
UNIT 10 INTERNATIONAL INITIATIVE ON GENDERING SCIENCE

Structure

10.0 Introduction

10.1 Learning Outcomes

10.2 Women in Science: International Perspectives

10.3 International organisations to support women in science

10.3.1 UNESCO: Supporting Women Scientists

10.3.2 The Organization for Women in Science for the Developing World (OWSD)

10.3.2 STEM and Gender Advancement (SAGA)

10.4 International Policies and Programmes

10.4.1 Athena SWAN Charter

10.4.2 L'Oréal-UNESCO For Women in Science International Awards

10.4.3 Homeward Bound

10.4.4 Research Grants Support for Early-Career Women Scientists in the Developing World

10.4.5 Indo-U.S. Fellowship for Women in STEMM (WISTEMM)

10.4.6 International Training Programme on Leadership and Career Development

10.4.7 Women in Science Programmes in Other Countries

10.5 A Way Forward

10.6 Let us Sum Up

10.7 Unit End Questions

10.8 References

10.9 Suggested Readings

10.0 INTRODUCTION

Gender inequalities persist in Science, Technology, Engineering, Mathematics, and Medicine (STEMM) all over the world especially at the higher positions. Overall, women account for a minority of the world's researchers. According to the UNESCO Institute of Statistics (UIS) data, less than 30% of the world's researchers are women. In European Union countries despite progress, gender imbalance amongst researchers remains, as in 2015 only one-third of the EU's researchers were women. Women continue to be under-represented in the highest positions. Although more women than men obtain undergraduate degrees in the EU-28, the proportion of women declines at the postgraduate level in science and technology and even more so in knowledge-intensive occupations: women make up only 32.3 % of people employed in high-technology sectors. However, the low proportion of women in physical sciences, across STEMM decision-making positions, calls for serious counteraction to create gender equality in science.

But to truly reduce the gender gap, we must go beyond the hard numbers and identify the qualitative factors that deter women from pursuing careers in STEMM.

10.1 LEARNING OUTCOMES

After studying this Unit, you would be able to:

- Know International organisations and its support to women scientists and technologists;
- Identify International policies and programmes; and
- Discuss gender in science programmes in different parts of the world.

10.2 WOMEN IN SCIENCE: INTERNATIONAL PERSPECTIVES

In this section, you will learn about international policies, programmes, and organisations to support gender in Science, Technology, Engineering, Mathematics, and Medicine (STEMM).

Women scientists are leading ground-breaking research across the world. But despite their remarkable discoveries, women still represent just 29 % of researchers globally, and their work rarely gains the recognition it deserves. Only 3 % of Nobel Prizes for science have ever been awarded to women, and only 11 % of senior research roles are held by women in Europe.

Apart from cultural, work environment, and other societal factors, fewer female STEMM graduates earn in the top bracket regardless of age, or whether their highest degree is a bachelor or Ph.D. This is true for both full-time and part-time workers, and for women with, and without children. Science, Technology, and Innovation (STI) play a critical role in meeting internationally agreed development goals. Yet, they cannot foster equitable, inclusive, and sustainable development unless the priorities, needs, concerns and abilities of both women and men are taken into consideration when formulating and implementing STI policies. A gender perspective needs to be applied to STI policymaking, which is still far from being a reality today.

Box 10.1: Gender Equity

Gender Equality is one of the United Nations 17 Sustainable Development Goals (SDGs) adopted by all United Nations Members States in 2015.

10.3 INTERNATIONAL ORGANISATIONS TO SUPPORT WOMEN IN SCIENCE

In this Section, we know international organisations and its support to women in science.

10.3.1 UNESCO: Supporting Women Scientists

United Nations Educational, Scientific, and Cultural Organisation (UNESCO) is committed to promoting gender equality in science and technology, informal, non-formal and informal settings and in all intervention areas from planning infrastructure to provide funds. UNESCO is supporting and promoting networks of women scientists in various scientific domains and regions, such as the African Women in Mathematics Association (AWMA), the African Association of Women in Geosciences and the International Network of Women Engineers and Scientists (INWES).

UNESCO's Natural Sciences Sector is also working with the Organization for Women in Science for the Developing World (OWSD), a network of more than 4,000 members throughout the world, created to provide research training, career development and networking opportunities for women scientists at different stages of their careers, as well as give to girls and women in science the opportunity to meet role models and mentors.

Finally, through the UNITWIN/UNESCO Chairs Programmes, multiple Chairs have been created on issues related to Gender and Women's Empowerment (GEWE), bringing together higher education and research institutions, and encouraging international and regional cooperation to enhance institutional capacities through knowledge sharing and collaborative work on these topics. Among the Chairs working on issues related to GEWE, five of them focus on promoting women's participation in sustainable development and water resources management (located in Brazil, the Ivory Coast, Morocco, Togo, and the Dominican Republic), whereas five other chairs aim to empower women in science and technology (located in Argentina, Egypt, Pakistan, Sudan, and Togo).

10.3.2 The Organization for Women in Science for the Developing World (OWSD)

The Organization for Women in Science for the Developing World (OWSD) is an international organization founded in 1987 and based at the offices of The World Academy of Sciences (TWAS), in Trieste, Italy. It is a programme unit of UNESCO.

OWSD is the first international forum to unite eminent women scientists from the developing and developed worlds with the objective of strengthening their role in the development process and promoting their representation in scientific and technological leadership. OWSD provides research training, career development and networking opportunities for women scientists throughout the developing world at different stages in their careers.

10.3.3 STEM and Gender Advancement (SAGA)

The STEM and Gender Advancement (SAGA) project is a global UNESCO project launched in 2015 to strengthen UNESCO’s work in support of gender equality in STI.

SAGA’s main objective is to offer governments and policymakers a variety of tools to help reduce the current global gender gap in STI fields existing at all levels of education and research. By reaching this objective, the SAGA project will contribute to increase the visibility, participation, and recognition of women’s contributions in STEM.

SAGA was supported from 2015 until November 2018 by the Government of Sweden through the Swedish International Development Cooperation Agency (Sida). The project’s goals are achieved by using two approaches, namely, by surveying policies affecting gender equality in STEM, and by identifying and designing relevant indicators.

The project focuses on four main activities: develop a methodology and tools to support policy-makers worldwide in setting up, implementing and monitoring gender equality in STI policies; Conduct training workshops in pilot countries to reinforce capacities; Collect STI gender-related policies and instruments and sex-disaggregated data; and Advocate on the importance of improving STI gender-related policies and instruments and collecting sex-disaggregated data.

Numerous studies have found that women in STEM fields publish less, are paid less for their research, and do not progress as far as men in their careers. However, there is very little data at the international or even country level showing the extent of these disparities. Through SAGA, the UIS has been working with partners in countries and regional organizations, to develop a toolkit that includes methodologies, indicators, and frameworks to produce more precise data and make better use of existing information.

Check Your Progress Exercise I

Note: I. Use this space given below to answer the question.

II. Compare your answer with the Course material of this Unit.

1. Describe any one international initiative towards attaining gender parity in science.

.....

.....

.....

.....

.....

.....

.....

2. Outline the key objectives of SAGA project.

.....

.....

.....

.....

.....

.....

10.4 INTERNATIONAL POLICIES AND PROGRAMMES

10.4.1 Athena SWAN Charter

Established in 2005 with 10 founder members in the United Kingdom (UK), the Athena SWAN Charter has now been implemented in three more countries, Ireland, Australia, and India.

In 2019, a research report of Ortus Economic Research in partnership with Loughborough University found that 93 per cent of participants believed that the Charter had a positive impact on gender issues in their university, department or research institute, 78 per cent said it had impacted equality and diversity issues positively, and 78 per cent noted a positive impact on the career progression of women.

Many significant cultural and policy changes were also observed during the implementation years. The Chief Medical Officer for England, Dame Sally Davies linked the funding of the National Health Service (NHS) and National Institute for Health Research (NIHR) with the Athena SWAN award in July 2011 to encourage and incentivise medical schools to empower women's advancement and leadership.

The success in higher education institutes has also encouraged the expansion of Athena SWAN Charter to research institutes not affiliated with a higher education institution. Currently, 34 research institutes are members of the Charter and 18 hold awards, including one gold award.

In 2015, a tailored Athena SWAN programme was launched in Ireland as a cross-sector initiative supported by the Higher Education Authority (HEA) in Ireland. The pilot was STEMM focused (though it has recently expanded to cover all academic disciplines). To date, 11 institutions and 26 departments have successfully achieved Bronze awards. A review of the scheme has recommended that Athena SWAN be permanently established in Ireland.

The programme was also adopted in Australia in 2015. The Science in Australia Gender Equity (SAGE) was set up through a partnership between the Australian Academy of Science (AAS) and the Australian Academy of Technology and Engineering (ATSE) to oversee the pilot. Thirty three (33) out of 38 universities, plus a higher education research institution (representing approximately 87% of Australian universities), a higher

education research institute, six (6) out of 50 of Australia's medical research institutes (representing approximately 12% of Australian MRIs) and five (5) out of approximately 12 publicly funded science research agencies (representing 40% of these agencies) became part of SAGE pilot programme and committed to follow the ten principles of the Athena SWAN Charter.

Box 10.2: International day of Women and Girls in Science

The International Day of Women and Girls in Science, celebrated on 11 February, is implemented by UNESCO and UN-Women, in collaboration institutions and civil society partners that aim to promote women and girls in science.

10.4.2 L'Oréal-UNESCO For Women in Science International Awards

Created in 1998, the L'Oréal-UNESCO For Women in Science International Awards recognize and support eminent women in science throughout the world. Each year, five Laureates are recognized for their contributions to the advancement of science, in Life Sciences or Physical Sciences, Mathematics and Computer Science in alternating years and an award of €100,000 is given to each of the five laureates selected by a jury of internationally renowned experts.

Researchers from all over the world are invited to nominate candidates. The final selection is carried out by an independent jury made up of distinguished members of the scientific community. The nominated women scientist should be recognized for their scientific excellence by the international scientific community, actively involved in scientific research, work in any field of the Physical Sciences, Mathematics or Computer Science. There is no age constraint regarding the candidate.

The recognition of the candidate's outstanding contribution to the general advancement of science, commitments to education, teaching activities, mentoring and/or to the United Nations Sustainable Development Goals are basis of her selection for the award. The L'Oréal-UNESCO For Women in Science Awards are non-renewable.

112 laureates have been honoured till date, distinguished for the excellence of their scientific work. Three of them – Ada Yonath, Elizabeth H. Blackburn, and Christiane Nüsslein-Volhard – have won Nobel Prizes for science.

Each year, the L'Oréal-UNESCO For Women in Science programmes also support more than 250 talented young women researchers. Through its 54 regional and national programmes, the Fondation L'Oréal and UNESCO support them at a crucial period in their careers, during their thesis or post-doctoral studies.

10.4.3 Homeward Bound

Born in 2014, Homeward Bound was created to increase the influence and impact of women leading with a STEMM background in making decisions that shape the future of the planet. Its goal is to give 1000 women, within 10 years, the skill and will to lead with impact and influence for the greater good. By connecting influential women in STEMM and putting them through this leadership initiative and creating global collaboration, Homeward Bound will ensure that there is greater diversity at the global leadership table.

The Leadership programme aims to provide into participants' leadership mindset and style and the impact this has on their ability to act as a leader in the world. The programme has four core development components, or 'Streams': leadership, strategy, visibility and science. These are delivered during a 12-month programme, with online content and collaborative learning (11 months), and face-to-face on the ground in Ushuaia, Argentina (pre-voyage) and on-board ship voyaging to Antarctica. Additionally, a Wellbeing Team ensures a focus on psychological safety and wellbeing throughout the programme.

The key components are woven together into an integrated programme, delivered by an expert global faculty. The live programme is also supported by recorded content from leading experts and influencers within their fields. The programme comprises lectures, personal and leadership development tools, coaching sessions, visibility training and the opportunity to develop meaningful collaborations – in forums, in teams with a focus on areas of interest, and in small diverse cohorts.

10.4.4 Research Grants Support for Early-career Women Scientists in the Developing World

The partnership between OWSD and Canada aims to empower women researchers based throughout the developing world to become leaders and role models in Science, Technology, Engineering, and Mathematics (STEM). OWSD has two major fellowship strands: a PhD training programme funded since 1998 by the Swedish International Development Agency (Sida), and the Early Career Women Scientist (ECWS) programme, funded since 2018 by IDRC.

The two donors, IDRC and the Swedish International Development Agency (SIDA) agreed to pool resources to provide a comprehensive career development programme for women scientists from 66 of the world's least

developed and scientifically lagging countries (STLCs). The aim of the Sida-funded programme is to enable women from STLCs to leave their home countries and travel to better equipped laboratories and departments in other developing countries in order to complete their PhD training to internationally competitive standards. The aim of the IDRC-funded programme is to enable women with PhDs to stay in their home countries and continue their research to international standards, while training new PhDs and building a research team and centre of excellence in their field.

10.4.5 Indo-U.S. Fellowship for Women in STEMM (WISTEMM)

The Department of Science and Technology (DST), Government of India and Indo-U.S. Science & Technology Forum (IUSSTF) jointly announce the “Indo-U.S. Fellowship for Women in STEMM (WISTEMM)” (*Science, Technology, Engineering, Mathematics and Medicine*) programme with an aim to provide opportunities to Indian Women Scientists, Engineers & Technologists to undertake international collaborative research in premier institutions in U.S.A, to enhance their research capacities and capabilities.

The Programme is envisaged to provide opportunity to bright Indian women students and scientists to gain exposure and access to world class research facilities in U.S. academia and labs in different frontline areas of Science, Technology, Engineering, Mathematics and Medicine (STEMM). Any Indian women who is currently pursuing Ph.D. degree in Basic sciences, Engineering or Technology including Agricultural and Medical Sciences on a full-time basis at any recognised academic institution/ R&D institute/ university in India is eligible to apply for a duration of 3-6 months.

10.4.6 International Training Programme on Leadership and Career Development

The Department of Science and Technology (DST) in partnership with the IUSSTF and CoACh International, USA conducted two weeks international training programmes on ‘Leadership and Career Development’ to ‘train the trainer’ in 2014 and 2015. Approximate 200 mid-career women scientists were trained as soft skills. The programme was focused on providing training in career-building topics that are not covered in traditional science curricula. The women scientists were trained on topics such as effective negotiation skills, successful leadership methods, communicating science effectively, working in a team environment, consensus building, establishing a strong in-person and internet presence, and publishing in respected journals, grant writing, and the job search.

10.4.7 Women in Science Programmes in Other Countries

There are hundreds of programmes going to support women in science. Few of them are ‘Women in STEM Decadal Plan’ and ‘Advancing Women in STEM 2020 Action Plan’, and ‘Women in STEM and Entrepreneurship grants’ programmes from the Australian government; Organizational Change for Gender Equity in STEM Academic Professions

(ADVANCE) from the National Science Foundation, the USA, and Women in Science & Engineering (WiSE) to support women in science and engineering.

In Europe, the Joint Research Centre (JRC), with the Horizon 2020 programme and the Gender Equality Strategy, developed in 2013. The Japanese government-led initiatives such as ‘womenomics’ and ‘make women shine’ and the ‘Women in Science, Engineering and Technology’ (WISET) center acts as the venue for nurturing and supporting female talents. The Republic of Korea is also working towards gender equality in science and leadership.

Check Your Progress Exercise II

Note: I. Use this space given below to answer the question.

II. Compare your answer with the Course material of this Unit.

1. Outline the aim and vision of Indo-US fellowship for women in STEMM.

.....
.....
.....
.....
.....

2. What was the vision for creating Homeward Bound programme? Explain.

.....
.....
.....
.....
.....

10.5 A WAY FORWARD

There are various possible explanations for this gender imbalance, and a large amount of anecdotal evidence, but solid information is still lacking. In fact, the growing demand for cross-nationally comparable statistics on the representation of women in STEM is only slowly starting to be met.

Yet, the lack of data and indicators, as well as of available analytical studies, can obstruct the design, monitoring, and evaluation of policies aimed at successfully tackling the issue of gender inequality in STEM. Effective STEM policies need to be evidence-based and hence supported by relevant statistics and indicators. There is an urgent need to develop new indicators and methods to collect and analyze sex-disaggregated data on women’s participation in STEM around the world, to elaborate and implement

appropriate solutions.

Although overt sex discrimination is rare, women in science are battling engrained bias, both at the institutional and personal levels. These biases and inequalities need to be tackled by enlightened policies and institutional good practice. But there are also some things that individual women scientists can do to boost their chances of success in a male-dominated work environment. These include developing their ability to communicate and present their science with clarity, confidence, and authority.

'We must have perseverance and above all confidence in ourselves. We must believe that we are gifted for something and that this thing must be attained.'

Marie Curie

10.6 LET US SUM UP

We began this unit with a brief discussion on women in science from an international perspective. We discussed different initiatives of various international organizations for achieving gender parity in science. The unit further explained international policies and programmes of various countries for promoting women and girls in STEMM. It drew attention to challenges and issues faced by women scientists and technologists in the field of science.

10.7 UNIT END QUESTIONS

1. Discuss International Programmes and Policies to promote Women in Science.
2. How do international agencies address the challenges of women scientists and technologists? Discuss with the help of example.

10.8 REFERENCES

United Nations Educational, Scientific, and Cultural Organisation (UNESCO). Gender and Science. <http://www.unesco.org/new/en/natural-sciences/priority-areas/gender-and-science/>

The World's needs Science and Science needs Women. L'Oréal-UNESCO For Women in Science. <https://www.forwomeninscience.com/en/home>

Research grants support 20 early-career women scientists in the developing world. UNESCO. <https://en.unesco.org/news/research-grants-support-20-early-career-women-scientists-developing-world>

Homeward Bound. <https://homewardboundprojects.com.au/>

STEM and Gender Advancement (SAGA). UNESCO.
<https://en.unesco.org/saga>

The Organization for Women in Science for the Developing World.
<https://owsd.net/about-owsd/what-owsd>.

Indo-US Fellowship for Women in STEMM. Indo-US Science and Technology Forum. <https://www.iusstf.org/program/indo-us-fellowship-for-women-in-stemm>

Jyoti Sharma. 2020. Responding to COVID-19: Women scientists from developing countries tell their stories. An OWSD Survey. March-April. https://www.owsd.net/sites/default/files/Responding%20to%20COVID-19_Women%20scientists%20from%20developing%20countries%20tell%20their%20stories_2.pdf

10.9 SUGGESTED READING

United Nations Educational, Scientific, and Cultural Organisation (UNESCO). Gender and Science. <http://www.unesco.org/new/en/natural-sciences/priority-areas/gender-and-science/>



ignou
THE PEOPLE'S
UNIVERSITY