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The gender disparity in the STEM workforce is a well-charted phenomenon in countries all around the world. In view of this, there is an urgent need for targeted and imaginative policies that redress the male-dominated nature of this field

IN A WORLD that is facing numerous environmental, health and development challenges, the STEM sector is paramount. Not only is it critical for enhancing productivity and competitiveness, but it also helps to ensure the continued wellbeing of individuals and societies. In today's burgeoning knowledge-intensive economy, the STEM workforce is projected to undergo exponential growth in the coming years.

Unfortunately, however, women in countries throughout the world are vastly underrepresented in scientific and technological fields. When it comes to pursuing successful and long-lasting STEM careers, they often face multiple barriers including a male-dominated working culture, a 'chilly' classroom environment and a lack of access to female mentors.

Closing the shameful gender gap in the STEM sector is vital for improving fairness and opportunities for women. Yet above and beyond this, ensuring greater inclusivity and diversity in scientific fields is also

conducive to innovation, firing growth through fostering a broader culture of scientific excellence. Indeed, the current lack of female representation in the STEM workforce means that the talents of half of the global population are not being exploited to their full potential.

In response, governments, universities, charities and organisations all over the world are ramping up efforts to close the STEM education gender gap and increase female participation in scientific and technological careers. For instance, the European Commission has set a target of 40 per cent by 2020 for the underrepresented sex in expert groups and evaluation panels, while the US-led TechWomen initiative is providing the next generation of women STEM leaders in Africa, Central Asia and the Middle East with access to mentors and educational exchange programmes. Importantly, national assessments conducted in 2012 by Women in Global Science and Technology in Brazil, India, Indonesia, the Republic of Korea, South Africa, the US and the EU highlighted that women researchers

do better in countries that have effective policies for health, childcare and equal pay.

Yet while there is a growing acceptance of the importance of promoting greater female representation in STEM fields, the bulk of the literature on gender disparities – as well as the policies designed to combat them – relates to the European and North American context. At present, in many developing countries there is a lack of disaggregated data on the number of women in STEM careers, making it challenging for policy makers in these countries to draw up effective interventions.

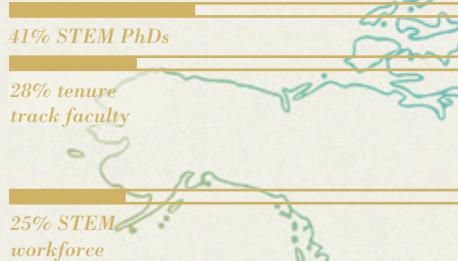
Moving forwards, with the prosperity of future generations dependent on the inception of innovative solutions that resolve pressing challenges such as clean energy, cures for diseases and increased food production, it is crucial that all nations invest in encouraging more women to pursue STEM careers.

A GLOBAL PICTURE

By shining the spotlight on the position of women in science in different regions throughout the world, *International Innovation* takes stock of successful national and international strategies for promoting gender equality in STEM

NORTH AMERICA

- In the US, women earn 41 per cent of the PhDs in STEM, but only comprise 28 per cent of tenure track faculty in these fields
- While women make up half of the US workforce, they only account for 25 per cent of the STEM workforce
- In 2011, 39 per cent of STEM university graduates aged 25 to 34 in Canada were female, compared to 23 per cent of STEM graduates aged 55 to 64

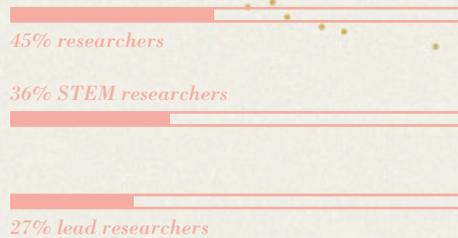


CASE STUDIES

- In May 2013, the Obama Administration released its five-year STEM Education Strategic Plan, which included increasing the participation of women and underrepresented groups
- The National Institutes of Health (NIH) Re-entry Program has been specially designed to support scientists returning to the workforce after raising children or engaging in other family duties. To date, over 90 per cent of the participants have been women

LATIN AMERICA

- Although 45 per cent of researchers in Latin America are women, only 36 per cent are STEM researchers
- In Brazil, 49 per cent of researchers are female – yet only 27 per cent of women lead research groups, compared to 32 per cent for men
- In Bolivia, 63 per cent of researchers are women, compared to just 37 per cent in Colombia



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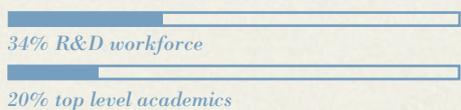
- The Venezuelan Academy of Physical, Mathematical and Natural Sciences launched Women for Science Venezuela in 2012 to connect women working in science and highlight their contributions. They are currently conducting a census of women working in the sciences in Venezuela
- UN Women has initiated projects to increase the digital literacy of rural women in Ecuador and Guatemala and of girls in the Dominican Republic. The Dominican Republic Government has set a national goal for achieving 50 per cent digital literacy among women in a four-year period

AFRICA AND THE ARAB STATES

- Of the 20 countries worldwide where women earn 50 per cent or more of the science degrees awarded, six of these are Arab states
- Only one in five countries in sub-Saharan Africa has achieved gender parity whereby 45 to 55 per cent of researchers are women
- In Namibia, 44 per cent of researchers are female while in Ethiopia women make up just 8 per cent of researchers

EUROPE

- Women make up 34 per cent of Europe's R&D workforce
- Only 20 per cent of top-level academics in Europe are women
- A 2013 study on female representation in Europe's ICT sector suggested that if as many women as men worked in this field, European GDP would increase by an estimated €9 billion. Yet at present only 30 per cent of the 9 million people in this sector are women



CASE STUDIES

- Most EU Member States have made concerted efforts to encourage gender equality in STEM, including the creation of national committees on women in science, commitment to gender mainstreaming, the publishing of sex-disaggregated statistics and the promotion of gender studies and research
- Gender equality is a key priority for the European Commission, enshrined in Horizon 2020. Applicants for research funding are strongly encouraged to ensure gender balance at all levels in their teams and management structures



ASIA-PACIFIC

- Women make up nearly 19 per cent of the R&D workforce in Asia and approximately 39 per cent in Oceania
- In China, it is estimated that women comprise approximately 40 per cent of the entire STEM workforce
- In 2011, only 28 per cent of employed STEM-qualified Australians aged 15 years or over were female

CASE STUDIES

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- The Bunengi Group is a women-owned company that operates in South Africa's construction, mining and agricultural sectors to further the advancement of women and girls in STEM education by providing female students with scholarships and career information
- The US-launched TechWomen initiative supports the next generation of women leaders in STEM in Africa, Central Asia and the Middle East through providing them with access to inspirational mentors and offering educational and cultural exchange programmes

- In response to India's burgeoning number of female engineering graduates and their current low representation in the workforce, the Anita Borg Institute and the Lean In Initiative have designed videos, training and resource materials and generated strategic networking opportunities for women engineers in India
- The South Australian Government provided professional development scholarships, each valued at AUD \$15,000, to support a number of female STEM researchers in the early stages of their careers in 2011

Sources: <http://bit.ly/whitehousestem>, <http://bit.ly/europagender>, UNESCO Data Center, 2010