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TECHFEST WORLD MUN

UNW

AGENDA: DEVISING WAYS TO INCREASE THE PARTICIPATION OF WOMEN IN CAREER FIELDS WITH SPECIAL EMPHASIS ON STEM FIELDS.

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Letter from the Executive Board

Dear Prospective Members,

At the outset on behalf of the Executive Board, we extend a warm welcome to all of you and congratulate you on being a part of the UN Women simulation at Techfest World MUN 2020 We believe that '**study guides**' are detrimental to the individual growth of the members since they overlook a very important aspect of this activity, which is - Research. We are sure however that the background guide gives you a perfect launching pad to start with your research.

The Background guide would be as abstract as possible, and would just give you a basic perspective on what the executive board believes you should know before you commence your research. This being clear, kindly do not limit your research to the areas highlighted, rather ensure that you logically deduce and push your research to areas associated with the issues mentioned. The objective of this background guide/study guide is to provide you with a '**background**' of the issue at hand and therefore it might seem to some as not being comprehensive enough. Please follow the links provided in the guide to research more on the topics mentioned.

We are not looking for existing solutions, or strategies that would be a copy paste of what countries you are representing have already stated; instead we seek an out of the box solution from you, while knowing and understanding your impending practical and ideological limitations.

Wishing you all a very warm good luck and hoping to see you all at this conference discussing imperative issues of international interest and we look forward to meeting you all at Techfest World MUN 2020.

Warm Regards,

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Introduction

A woman builds solar lanterns that bring light to her Guatemalan town. Girls code a drone controlled by SMS messaging that dispenses medicine in rural areas. A woman pharmaceutical chemist wins the Nobel Prize for research on anti-malarial compounds that improve the health of millions. But the unbiased treatment of genders is imperative for attaining socially impartial and sustainable development in a society that is grounded on human rights. Currently, we still have a long way to go to achieve complete equality of rights and balanced opportunities between men and women. The elimination of gender-based discrimination in work environments is of utmost importance to achieve equal opportunities in employment and positions of decision-making since it is a direct contributor to status, lifestyle, and economy.

What is UNW?

UNW (United Nations Women) is a branch of the UN that aims at establishing gender equality and empowering women. UNW specifically works upon priority areas that are instrumental to women's equality, and that can unlock progress across the board. Multiple agendas are overseen by the entity which includes; economic empowerment, increasing participation of women in leadership positions, ending violence against women, peace and security, and other humanitarian actions. UNW also aims at achieving the Sustainable Development Goals concerning women rights, predominantly goal number 5 (Gender Equality) alongside other goals such as goal 8 and goal 10 which also aim at reducing inequalities and providing equal opportunities of work.

What is STEM?

STEM is an approach to learning and development where the fields of Science, Technology, Engineering, and Mathematics are integrated. For a nation where our future leaders, neighbours, and workers can understand and solve complex and technical challenges, and meet the demands of the dynamic and evolving workforce, building students' skills, content knowledge, and excellence in STEM fields is vital. Countries are continuously engaged in improving STEM education and facilities within their respective jurisdiction to stand at par with the well-developed leading nations of the world.

Mandate of UNW

UN Women stands for women's equal participation in all aspects of life, focusing on five priority areas:

1. Expanding women's voice, leadership and participation;
2. Ending violence against women and girls;
3. Strengthening women's full participation in conflict resolution and peace processes;
4. Enhancing women's economic empowerment; and
5. Making gender equality central to national development planning and budgeting.

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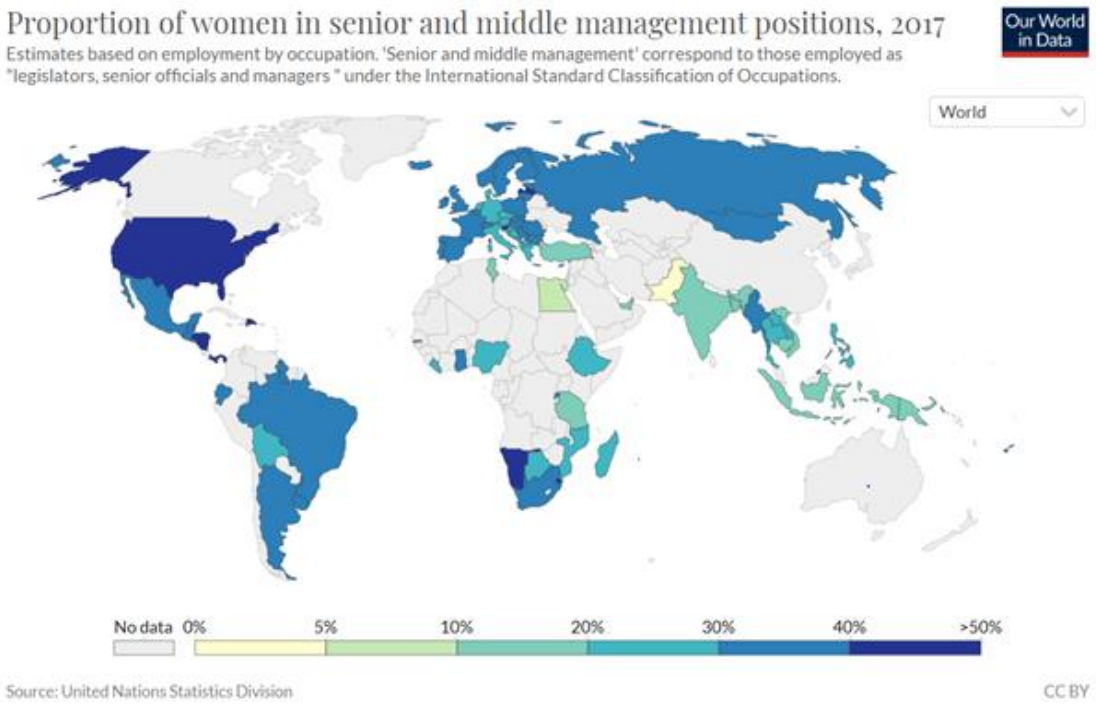
Distribution of jobs

All over the world, finding a job is much tougher for a woman than it is for a man. When women are employed, they tend to work in menial jobs in vulnerable conditions, and there is little or no improvement forecast shortly. The current global labour force (labour force includes people looking for employment) participation rate for women is nearly 49% whereas, for men, it's 75%. Women are underrepresented in senior managerial positions which tend to be highly paid and in many countries; women are at the same time overrepresented in low-paying jobs. In most counties, men are more likely to own land and control productive assets. Transformative change is the need of the hour to facilitate prosperity that is equally shared and ensures that no one is left behind in this fast-changing world.



Source: UN Statistics Division, 2017

Role of Women in STEM

UNESCO, and agencies like The Association of Academies and Societies of Sciences in Asia (AASSA) and the European Commission, have been outspoken about the underrepresentation of women in STEM fields globally. With the underwhelming representation in society, along with the poor statistics, an attainable environment for women to become a viable player in these career paths cannot be built. With each country's situation being drastically different than others, there seems to be no common ground to measure exact causes and statistics of participation and hence, a generalization is done to explain the situation in the majority of countries and each situation may not apply to every country. Even with the presence of countless barriers, most of which are based on discrimination, women have been continuously trying their best to excel in STEM.

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Background

a. History of Women's right to work

Women have worked in agricultural fields since ancient times, and have continued to do so around the world. Post Industrial Revolution of the late 18th and early 19th centuries, the nature of work in Europe and other countries of the Western world altered. Working for a wage, and eventually, a salary became part of the urban life. However, in the eastern part of the world, women were granted the right to work much later, in comparison to their western counterparts. Rights to work and equal pay opportunities were concepts that were presented very late in eastern countries.

b. History of participation of women[1]

i. Age of Enlightenment

When the Age of Enlightenment dawned, academic pursuits widened. Women from affluent families and of noble backgrounds were often allowed to pursue diverse interests ranging from literature to physics. Some remarkable women, such as Caroline Herschel and Émilie du Châtelet, were celebrated for their works in mathematics and astronomy, paving the way for future women in STEM. Most of these opportunities for higher education were presented only to women in high societies, but literacy among women in the middle class also began to rise.

ii. Women entered the workforce post world war II

Following World War II, the growth of the service factor led to the creation of new opportunities and outcomes. The latter part of the 20th century witnessed the removal of several gender-exclusionary rules and the ushering in of more inclusive roles for

[1] "The Past, Present and Future of Women in STEM – PCS https://edventures.com/blogs/stempower/the-past-present-and-future-of-women-in-stem

women. The goal was the promotion of women's rights while moving on to the pathway of progress for society as a whole. The range of policies introduced in the 1960s and '70s, along with the major expansion of public sector employment was instrumental in opening up a plethora of opportunities for women. 1980 was a remarkable year for gender equality in the sense that the ratio of women's earnings to men's earnings increased for all ages and levels of education. The following years had a significant decline in terms of the wage gap and job discrimination. Today, while women's lives have improved dramatically, gender gaps continue to persist.

c. Trends in female education patterns:

i. School Dropout ratios[2]

In recent surveys, it has been proved that girls throughout the world tend to perform better than boys in primary school but these same girls, belonging mostly to underdeveloped or developing nations, tend to drop out of school post-primary education, i.e. high school. Upon analysing the reasons for this, it was found that in various countries rural government schools provide poor quality education and with the added expenses of uniforms, books, etc., parents do not wish to spend on their daughters. There is a severe lack of secondary schools which results in girls having to travel a longer distance for education which parents find unsafe. Forced withdrawal on account of early marriage and the influence of relatives are other reasons for the same.

ii. Women pursuing Science

As we understand, historically, women's formal educational opportunities disallowed access to the core technology and sciences fields. Most women were denied full-time employment in STEM fields. We find that even though there has been a dramatic rise in the STEM participation of women, these are not equally distributed in each field.

[2] "Why do girls drop out of school and what are the ... - Medium." 1 Aug. 2018 https://medium.com/world-of-opportunity/why-do-girls-drop-out-of-school-f2762389a07e

Considering the UK and the U.S., more than 50% of all biomedical degrees are presented to women. However, the numbers die down dramatically when it comes to mathematics and physical sciences, and the fields of computing and engineering.

iii. Clustering in certain fields

According to Rossiter (early 1980), there is clear territorial segregation, which is the idea that women "cluster" in certain fields of study. For example, women are more likely to teach and do research in the humanities and social sciences than in the natural sciences and engineering.

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Barriers to Participation[3]

Women, all over the world have been highly underrepresented in STEM fields and this has continued to be a matter of concern. The gender difference in STEM fields is an issue of equity. Many people have suggested that women prefer not to pursue careers in STEM because of a lack of interest but statistical evidence over the years indicates that women are socialized away from STEM due to variety of reasons such as:

a. Family Obligations

In multiple countries, women are loaded with the responsibility of looking after their entire family. The problem arises when young adults try to balance work and family, and women end up carrying nearly all of the caregiving responsibilities. If women invest more time into these household activities than men, it puts women at a great disadvantage in the workplace. It is unrealistic to expect gender equality if workplaces demand that women be available all the time, while social norms dictate that women be the primary caretakers.

b. Expensive STEM Education

STEM Education is costly all over the world and most people cannot afford to pay such a high amount. Hiring experienced professionals who have been trained to teach these subjects, the requirement of various quality scientific tools in laboratories and workshops, and extensive student resources add to the expense.

[3] "Factors Impacting Women's Participation in STEM Fields." 5 May. 2015, https://scholarworks.uvm.edu/cgi/viewcontent.cgi?article=1077&context=hcoltheses

c. Lack of Role Models[4]

There should never be a shortage of inspirational role models for young girls planning a career in science. Women have been responsible for some of the greatest scientific breakthroughs that changed the modern world for the better, from Marie Curie's discoveries about radiation to Barbara McClintock's pioneering approach to genetics and Grace Hopper's ground-breaking work on computer programming. Lack of role models drives away young female students from establishing a career in STEM. In a UK based study, nearly 64% of women respondents in tech claim to have been motivated by an inspirational figure to pursue their career compared to just 47% of men. The research found that even those working in STEM often do not recognize eminent figures, particularly women. Various successful women in STEM are not recognized and are not provided with a platform where they can introduce STEM to younger women and guide them step by step into entering such fields. These women, despite being CEOs, MDs of companies face ruthless discrimination from their male counterparts.

d. Stereotypes built by society

Research shows that people view STEM fields as masculine up to this day. Society views women in science and engineering jobs as less competent; despite them showing considerable success. These stereotypes directly affect women's motivation and emotional state at their job and in society. As a result, quite a few women in science and engineering positions tend to quit stating hostility at their workplace. A 2008 study of private sector STEM professionals found that high-tech companies lost 41% of their female employees within 10 years or joining, against 17% of their male employees. This phenomenon of women dropping out a mid-career is referred to as the 'leaky pipeline'.

[4] 4 Main Reasons Why There Is a Lack of Women in STEM
https://www.builtbyme.com/lack-of-women-in-stem-reasons/

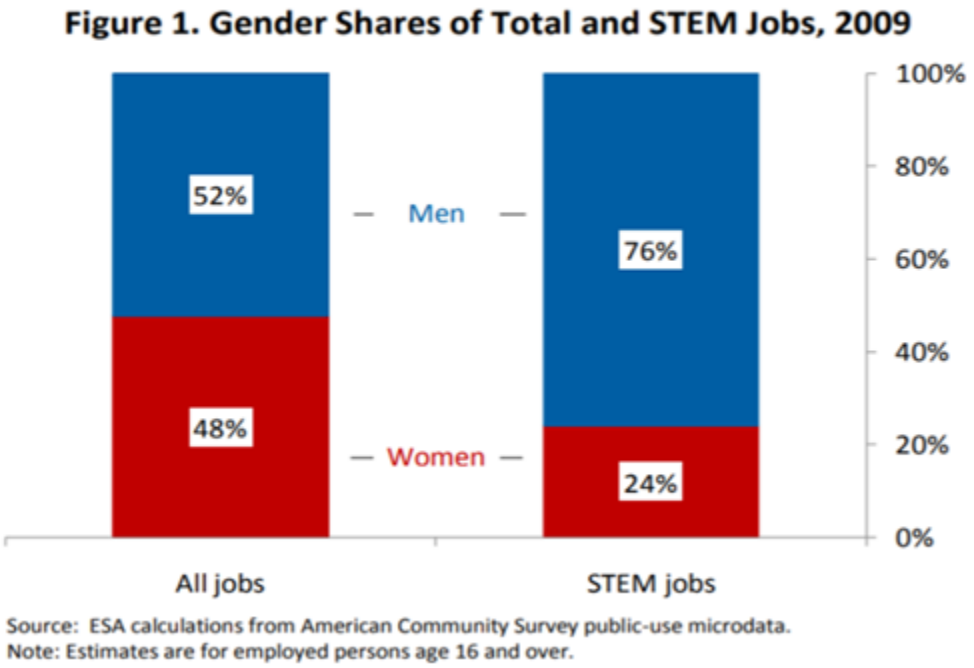
e. Institutions do not make Enough Changes to Accommodate Female Students

During middle school, there are a variety of options that support girls to develop STEM skills, like science classes and science fairs. But, beyond middle school, this support diminishes and so do the number of women in STEM. Fewer girls display interest which results in fewer female graduates in science, technology, and engineering fields.

Reports revealed that minor adjustments in science and technology departments in universities such as introductory courses with wider field overview significantly increase the numbers of female enrolments.

f. Unequal Opportunities and Pay in the industry

The underlying gendered stereotypes hold women back in terms of receiving their share of fair payment and opportunities. The gender wage gap has received much attention over the last several decades, particularly because progress in narrowing the gap has largely been stalled. Gender pay disparities narrowed rapidly in the 1980s, but progress since then has been far more modest. Among the reasons women historically earned less than men are gender differences in occupational concentration, human capital accumulation, work history, and discrimination. These explanations have become less relevant in the twenty-first century as women have increased their participation in the workforce and obtained college and advanced degrees but still are way behind men. Only about 24% of STEM workers are women, meaning there are nearly 3 times as many males as females in STEM-related jobs



Source: ESA calculations from American Community Survey public-use micro data.

The graph above represents the gender shares of total jobs and STEM jobs all over the world.

g. Harassment in the Workplace

Women, in all spheres of life experience mental and physical harassment from their male co-workers and STEM is just another such example. A 2015 report suggests that one in three women experience sexual harassment. There have been multiple talks and discussions on how to keep women participation stable but women are continuously harassed out of Science.

Current Situation

Considering all the potential barriers which hinder the growth of women, we realize how crucial it is for nations to support their women and how challenging it has become with each passing day. Despite these hurdles, women have made their marks in the field of science and have immensely contributed to the upliftment of Science and Technology. Some significant women[5] who have changed the face of STEM from the moment they set their foot at work are as follows:

Katherine Johnson

Katherine was a pioneering physicist, mathematician, and space scientist. A guiding light of STEM, Johnson broke down barriers all her life, and at the tender age of 18, she had earned degrees in Math and French, graduating summa cum laude. She was undoubtedly talented which led to new courses of Math being designed especially for her.

Grace Hopper

She was an American computer scientist and US Navy rear admiral. She invented the first programming language to use English words and helped develop COBOL. She also invented the first compiler that translates programs into machine language.

Dr. Adriana Ocampo

She was a geologist by profession and has worked on multiple NASA planetary projects including the Juno mission to Jupiter and the New Horizons mission to Pluto.

[5] "13 Women in STEM Who Changed the World - IWD." https://www.internationalwomensday.com/Activity/7213/13-Women-in-STEM-Who-Changed-the-World

Irene Au

Irene Au, worked in San Francisco and created her program to study human-computer interaction. She was the head of UI/UX design teams for Google and Yahoo and built unique and exceptional design before joining Khosla Ventures as an Operating Partner.

Roberta Bondar

She was Canada's first female astronaut and the world's first astronaut-neurologist. Roberta Bondar has various honours including the Order of Canada, the Order of Ontario, the NASA Space Medal and over 22 honorary degrees among other laurels. She spent nearly 10 years, starting 1992 after her career as an astronaut, leading an international research team at NASA studying the effects on astronauts of spaceflight and re-adaptation back to Earth's gravity.

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Actions Taken

Role of UNW in STEM:

UNW works closely with all its participant nations and monitors the female STEM statistics in the countries. UNW publishes reports and news articles regularly, citing the alarming need for women scientists in different fields. UN Women's programs on leadership and participation are guided by a history of international commitments to women's representation. The Beijing Platform for Action calls for removing barriers to equal participation. While the Convention on the Elimination of All Forms of Discrimination against Women upholds women's right to participate in public life, and The Millennium Development Goals measure progress towards gender equality in part by the proportion of women in leadership seats. UN Women supports women's economic empowerment in line with these and feels that gender equality significantly contributes to advancing economies and sustainable development. Their programs are highly successful and promote women's ability to secure decent jobs, accumulate assets, and influence institutions and public policies to determine growth and development. One of the most critical areas of focus involves advocacy to measure women's care work which is often unpaid and to take actions so women and men can readily combine it with paid employment. UN Women reaches out to women most in need, often by eradicating issues at grass-root level and by working alongside local civil society organizations in different countries.

Organized Participation:

Various summer programs and scholarships are provided by multiple organizations to girls interested in STEM fields. Organizations such as STEMBox, Girls Who Code, Kode with Klossy, Girls Can Code (Afghanistan), IndianGirlsCode, aim at increasing and encouraging female participation in male-dominated STEM fields.

Girls Who Code[6] is a non-profit organization that aims at bridging gender gaps in the field of technology. Girls Who Code has 8,500 Clubs operating across the country and around the world and has raised $100 million to close the gender gap in tech from partners and allies who are deeply committed to diversifying their workforces. They have reached 500 million people in total and have helped 300 thousand girls achieve their dream.

Stem Box: Stem Box helps girls aged 7-13 years get access to STEM. Each box features a STEM (science, technology, engineering, and math) topic for girls to explore with hands-on at-home experiments using tools provided in each box. StemBox is committed to making science accessible to all young girls. For every subscription box purchased, a matching box will be sent to a girl with limited access to science education.

United Nations Sustainable Development Goals

UN SDG 5 (Gender Equality)[7]

Gender inequality has continued to be the most persistent form of injustice and to eliminate that, SDG 5 was established. Goal 5 aims to eliminate all forms of discrimination and violence against women in the public and private spheres and to undertake reforms to give women equal rights to economic resources and access to ownership of property. By investing in the empowerment of women, we not only make progress on Goal 5 of the Sustainable Development Goals, but we also make gains on the alleviation of poverty and fuel sustainable economic growth. Hence, a part of this goal intends to ensure equal participation of women and equal

[6] "2019 Annual Report - Girls Who Code. https://girlswhocode.com/2019report/GWC_AnnualReport2019.pdf

[7] "SDG 5: Gender Equality - United Nations" https://in.one.un.org/page/sustainable-development-goals/sdg-5/

opportunities for leadership at all levels of decision-making in political, economic, and public life.

UN SDG 8 (Decent Work and Economic Growth)[8]

For nearly 25 years, the number of workers living in extreme poverty has greatly declined, despite the persistence of the 2008 economic crisis and global recession. We find that the global economy continually recovers but with slower growth, broadening inequalities, and not enough jobs. Women are less likely to participate in the labour force, and more likely to take the worst jobs in it—insecure, unsafe, and poorly paid jobs—inclusive growth remains far out of reach.

63% of women aged between 25 to 54 are in the labour force compared to 94% of men of the same age. Women's participation rate has barely changed in the last 20

[8] "(SDGs): SDG 8: Decent work and economic growth | UN Women." https://www.unwomen.org/en/news/in-focus/women-and-the-sdgs/sdg-8-decent-work-economic-growth

years, excluding Latin America and the Caribbean, wherein it rose from 57% to 68%. In Central and Southern Asia, the rate has dropped to 37%.

This SDG aims at promoting sustained economic growth, greater levels of productivity, and technological innovation. With these targets set, the goal is to achieve full and productive employment, and decent work, for all women and men by 2030.

UN SDG 10 (Reduced Inequalities)[9]

As discussed previously, women and girls continue to bear the brunt of patriarchy. Equal access to education, decent work, and representation in political and economic decision-making processes are not only rights women should have, but they also benefit humanity at large. According to UNDP Statistics, Women on average spend twice as much time on unpaid housework as men but have equal access to financial services as men in just 60% of the countries assessed and land ownership in just 42% of the countries assessed. This goal aims at reducing inequalities for disadvantaged groups like women, young people, people with disabilities, indigenous peoples, and others. For women specifically, it makes efforts to reduce gender inequality and expand opportunities for women a necessary aspect of any effort to reduce overall inequality whether in income or access to other resources or services.

The Convention on the Elimination of Discrimination against Women (CEDAW):

The Convention is an international treaty and was adopted by the United Nations in 1979 and came into force on 3 September 1981. More commonly described as the International Bill of Rights for Women, it has been signed by nearly 50 countries. It defines what constitutes discrimination against women and sets an agenda for nations to take the necessary actions to end such type of discrimination. The convention is

[9] "Reduced Inequalities ... - 1 Sustainable Development Goal 10." https://www.undp.org/content/undp/en/home/sustainable-development-goals/goal-10-reduced-inequalities.html

structured in six parts, with **Part III** speaking about the educational, social, and economic rights of women.

Beijing Declaration and Platform for Action

The Beijing Declaration was a resolution adopted by the UN at the end of the Fourth World Conference on Women held on 15 September 1995. The resolution adopted to propagate a set of ideologies concerning the equality of men and women.

The Working Group

A Working Group was established by the Human Rights Council, to tackle the issue of discrimination against women in law. The Group also seeks to promote the elimination of laws that discriminate against women and/or have a discriminatory impact on them.

Country Statistics and promoting gender equality in STEM:

Australia:

To enhance women's participation, a Decadal Plan was established by the Australian Academy of Science in collaboration with the Australian Academy of Technology and Engineering, providing guidelines to set the direction for all in the STEM sector to take action on gender inequity which lays down six key opportunities to support gender equality. The government provides scholarships, mentoring programs, and internships to women. The Australian Broadcasting Corporation's (ABC) Women in Broadcast Technology Scholarships has helped increase the representation of women in technologist roles at the ABC. The Digital Transformation Agency's Women in IT Executive Mentoring Program (WITEM) helps attract and retain talented women with IT skills within the Australian Public Service and increase the gender diversity of senior IT employees.

Azerbaijan

In Azerbaijan, the number of women in STEM is higher than average, comprising 40% of graduates in STEM-related fields. A major reason for this is that some famous women from Azerbaijan have made unparalleled contributions to science and have thoroughly inspired future generations.

Germany

Several steps have been taken by the German Government to promote women in STEM fields. A nationwide Girls' Day, initiated in 2001, aims at introducing and familiarising teenagers with technical work fields, in which women are underrepresented. The National Pact for Women in STEM Careers launched in 2008 has partners from politics, academia, and industry. They set out to increase the proportion of first-year female STEM students up to the European level. At the research level, The Joint Initiative for Research and Innovation (2005-2015) was designed to give financial planning security to a few German institutions and to enhance the proportion of women in leadership positions.

Malaysia

According to UNESCO, 48.19% of students enrolled in science programs in Malaysia were female as of 2011. This number has grown exponentially in the past three decades; the employment of women has increased in the county by 95%. The percentage of female students enrolled in pharmacy is more than 70% , while in engineering only 36% of students are female. Women hold 49% of research positions in innovation, technology, and science as of 2011.

Middle East

In Iran, nearly 70% of university graduates in science, technology, engineering, and mathematics (STEM) are women—a greater percentage than in any other country. Oman, Saudi Arabia, and the United Arab Emirates (UAE) are close to this ratio, each boasting over 60% of female graduates in science, way more than the rest of the world. Young women in science are the rule, not the exception, in the Middle East. At least a third of STEM trained talent across the Muslim world is female.

South Korea

In South Korea, The Ministry of Science and Technology (MOST) is taking the most concrete measures and has formulated the "Equal Opportunity in Science and Technology" law which aims at improving employment and training opportunities for women in science. MOST has already increased to 30% the portion of women serving on review panels overseeing government-sponsored science and technology projects. The WISE (Women into Science and Engineering) program was initiated in 2001 with a mentoring program to encourage and help young girls major in engineering and science.

UK

Women currently make up 46% of the UK's workforce, but only comprise 15.5% of the STEM workforce, excluding the field of medicine. Just 8% of engineering professionals are women. Some initiatives taken by the government are, Government funding for the Stimulating Physics Network and Further Mathematics Support program, with a special emphasis on engaging more girls, initiating The STEM ambassadors program; wherein 40% of the 31,000 STEM ambassadors were women, Providing support for female maths and science teachers through the National Science Learning Network and national network of maths hubs.

Questions a Resolution must answer:

1. How can we prepare girls not just to enter the workforce but also to lead it?
2. Why is there a huge wage gap between men and women and what are the steps that can be taken to bridge it?
3. How can institutions help girls develop an interest in STEM and how can they encourage them into pursuing careers in those fields?
4. What role do social norms and cultural practices play in hindering the elimination of gender disparity in the workforce?
5. What provisions can be made for new mothers to ensure that they do not lag behind in their careers?

Further Reading:

1. https://obamawhitehouse.archives.gov/women-in-stem
2. https://www.aauw.org/resources/research/the-stem-gap/
3. http://uis.unesco.org/en/topic/women-science
4. https://www.frontiersin.org/articles/10.3389/feduc.2019.00060/full
5. https://www.unwomen.org/en/digital-library/publications/2015/01/beijing-declaration
6. https://www.catalyst.org/research/women-in-science-technology-engineering-and-mathematics-stem/