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SAGA: facing the challenges in Measurement and Policies for Gender Equality in STEM

Participation of women and girls in STEM education

Gender Summit 8 North & Latin America 2016

28 – 29 April, Mexico City

Ernesto Fernández Polcuch, SAGA Steering Committee

Chief of Section, Science Policy and Partnerships

e.fernandez-polcuch@unesco.org

@efpolcuch

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Women and girls in STEM for achieving Sustainable Development

- STEM plays a crucial role in meeting all the Sustainable Development Goals. So does gender equality.
- Reducing inequality by attracting more women into STEM fields specifically will support, among others, the achievement of SDG targets 4.3, 5.5, 5.c, 9.5 and 17.18.
- The lack of relevant data, standard methodology and guidelines to assess women's participation and contribution in STEM obstructs the design, monitoring and evaluation of policies aimed at promoting gender equality in these fields.

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Examples of UNESCO action towards Gender Equality in STEM

- Gender Equality is one of UNESCO's two global priorities.
- Promoting Role Models and raising awareness:
  - UNESCO-L'Oreal For Women in Science Programme
- Supporting evidence-based policy making:
  - Collection and publication of statistics and analysis (UIS and UNESCO Science Report)
  - Development of new indicators
  - Collection and dissemination of policies and policy mechanisms

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SAGA – STEM And Gender Advancement

Improved Measurement of Gender Equality in Science and Engineering

- Urgent need to develop new indicators and methods to collect and analyse sex-disaggregated data on women's participation in STEM around the world, in order to elaborate and implement appropriate solutions.
- STI policies and policy mechanisms for Gender Equality are partially in place in many countries. Learning from these experiences and tools for fixing the gaps in the policy mix are necessary.
- SAGA, a global UNESCO project, supported by Sweden, in partnership between the UNESCO Natural Sciences Sector, the UNESCO Institute for Statistics (UIS), and the UNESCO Regional Office for Science in Latin America and the Caribbean in Montevideo, aimed at:
  - Determining new indicators, measuring and assessing them,
  - creating an inventory and gap analysis of STI policy instruments that affect gender equality in STEM and share good practices.

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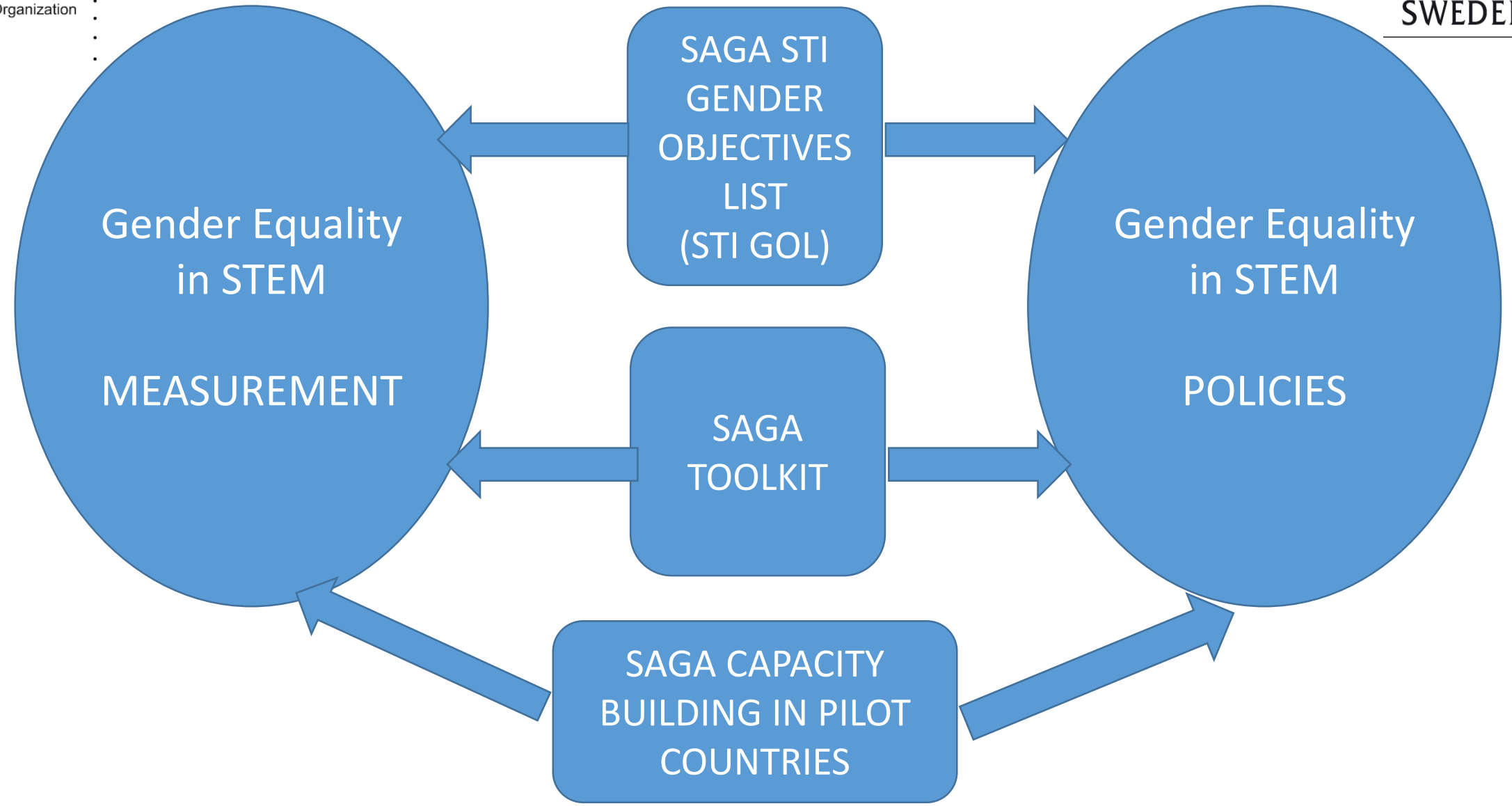

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SAGA Science, Technology and Innovation Gender Objectives List (STI GOL)

- Enables the categorization of STI policies and policy instruments, and indicators.

- Assists in identifying gaps in the STI policy mix and aims at encompassing all aspects of gender equality in STI policy making.

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SAGA STI Gender Objectives List

1 – Change perceptions, attitudes, behaviour, social norms and stereotypes towards women in STEM in society

2 – Engage girls and young women in STEM primary and secondary education, as well as in technical and vocational education and training

3 – Attraction, access to and retention of women in STEM higher education at all levels

4 – Gender equality in career progression for scientists and engineers (S&E)

5 – Promote the gender dimension in research content, practice and agendas

6 – Promote gender equality in STEM-related policy-making

7 – Promote gender equality in science and technology-based entrepreneurship and innovation activities

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1 – Change perceptions, attitudes, behaviour, social norms and stereotypes towards women in STEM in society

1.1 – Promote awareness of and overcome non conscious and cultural gender biases widely expressed as gender stereotypes, among scientists, educators, policy-makers, research organizations, the media, and the public at large.

1.2 – Promote visibility of women with STEM qualifications, and in STEM careers, especially in leadership positions in governments, business enterprises, universities, and research organizations.

1.3 – Mainstream gender perspectives in science communication and informal and non-formal STEM education activities, including in science centres and museums.

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2 – Engage girls and young women in STEM primary and secondary education, as well as in technical and vocational education and training

2.1 – Promote S&E vocations to girls and young women, including by stimulating interest, fostering in-depth knowledge about S&E career issues, and presenting role models.

2.2 – Mainstream the gender perspective in educational content (teacher training, curricula, pedagogical methods, and teaching material).

2.3 – Promote gender-sensitive pedagogical approaches to STEM teaching, including encouraging hands-on training and experiments.

2.4 – Promote gender balance among STEM teachers.

2.5 – Promote gender equality in STEM school-to-work transitions.

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3 – Attraction, access to and retention of women in STEM higher education at all levels

3.1 – Promote access of and attract women to STEM higher education (including Masters and PhD), including through specific scholarships and awards.

3.2 – Prevent gender bias in the student admission process.

3.3 – Promote retention of women in STEM higher education at all levels, including through gender-sensitive mentoring, workshops and networks.

3.4 – Prevent gender-based discrimination and sexual harassment particularly at graduate level, including Masters and PhD.

3.5 – Promote gender equality in international mobility of students.

3.6 – Promote day care/child care facilities for students, particularly at STEM higher education institutions.

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4 – Gender equality in career progression for scientists and engineers (S&E) (1)

4.1 – Ensure gender equality in access to job opportunities, recruitment criteria and processes.

4.2 – Promote equal work conditions through, among others:

- Gender equality in remuneration
- Preventing gender bias in performance evaluation criteria (including productivity measurement)
- Adequate safety and security fieldwork
- Sexual harassment prevention policies and procedures.

4.3 – Ensure gender equality in access to opportunities in the workplace:

- Training and conferences
- Research teams, networks (national and international), expert panels and advisory groups
- Publications and patent applications
- Financial and non-financial incentives
- Recognition, rewards and awards.

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4 – Gender equality in career progression for scientists and engineers (S&E) (2)

4.4 – Promote work-life balance through among others:

- infrastructure for child care
- flexible working hours
- reduction and redistribution of unpaid care and domestic care
- family leave for both parents
- appropriate re-entry mechanisms to the S&E workforce after career break or family leave.

4.5 – Promote gender equality in international mobility of post-docs and researchers, and facilitate women's return.

4.6 – Promote gender balance in leadership positions in S&E occupations (including decision making and research).

4.7 – Promote transformations of STI institutions and organizations (structure, governance, policies, norms and values) aimed at achieving gender equality.

4.8 – Ensure gender equality in S&E professional certifications, in particular engineering accreditation.

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5 – Promote the gender dimension in research content, practice and agendas

5.1 – Establish specific gender-oriented R&D programmes, including research on gender in STEM and on the gender dimension of the country's research agenda and portfolio.

5.2 – Incorporate gender dimensions into the evaluation of R&D projects.

5.3 – Promote gender-sensitive analysis in research hypotheses and consideration of sex of research subjects.

5.4 – Promote gender responsive and gender sensitive research dissemination and science communication, including through science centres and museums, science journalism, specific conferences, workshops, and publications.

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6 – Promote gender equality in STEM-related policy-making

6.1 – Ensure gender balance in STEM-related policy design (decision makers, consultative committees, expert groups, etc.):

- Education policy
- Higher education policy
- STI policy
- Economic policy
- Workforce policy
- SDGs / international policies

6.2 – Ensure gender mainstreaming and prioritization on gender equality in STEM-related policy design, monitoring and evaluation:

- Education policy
- Higher education policy
- STI policy
- Economic policy
- Workforce policy
- SDGs / international policies

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7 – Promote gender equality in science and technology-based entrepreneurship and innovation activities

7.1 – Promote gender equality in access to seed capital, angel investors, venture capital, and similar start-up financing.

7.2 – Ensure equal access to public support for innovation for women-owned firms.

7.3 – Ensure visibility of women entrepreneurs as role models.

7.4 – Ensure women's access to mentorship and participation in the design and implementation of gender-sensitive training in entrepreneurship, innovation management, and intellectual Property Rights.

7.5 – Promote networks of women entrepreneurs and women's participation in entrepreneurship networks.

7.6 – Promote gendered innovation approaches.

7.7 – Promote external incentives and recognition for women-led innovation and acceptance of women innovators in society.

7.8 – Promote gender equality in the access and use of enabling technology, in particular information and communication technology.

7.9 – Promote a gender balanced workforce and equal opportunities in start-up companies.

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SAGA Toolkit

- Set of instruments for countries to improve the measurement of gender in STEM and to support the design of better STI policies towards Gender Equality.
- Provides standard definitions for STEM in education, Science and Engineering (S&E) workforce, and STI Policies.

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SAGA Toolkit (1)

- A framework to collect statistics on STEM in education and in S&E workforce, and STI policy instruments promoting gender equality.
- International standard definitions for STEM in education and for S&E workforce.
- Classifications for:
  - STEM in education and in S&E workforce using existing international classifications
    (ISCED, ISCO…)
  - STI policy instruments aimed at gender equality in STEM
  - STI Gender Objectives List (GOL)
- Inventory of existing instruments and gap analysis of STEM indicators and STI policy instruments.

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SAGA Toolkit (2)

- Identify and create instruments and indicators to capture data on drivers and barriers to women's progression in STEM careers.

- Make a set of modules highlighting STEM-related instruments in existing data sources to assist countries in collecting data relevant to gender advancement in STEM:
  - Higher education data
  - R&D data
  - Careers of Doctorate Holders (CDH)
  - Labour Force Surveys
  - National Censuses and surveys
  - Big data (LinkedIn, Google scholar…) and CV databases (Lattes Platform…)
  - Publications (Web of Science…)
  - ….

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Capacity building activities

- The SAGA STI GOL and SAGA Toolkit will serve as the base for these activities
- Pilot countries are being selected
- Results will inform final methodological proposals and publication.

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For Women in Science

FONDATION L'ORÉAL

Sign and promote the For Women in Science Manifesto!

http://www.fwis.fr/en/manifesto

We are committed to:

1. **Inspiring interest in the sciences among the next generation of girls and young women.**
2. **Addressing the current barriers to the full participation of women in science so as to facilitate their engagement in long-term careers in research.**
3. **Promoting the advancement of women, as well as supporting women through the ranks to encourage their presence at the highest levels of research and decision making in science.**
4. **Raising awareness on the work of women scientists' around the world, and celebrating their contributions to the advancement of science and society.**
5. **Ensuring equal opportunities for women's participation and leadership in scientific symposia, panels, boards, networks, prizes and awards.**
6. **Acknowledging the importance of highlighting women scientists as role models for young girls and women.**
7. **Promoting mentoring opportunities for young women scientists, to help them with career planning and development so that they are better able to reach any level they aspire to.**

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Thank you!

e.fernandez-polcuch@unesco.org
@efpolcuch

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L'Oréal-UNESCO
For Women in Science Programme

- Established in 1998, to
  - Recognize women's contribution to science and the scientific agenda
  - Encourage more young women to take up science careers and promote careers of promising young women researchers

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L'Oréal-UNESCO
For Women in Science Programme

- Every year:
  - 5 Laureates – one per region
  - 15 International Rising Talents (until 2015 Intl. Fellowships)
  - 4 regional programmes - 19 Fellowships
  - 43 national programmes - 217 Fellowships
- Up to now:
  - 92 laureates
  - 250 Fellowships given worldwide
  - 2530 promising young women scientists supported
  - From 115 countries

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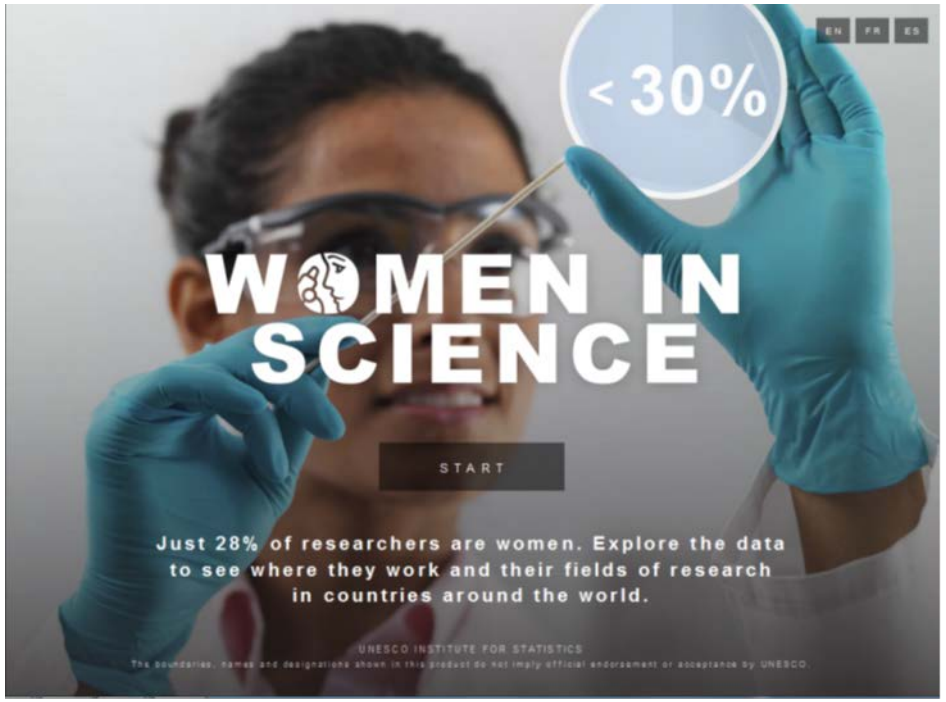
UNESCO Institute for Statistics: Women in Science



http://www.uis.unesco.org

Science, technology and innovation > Women in Science

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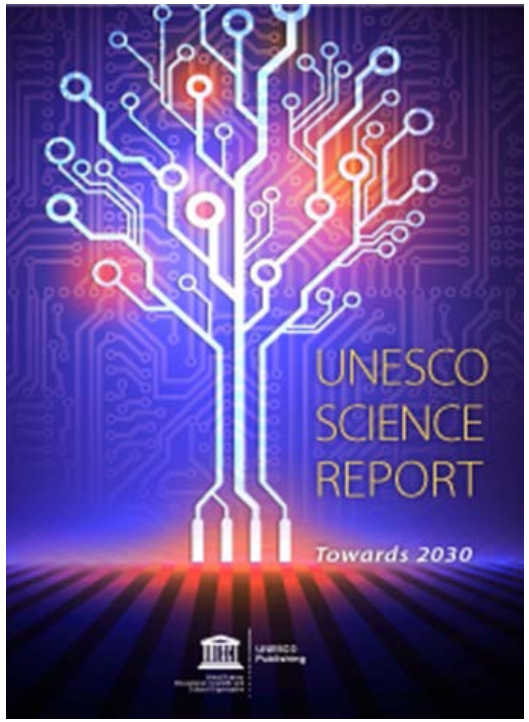
UNESCO Science Report
Towards 2030



Chapter 3: Is the gender gap narrowing in science and engineering?

Sophia Huyer

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Gender Equality: UNESCO global Priority

- Gender Equality is one of UNESCO's two global priorities, with a commitment to promote equality between women and men across the Organization's mandate. Gender Equality is not only a fundamental human right, but a necessary foundation for the creation of sustainable and peaceful societies.

- **The UNESCO Priority Gender Equality Action Plan 2014-2021** (GEAP II), provides an operational framework for the implementation of Priority Gender Equality. It explains what gender equality means for UNESCO, and provides guidance on how the Organization will ensure that a gender equality perspective is reflected in all its policies.

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Don’t forget to sign and promote the For Women in Science Manifesto!

http://www.fwis.fr/en/manifesto

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Girls in science education

- In countries where the gender gap in student performance at the secondary education level is at the expense of girls, women tend to be underrepresented in STEM fields of study in higher education and in the labour market.

- To help encourage more girls and women to pursue careers in STEM, UNESCO has been working to promote their integration in STEM fields through its work in education.

- Gender parity in primary education has been achieved in most Latin American countries, while at the secondary level, many countries in the region show disparity in favour of females

- However, the gender balance for science and technology remains in favour of males overall.

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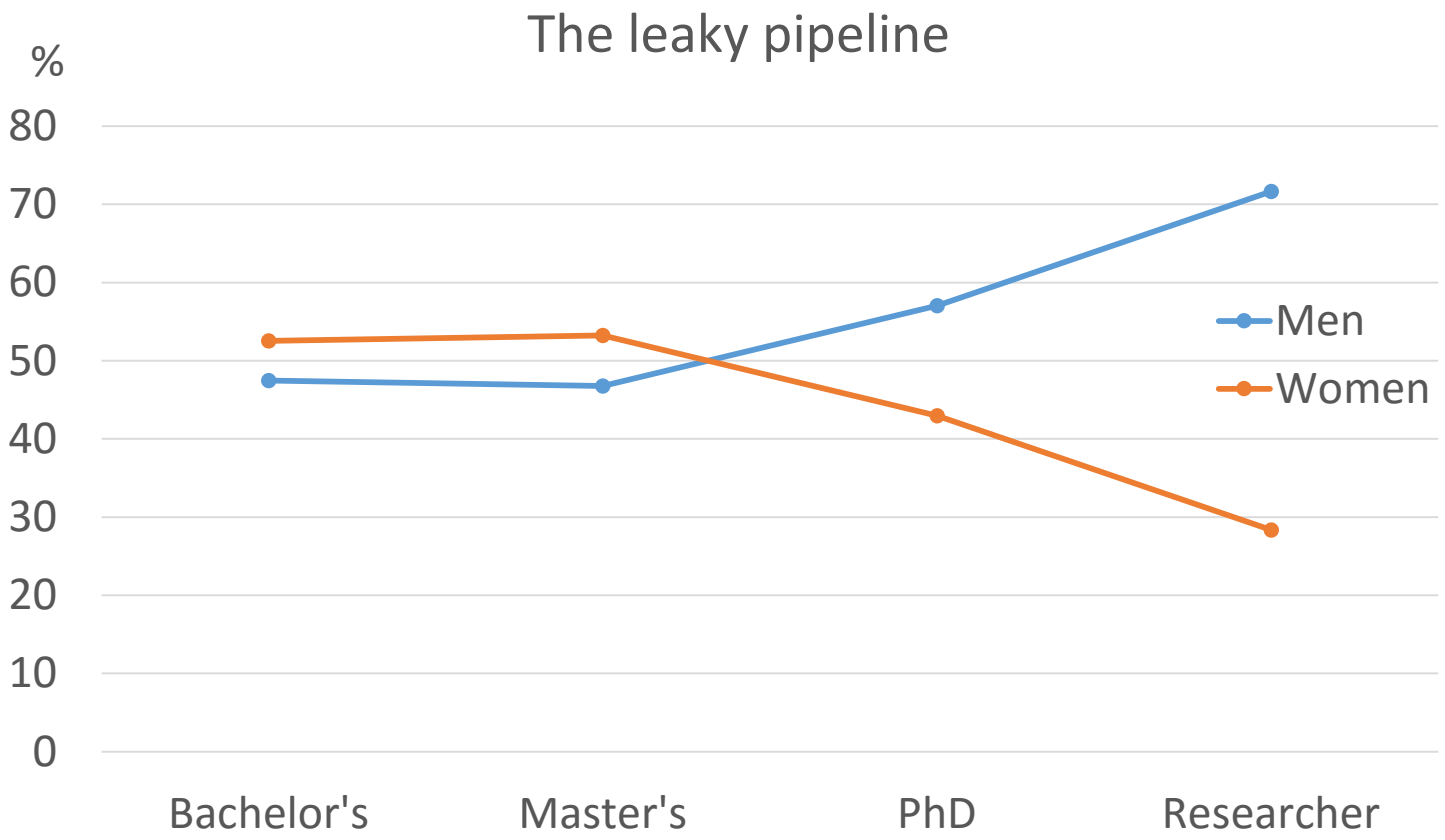
Women in Science



Notes: Data reported by 116 countries (or territories) representing 79% of total population worldwide.
Source: UNESCO Institute for Statistics, June 2015

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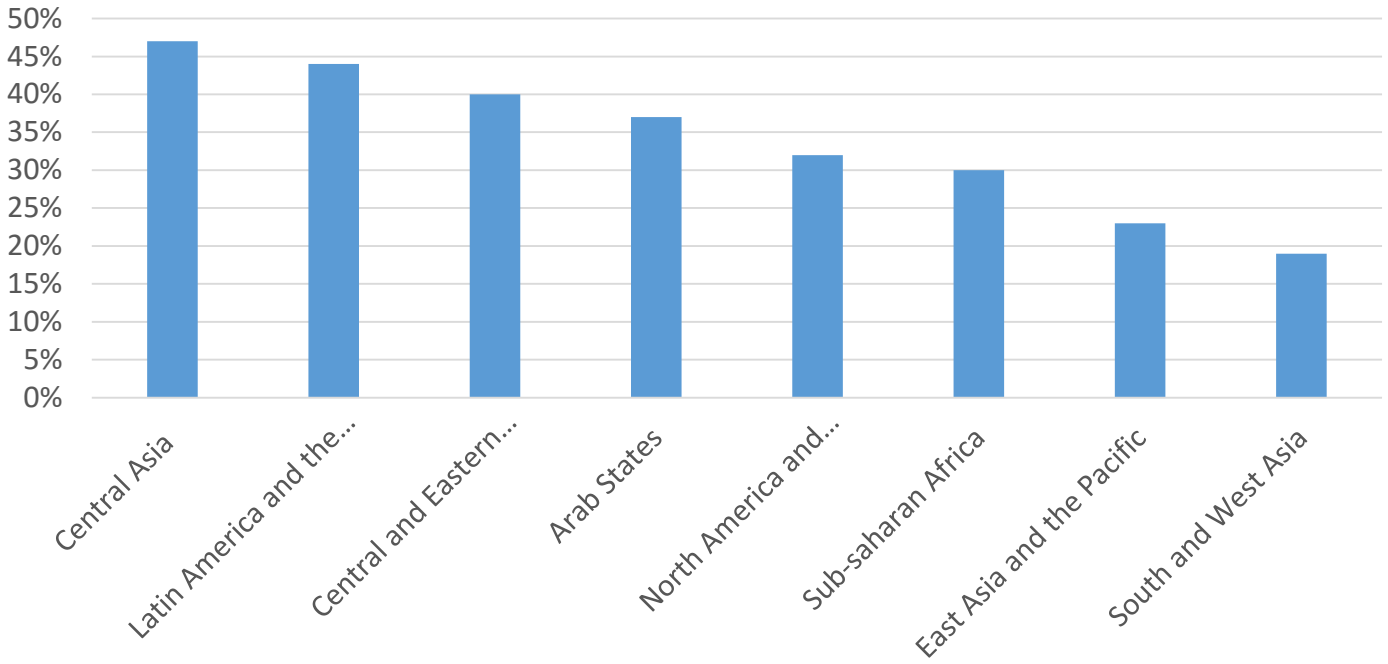
Women researchers by region (%)

Worldwide: 28%



Source: UNESCO Institute for Statistics, June 2015

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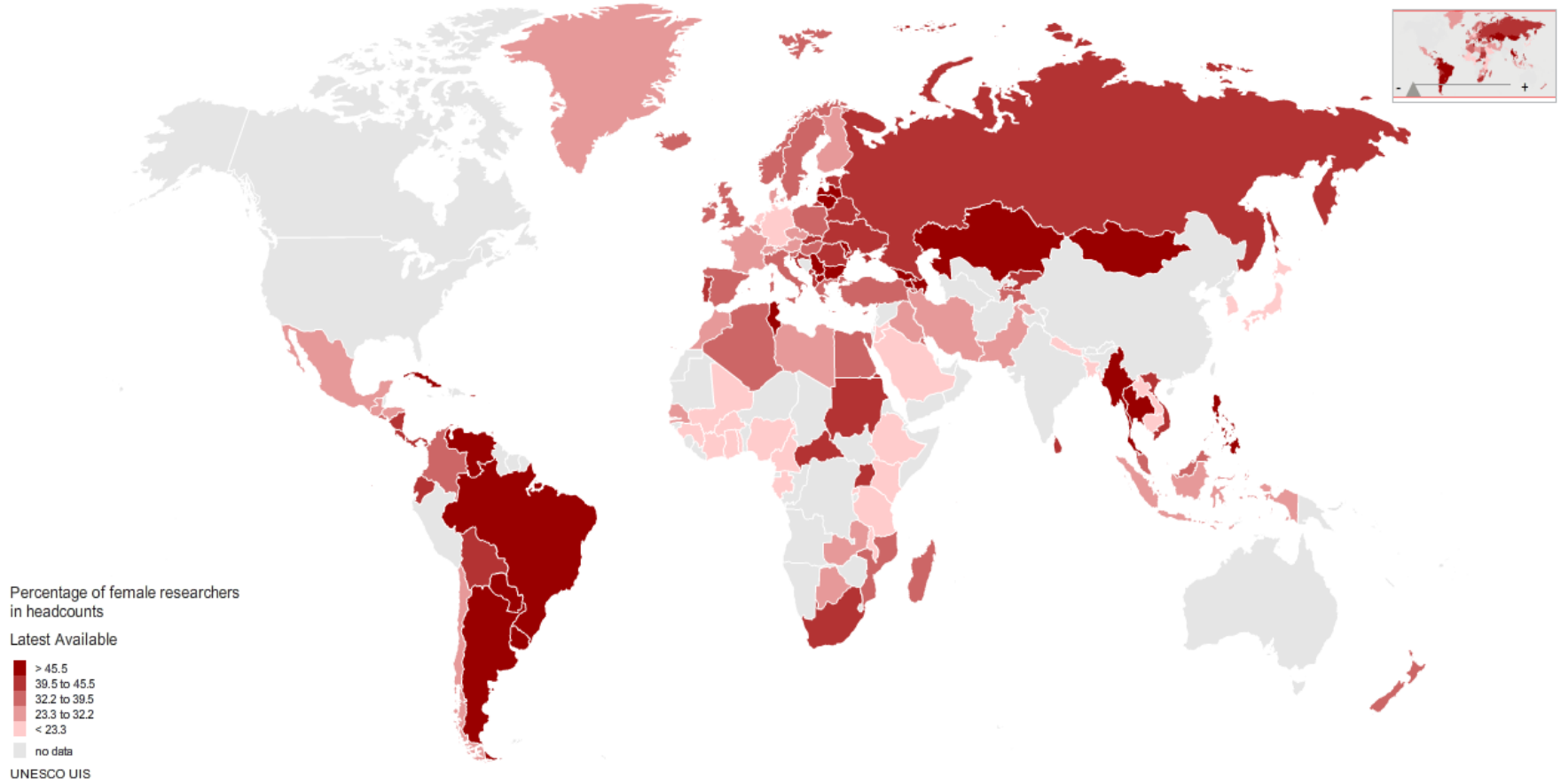
% of women researchers



Source: UNESCO Institute for Statistics