our societies by limiting what people can do, particularly in STEM sectors.

Barbarita stressed that crisis are opportunities and technology is an empowering tool for all, including women, girls, and those from different cultures and languages. She noted that technology is trans-sectional and cross-sectional regardless of who you are, and that we should all be embracing such tool to address global challenges and crisis together. Barbarita reiterated that we need to 'hack ourselves' to move forward in STEM and break all barriers. Diversity exists and inclusion is our strategy.

Graciela Rojas Montemayor, Founder of Movimiento STEM – Mexico

Graciela Rojas Montemayor also presented on the second segment tackling the question "*what advice do you have for women navigating their studies or careers in STEM?*" Graciela shared views and perspectives from her own journey as a founder of Movimiento STEM, an educational consultancy that fosters connection and development of STEM education in Latin America and the Caribbean regions.

Graciela stressed that the world needs STEM talent; girls and boys are our hope to resolve the many global issues such as poverty and climate change mitigation. Therefore her mission has been to spread awareness amongst important stakeholders about the importance of addressing the gender gap in STEM education.

Graciela noted the need for women in this generation to embrace the fourth industrial revolution driven by technological advancements.

Graciela shared that the most productive and innovative companies are found to be inclusive. Inclusivity is one of the four pillars that underpin the basis for success in the 21st century along with others such as capability for Industry 4.0, Agenda for 2030 and innovation. Graciela noted that in order to make an impact in empowering women, focus needs to be on ensuring that women are present to participate in discussions and dialogues, and be given opportunities to contribute in different areas including STEM sectors.

Conclusion

STEM has been identified as a cooperation focus for activities under the GTAGA, and this event showcased the importance of promoting opportunities and engagement for women in STEM fields, including promoting trade in STEM sectors. In sum, all speakers talked to the topics of how much representation matters, how diversity of thought and identity will help to resolve the biggest problems of our lifetime and the influential role that our society plays in informing the pathways for girls. They highlighted the value of inclusive perspectives and decision-making. There is still much work to be done in promoting gender equality, in particular, representation of women in STEM sectors and international cooperation initiatives such as GTAGA are instrumental in helping our societies to progress forward.