

# Women in Science, Technology, Engineering and Mathematics (STEM) (2017)

## Strategic Document

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## Introduction & Background

This paper provides a background and Human Rights Framework to strengthen eS4W's advocacy for women in Science, Technology, Engineering and Mathematics (STEM) areas.

Non-traditional occupations for women are currently considered to be fields where women make up less than 25% of the employment. In Australia and across the world these non-traditional industries tend to fall within the Science, Technology, Engineering and Mathematics (STEM) areas. Where despite women's increased participation in tertiary education, women are drastically underrepresented in professional STEM fields.

As eS4W member Australian Federation of Graduate Women, parent body Graduate Women International state, ...*'This gender imbalance is aggravated by work conditions, pay disparities between men and women, and a stereotype that men are better suited to working in STEM fields than women.'*<sup>1</sup>

eS4W's objective is to improve opportunities for women in non-traditional occupations and emerging industries with a focus on challenging gender occupation stereotypes for women and girls. As the presence of more women in STEM leads to increased innovation, competitiveness, and creativity, the workforce becomes more diverse, stronger, more flexible and overall better equipped to meet the challenges of the future by addressing the needs of all members of society. To this end, equal access to education for all people, regardless of gender, race, religion, social class or ethnicity, is an essential element of economic growth. Increasing women's access to secondary, tertiary, nontraditional and continuing education enlarges a country's labour force, engages previously untapped talent and as a result increases a country's GDP.

## STEM in a Human Rights Framework

eS4W works with International and national commitments to advance gender equality and promote women's economic empowerment.

In the area of STEM - from the Internet to mobile phones, technology enables us to connect with each other and the world around us in new and innovative ways. As technology becomes an increasingly essential part of every aspect of human existence—from education to employment, politics to creativity — the ability to access, navigate, and shape technology is critical to women's participation in all sectors of society.

Yet despite advances in STEM education, there is a serious gender divide when it comes to technological access, literacy, and influence<sup>2</sup>. Women and girls are missing, excluded, and dropping out – whether it's online, in the classroom, or in the world of work. Beside the lack of access to technology, we also know that too few women are leaders, innovators, and decision makers in an increasingly technological and connected world. A global technology revolution is taking place, and if women and girls aren't part of it, the future for women's human rights is bleak.

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<sup>1</sup> Women in STEM <http://www.graduatwomen.org/the-cause/the-business-case/> accessed 28 June 2017

<sup>2</sup> 'Technology is a Women's Human Rights Issue' <http://ignite.globalfundforwomen.org/gallery/technology-womens-human-rights-issue> accessed 28 June 2017

The results of this gender technology gap are two-fold:

1. First, women and girls experience inequality because they are less able to access and use existing technology, making it increasingly difficult for them to access and participate in education, politics, healthcare and economic and community life.
2. Second, because women and girls have effectively been left on the sidelines of the global technology revolution they are considered “consumers” of technology but not “creators” - today’s technology does not reflect the diversity of women’s experiences, imagination, or ingenuity. By limiting the participation of women and girls in science and technology, we too often limit ourselves to only half of the world’s ideas.

## CSW 61<sup>st</sup> Session

This is reflected through the Commission on the Status of Women (CSW) 61<sup>st</sup> Session States were asked to affirm the management of technological and digital change for women’s economic empowerment by supporting women’s access through their life cycle in developing skills in new and emerging fields and to strengthen science and technology education policies and curricula.

In the Outcomes Document States are urged to:

40 (e) Eliminate occupational segregation by addressing structural barriers, gender stereotypes and negative social norms, promoting women’s equal access to and participation in labour markets and in education and training, supporting women so as to diversify their educational and occupational choices in emerging fields and growing economic sectors, such as science, technology, engineering and mathematics and information and communications technology, recognizing the value of sectors that have large numbers of women workers;

and

40 (l) Mainstream a gender perspective into education and training programmes, including those relating to science, technology, engineering and mathematics, eliminate female illiteracy and facilitate effective transition from education or unemployment to work, including through skills development to enable women’s and girls’ active participation in economic, social and cultural development and women’s active participation in governance and decision-making at all levels, create conditions that facilitate women’s full participation and integration in the formal economy and develop gender-sensitive curricula for educational programmes at all levels, inter alia, to address the root causes of occupational segregation in working life; (m) Place enhanced emphasis on quality education, including communications and technology education, where available, for girls, including catch-up and literacy education for those who did not receive formal education, special initiatives for keeping girls in school through post-primary education, including those who are already married or pregnant, to promote access to skills and entrepreneurship training for young women and to tackle gender stereotypes, in E/CN.6/2017/L.5 17-04886 11/18 order to ensure that young women entering the labour market have opportunities to obtain full and productive employment, equitable compensation and decent work<sup>3</sup>;

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<sup>3</sup> UN CSW 61<sup>st</sup> Session Outcomes Document E/CN.6/2017/L.5 <http://undocs.org/en/E/CN.6/2017/L.5> last accessed 28 June 2017

## Sustainable Development Goals (SDGs) Agenda

There are 17 Sustainable Development Goals (SDGs) that are integrated and indivisible and balance the three dimensions of sustainable development: the economic, social and environmental. The 2030 Agenda for Sustainable Development is a global inter-governmental commitment and a plan of action for people, planet and prosperity to accomplish these goals. The 17 goals are measured by 169 targets that provide strategies and measurement for achieving the SDGs.

To a certain degree, the SDG's will be relying on science, innovation and technology to achieve the goals and targets set by States. It is also clear in the SDG agenda that the private sector play a much more central role than in their predecessor the Millenium Development Goals (MDG's) which we now know were not achieved in the timeframe set.

Science and innovation are clearly considered across the SDG's in 3 main ways:

1. They are considered goals in and of themselves as key drivers for economic growth and job creation.
2. Science is considered central to the implementation of all goals, for example new technological solutions can help address challenges around energy and food security.
3. Scientific knowledge can support translation of targets to national policies and help measure and evaluate impact.

Science is recognised across all SDGs as playing a key role in ensuring appropriate expertise is fed into policy development and sex and gender disaggregated data is called for in developing strategies and targets. Education is recognised as central to the realization of the 2030 Agenda for Sustainable Development.

- Goal 2 talks of ending hunger and draws on agricultural research;
- Goal 3 requires more research and development of vaccines and medicine, establishing sustainable consumption and production patterns;
- Goal 4 looks at ensuring inclusive and equitable quality education and promote lifelong learning opportunities for all. It is a stand-alone goal with its seven outcome targets and three means of implementation. Education is recognized as a goal that cuts across all other SDGs, driving their success. It is recognized within goals in health, gender equality, economic growth and employment, sustainable consumption and production, and climate change mitigation.
- Goal 7 talks of new and improved energy sources;
- Goal 8 looks at promoting inclusive and sustainable economic growth, employment and descent work for all with target 8.2 calling for higher levels of economic productivity achieved through "diversification, technological upgrading and innovation"
- Goal 9 is the SDG that most directly addresses science and innovation. This Goal looks at the key ingredients needed to increase scientific capabilities and innovation. However, this view has also been criticised for not clearly defining key concepts or quantifying targets.
- Goal 11 looks to the future of cities and human settlement;
- Goal 12 calls for 'developing countries to strengthen their scientific and technological capacity'
- Goal 17, target 17.8 is to increase significantly the availability of high-quality, timely and reliable data.

The lack of data, poor quality data and regional differences will be a massive challenge for the SDG's.

## Moving forward

The Australian Government has demonstrated its commitment to the success of the SDG's in the inaugural **Australian SDGs Summit: On the Road to Implementation**<sup>4</sup>, where it discussed the way the SDGs provide a new way for how Australia can address existing sustainable development challenges at home and abroad, and many businesses and other organisations around Australia are already seeing and engaging with these opportunities. Thus linking the domestic and international agendas. This combined with the Foreign Minister establishing a **multi-stakeholder advisory group on business and human rights to develop a National Action Plan (NAP) on Business and Human Rights** and to provide expert advice on Australian implementation of the UN Guiding Principles on Business and Human Rights (UNGPs) , including a review of existing laws, policies and best practices relevant to the UNGPs<sup>5</sup>.

Australia has made gender equality and women's empowerment one of six priority areas for investment in our aid program. Leveraging this, eS4W can use the universality aspect of the SDGs for national SDG implementation work that strives to improve opportunities for women in non-traditional occupations and emerging industries with a focus on challenging gender occupation stereotypes for women and girls.

Tracking, promoting and raising awareness of this area of eS4W work through:

- Working collaboratively with eS4W member organisations to track who is working on which SDG and how STEM is reflected in members work
- Developing a position paper on STEM as an advocacy statement that feed into and works with the multi-stakeholder advisory group on business and human rights to develop a National Action Plan (NAP) on Business and Human Rights
- Through a Social Media campaign that highlights STEM related issues, such as 'overcoming the gender digital divide', Women in Trade stories; Women and innovation stories that link issue to eS4W advocacy.
- Working cross Alliance to support STEM advocacy in other Alliance priorities such as STEM in agriculture.

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<sup>4</sup> ACFID, ACROSS, GCNA and SDSN Australia/Pacific (September 2016) *Australian SDGs Summit: On the Road to Implementation* <http://www.unglobalcompact.org.au/2016/12/20/australian-sdgs-summit-on-the-road-to-implementation-outcomes-report-released/> accessed 28 June 2017

<sup>5</sup> Foreign Minister establishes an Advisory Group on Business and Human Rights (2 June 2017) <http://www.unglobalcompact.org.au/2016/12/20/australian-sdgs-summit-on-the-road-to-implementation-outcomes-report-released/> last accessed 28 June 2017

## Actions

By working collaboratively with eS4W member organisations to track who is working on which SDG and how STEM is reflected in member's work key areas will be identified for social media strategy. This can occur through popular pieces being shared through social media with commentary that highlights and raises awareness of the specific member's positions.

Use the social media to also link and inform on the actions of the Minister's multi-stakeholder advisory group on business and human rights to develop a National Action Plan (NAP) on Business and Human Rights, and members' relevant key focus areas. Thus strengthening the conduit between government, particularly the Minister for Women and the Office for Women and the women's sector

### **Immediate Actions**

- formulate the social media strategy
- gather pieces on the Ministers NAP for circulation
- ask member organisation for relevant stories and input

### **Medium term actions**

- mapping of members; work against SGDs and CSW ODs

### **Longer term actions**

- developing targeted work related areas for on-going media strategy