United Nations
Educational, Scientific and
Cultural Organization

Situation of women in science in the world: an overall picture

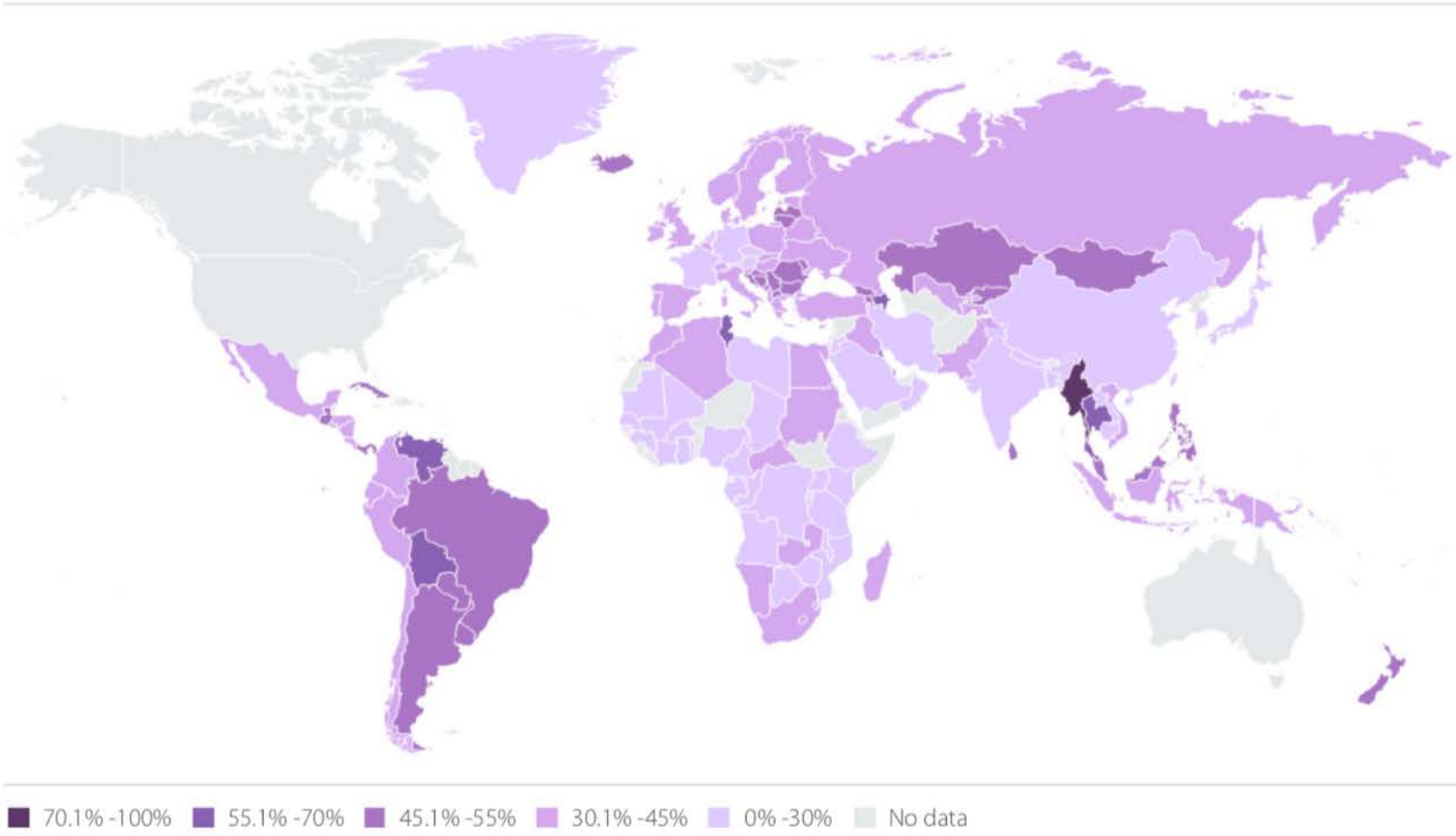
Salamanca
March, 2019

Alessandro Bello
UNESCO SAGA project officer
a.bello@unesco.org

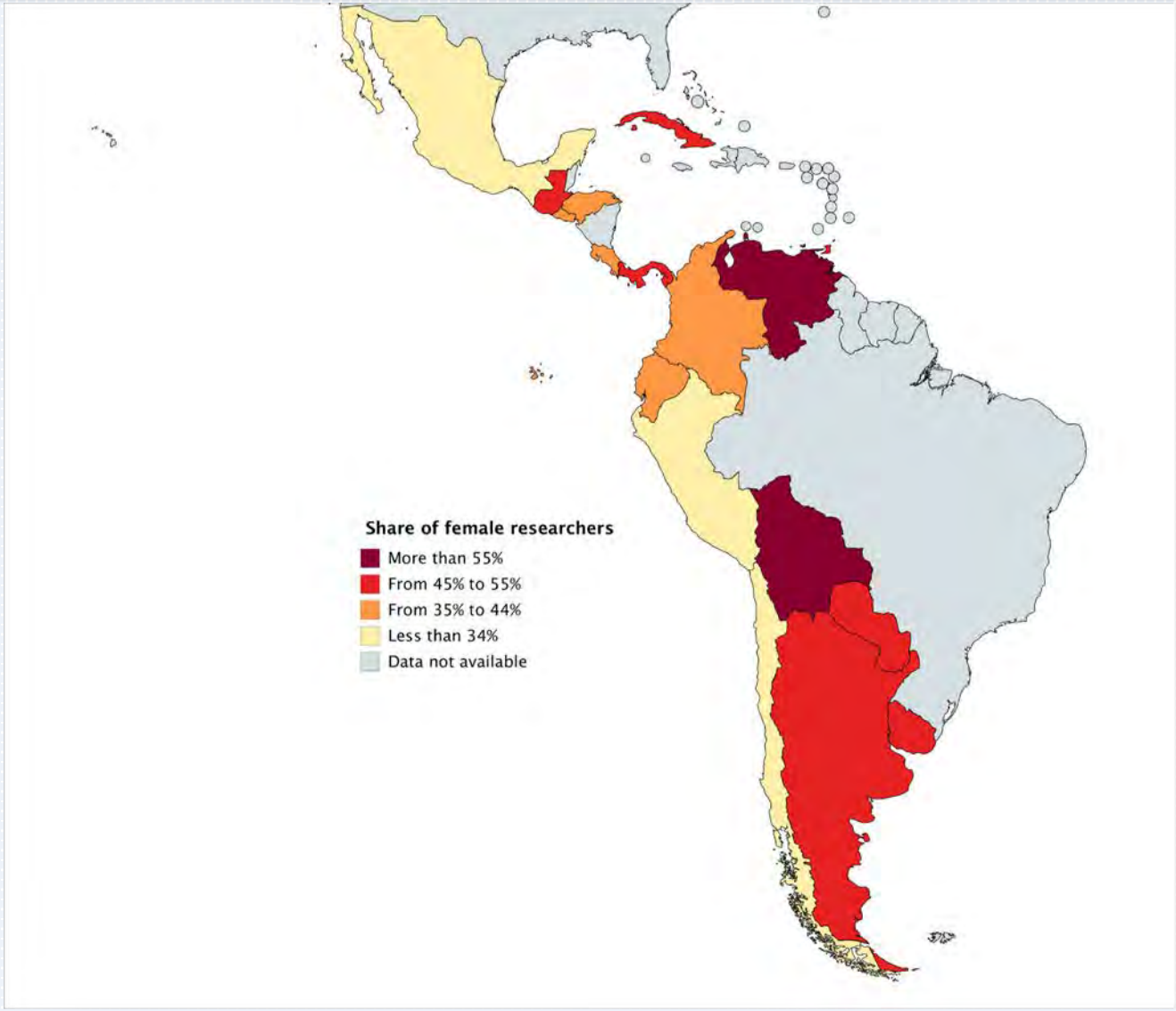
Women researchers by region

Source: UIS, Oct 2016

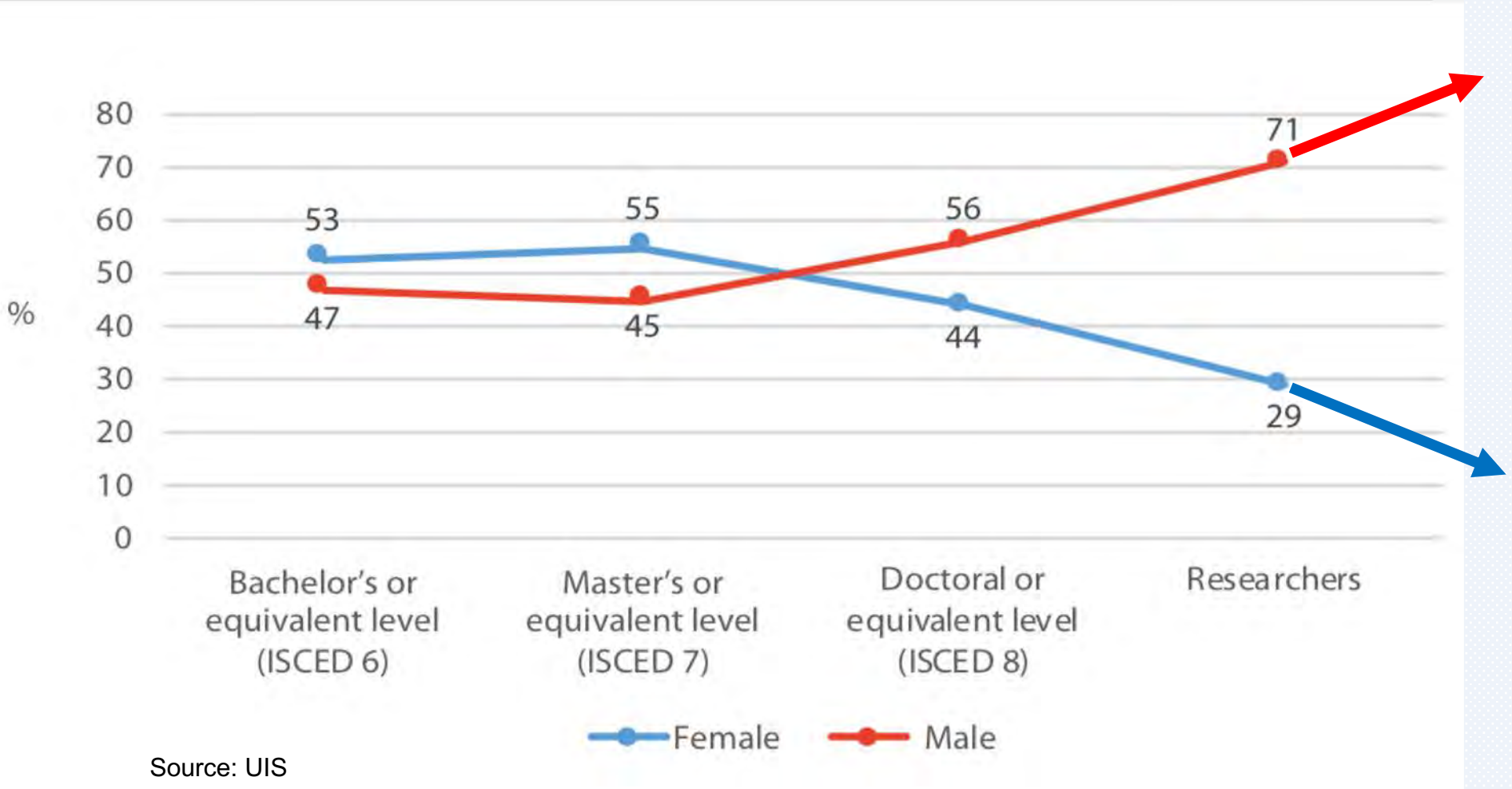
Women as share of total researchers (HC), 2016



Source: UIS, Oct 2016


Share of female researchers
More than 55%
From 45% to 55%
From 35% to 44%
Less than 34%
Data not available

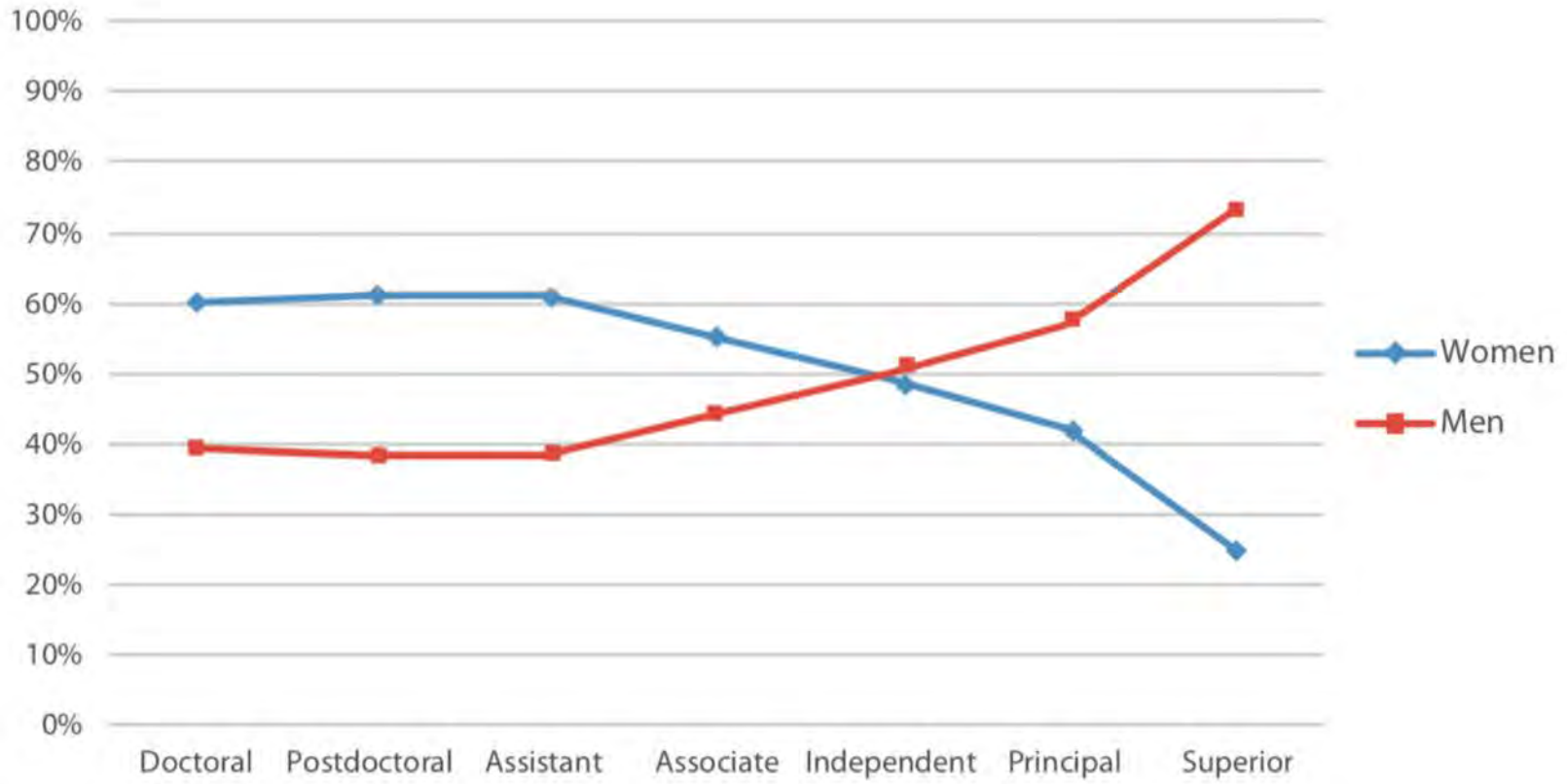
Vertical segregation



Source: UIS

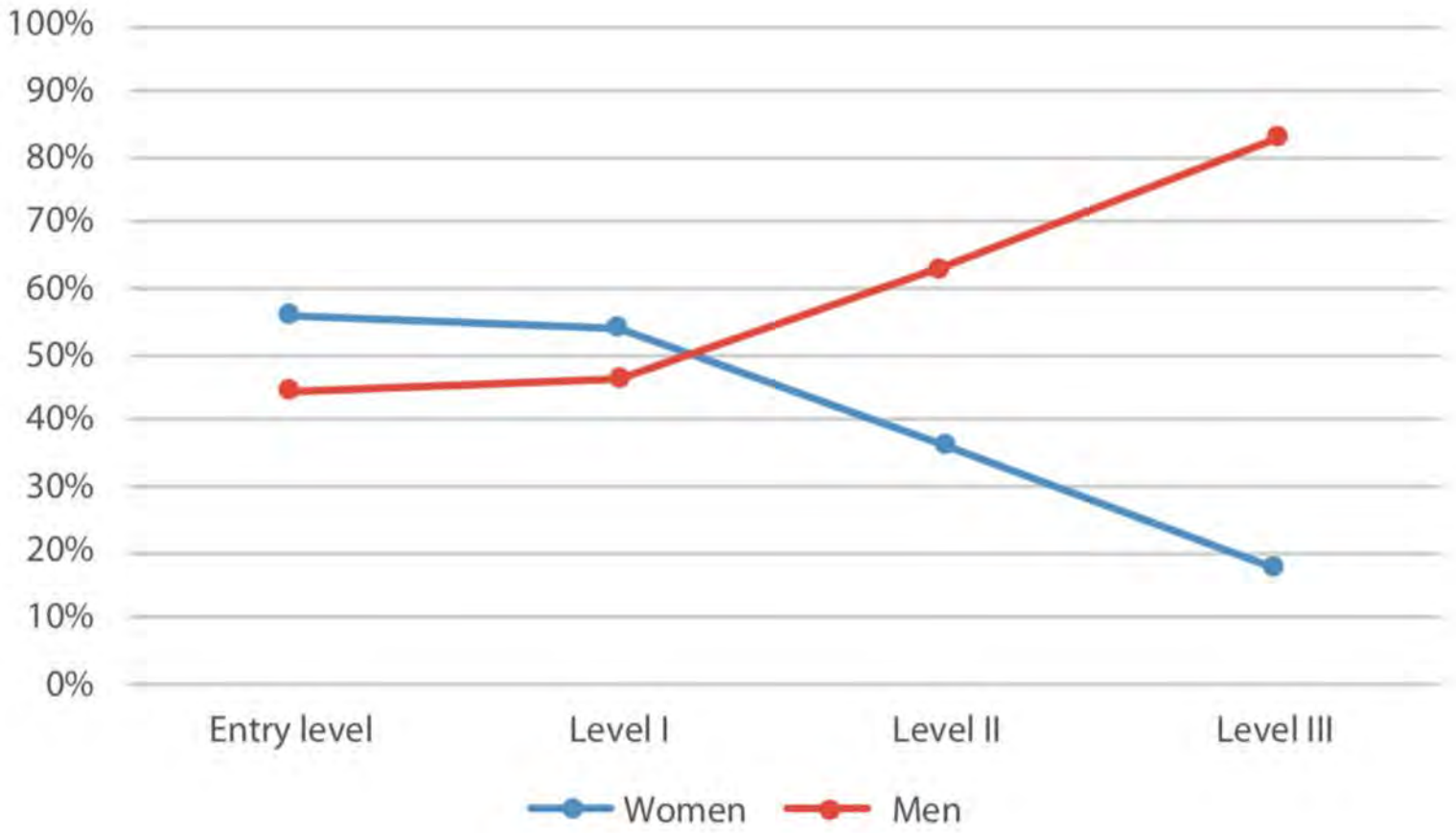
Only 3% of Scientific Nobel Prizes have been awarded to women

CONICET, Argentina, 2017



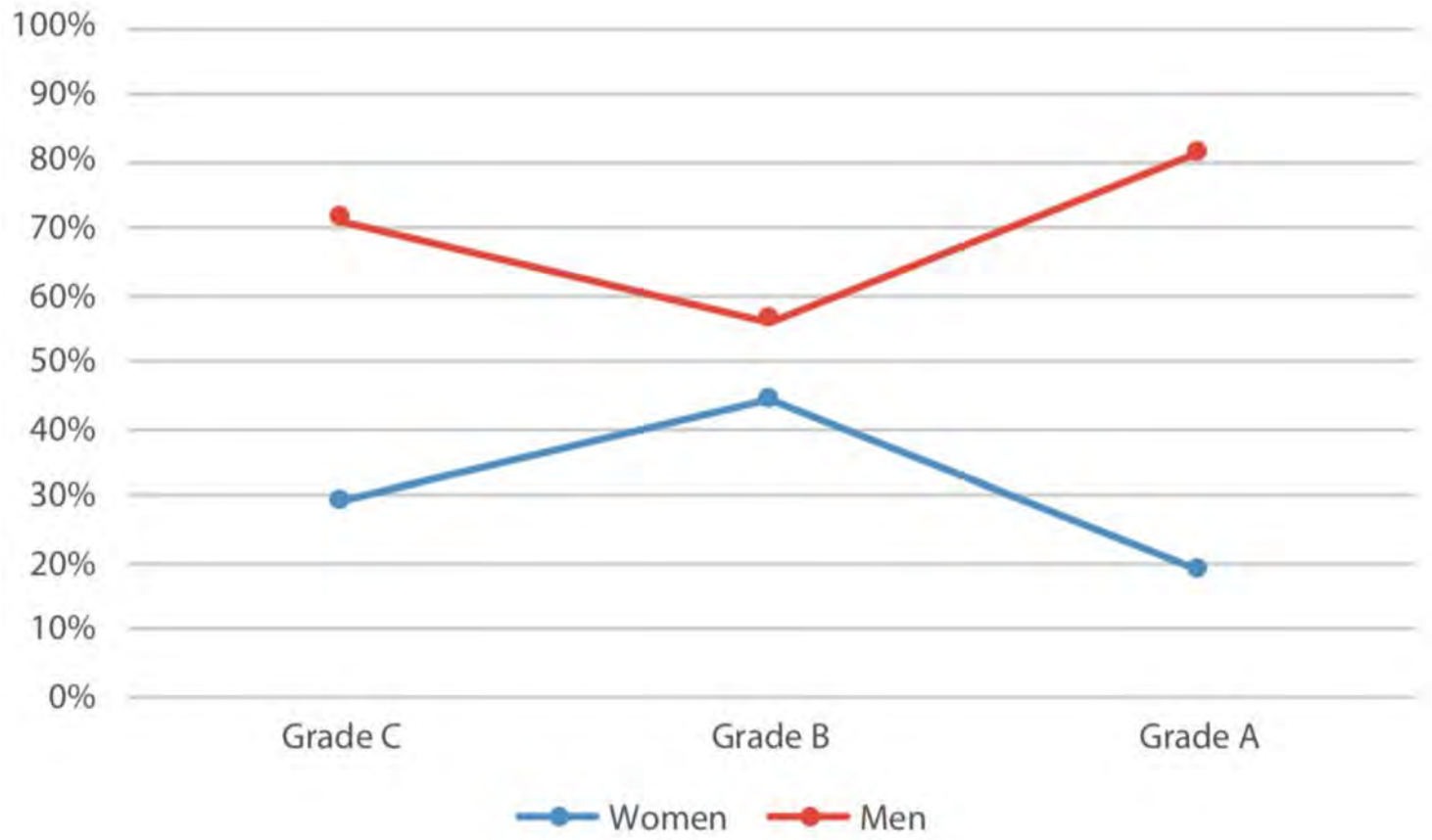
Source: Argentina SAGA Country report study.

SNI of Uruguay, 2017



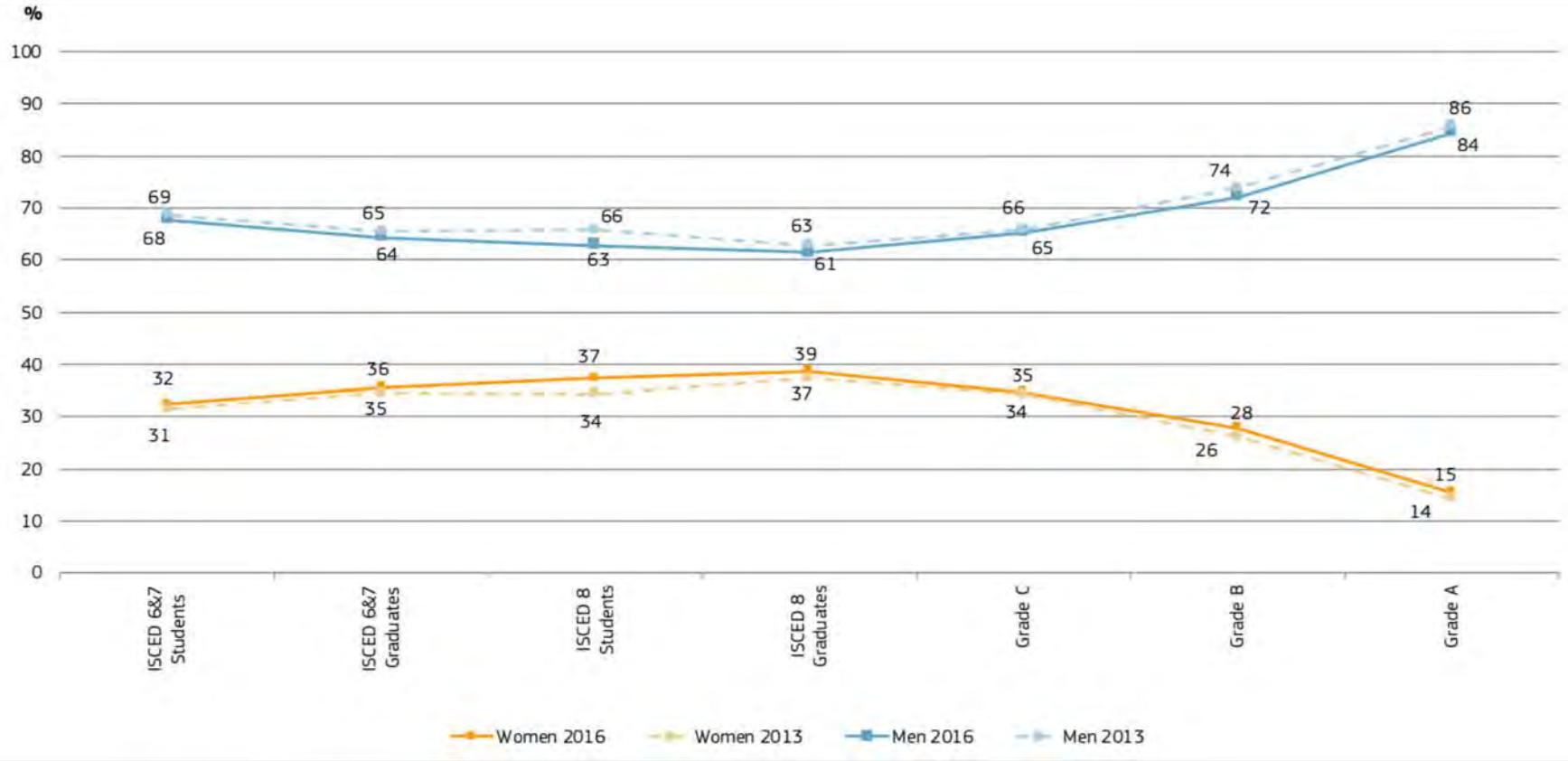
Source: Prepared by the authors on the basis of data supplied by the national committee.

Sudan, 2016



Source: Academy of Science of Sudan.

Proportion (%) of men and women in a typical academic career in science and engineering, students and academic staff, EU-28, 2013-2016



She Figures, 2018

Vertical segregation

Percentage of women who are:

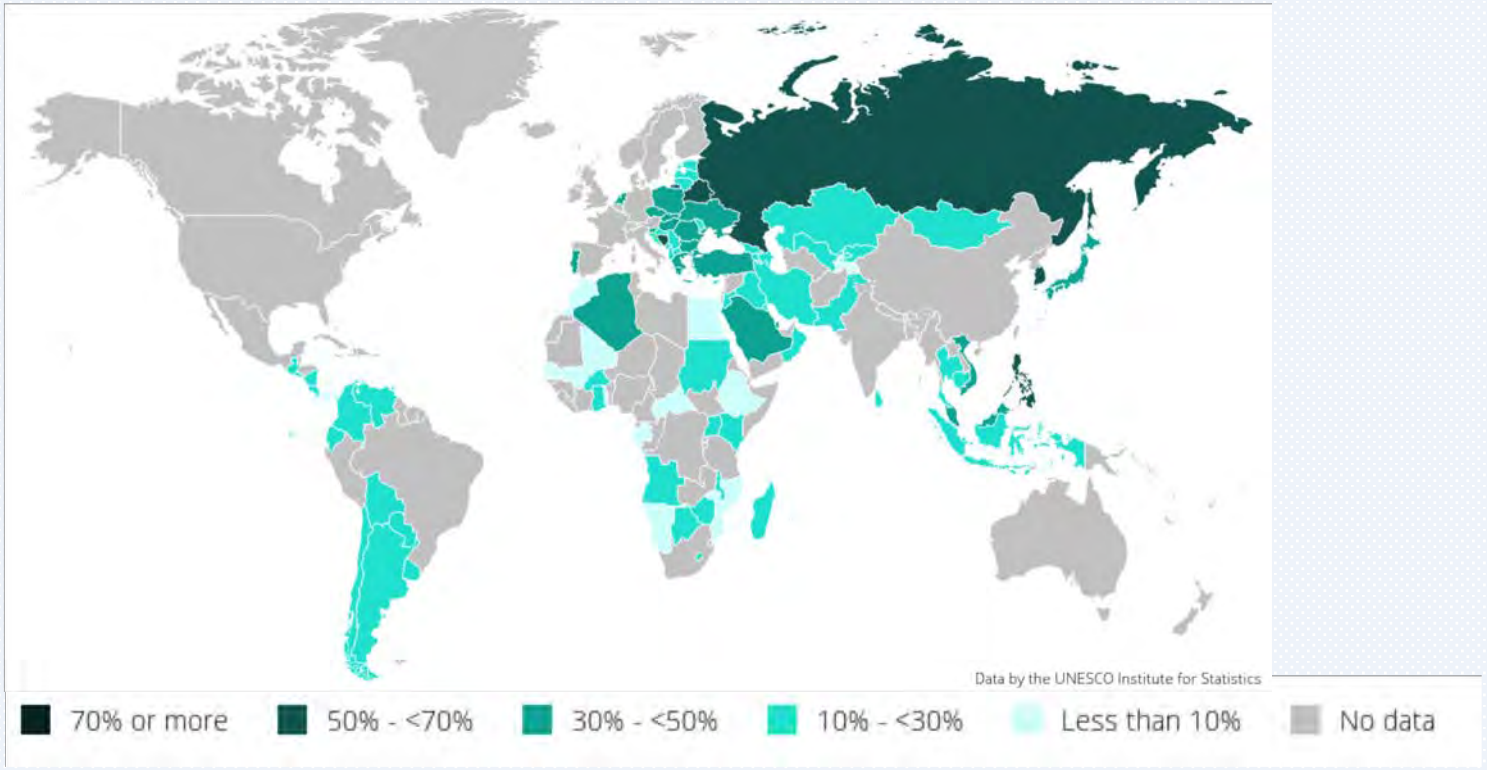
- **University chancellors and vice-chancellors in public universities**
  - Brazil 14% (2010)
  - South Africa 17% (2011)
- **Vice-directors of national research centres**
  - Argentina 16% (2015)
- **Directors of scientific research institutes**
  - Mexico 10%
  - USA 23% (2012)
- **Members of academies of science**
  - more than 25% of members in only a handful of countries, including Cuba, Panama and South Africa.
- In the EU, less than 16% of tertiary institutions were headed by a woman in 2010 and just 10% of universities (EU, 2013).
- Only 16 women scientists have won the Shanti Swarup Bhatnagar Award since its inception in 1958.

Source: USR 2015

Horizontal segregation

- At higher education levels, **women represent approx. 35%** of all students enrolled in STEM-related fields of study

- Researchers (HC)- Engineering and Technology (2015)



NUMBERS TELL THE STORY

Cracking the Code Report: Key Findings

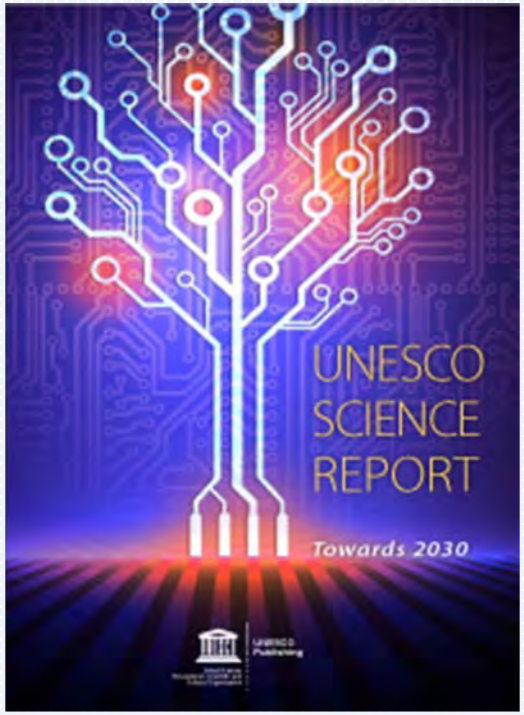
- Girls are significantly **underrepresented in STEM** subjects in many settings

- Girls appear to **lose interest** in STEM subjects as they get older, particularly **between early and late adolescence**. The **gender gap** in STEM becomes particularly apparent in **upper secondary education**

- Gender gaps become stark in higher education. Female students represent **only 35%** of all students enrolled in STEM-related fields of study globally.

UNESCO Science Report: Key Findings

- Gender parity remains elusive among **researchers**
- The **glass ceiling** still intact
- Women dominate graduates in health
- More women are graduating in **agriculture**
- Women least present in **engineering**
- Fewer female graduates in **computer science**



Gender equality in STI

- A fundamental **HUMAN RIGHT** (art. 2 and 27)
- Sustainable Development requires **MORE SCIENCE** and more scientists
- But Sustainable Development also requires **BETTER SCIENCE**

70 YEARS
UNIVERSAL DECLARATION OF HUMAN RIGHTS
#STANDUP4HUMANRIGHTS

Inclusiveness benefits research

- a 2012 Credit Suisse study of 2,360 companies globally found that those with at least one woman on the board **outperformed companies** without any female board members by 26% over 6 years

- Another study that looked at the gender composition of management teams in S&P 1,500 companies found that women in top management positions were associated with **an increase of US$ 42 million in firm value**

- **Diversity**

United Nations
Educational, Scientific and
Cultural Organization

GDP per capita by 2.2% to 3.0%

€610 - €820 billion in 2050

EIGE

$12 trillion could be added to global GDP by 2025

McKinsey Global Institute report

United Nations
Educational, Scientific and
Cultural Organization

“ Projecting current trends into the future, the overall **global gender gap will close in 108** years across the 106 countries covered since the first edition of the report. The most challenging gender gaps to close are the **economic and political empowerment** dimensions, which will **take 202 and 107** years to close respectively.

The Global Gender Gap Report 2018

World Economic Forum

Gender equality: UNESCO global priority

- Gender Equality is one of UNESCO's two global priorities

- UNESCO mainstreams gender equality across all of its programmes and implements gender specific programming in the sciences, culture, education, communication and information sectors

Gender equality in STI: UNESCO Activities

- Influencing cultural change and support women scientists through role models:
  - L'Oréal-UNESCO for Women in Science Programme

- Supporting the careers of women scientists and strengthen their networks:
  - Organization for Women in Science for the Developing World (OWSD)

- Promoting gender equality in STEM education at primary and secondary levels:
  - TeachHer program

Gender equality in STI: UNESCO Activities

- Supporting monitoring and evidence-informed policy making
  - UNESCO Institute for Statistics (UIS) gathering STI gender-related indicators

- Contributing to changing the underlying institutional bases of gender inequalities:
  - STEM and Gender Advancement (SAGA) project

- International Day of Women and Girls in Science

United Nations
Educational, Scientific and
Cultural Organization

- Women account for less than 29% of the world's researchers
- Only around 25% of countries reached parity
- Occupy just 11% of senior academic positions
- Only 3% of Scientific Nobel Prizes

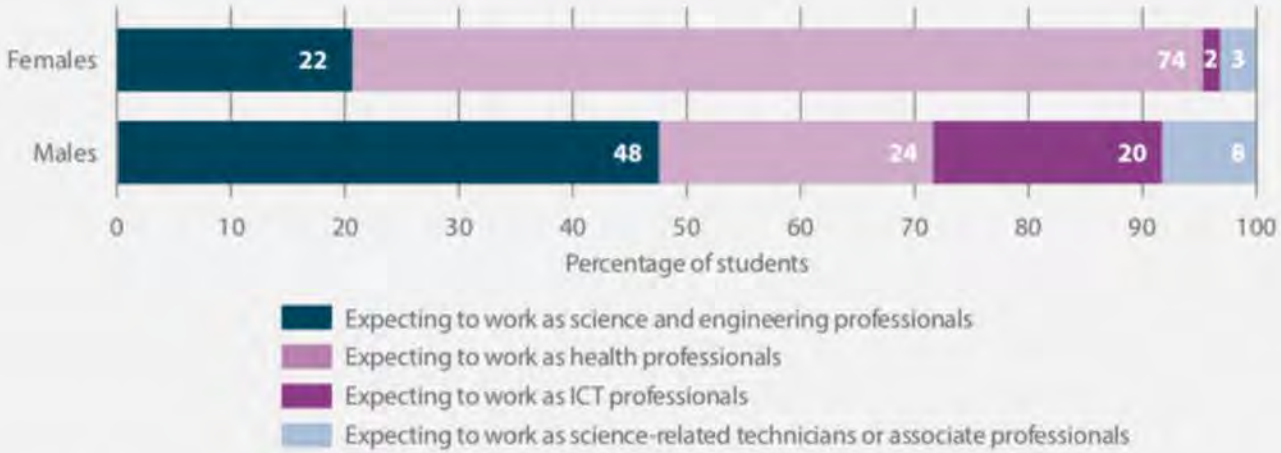
UNESCO - UIS

Holistic approach

Holistic approach

1. Change perceptions, attitudes, behaviours, 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 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 women scientists and engineers (S&E)
5. Promoting the gender dimension in research content, practice and agendas
6. Promote gender equality in STI-related policy-making
7. Promote gender equality in science and technology-based entrepreneurship and innovation activities

Student expectations on science careers, by sub-field of study, out of those who choose science careers, 15-year-olds

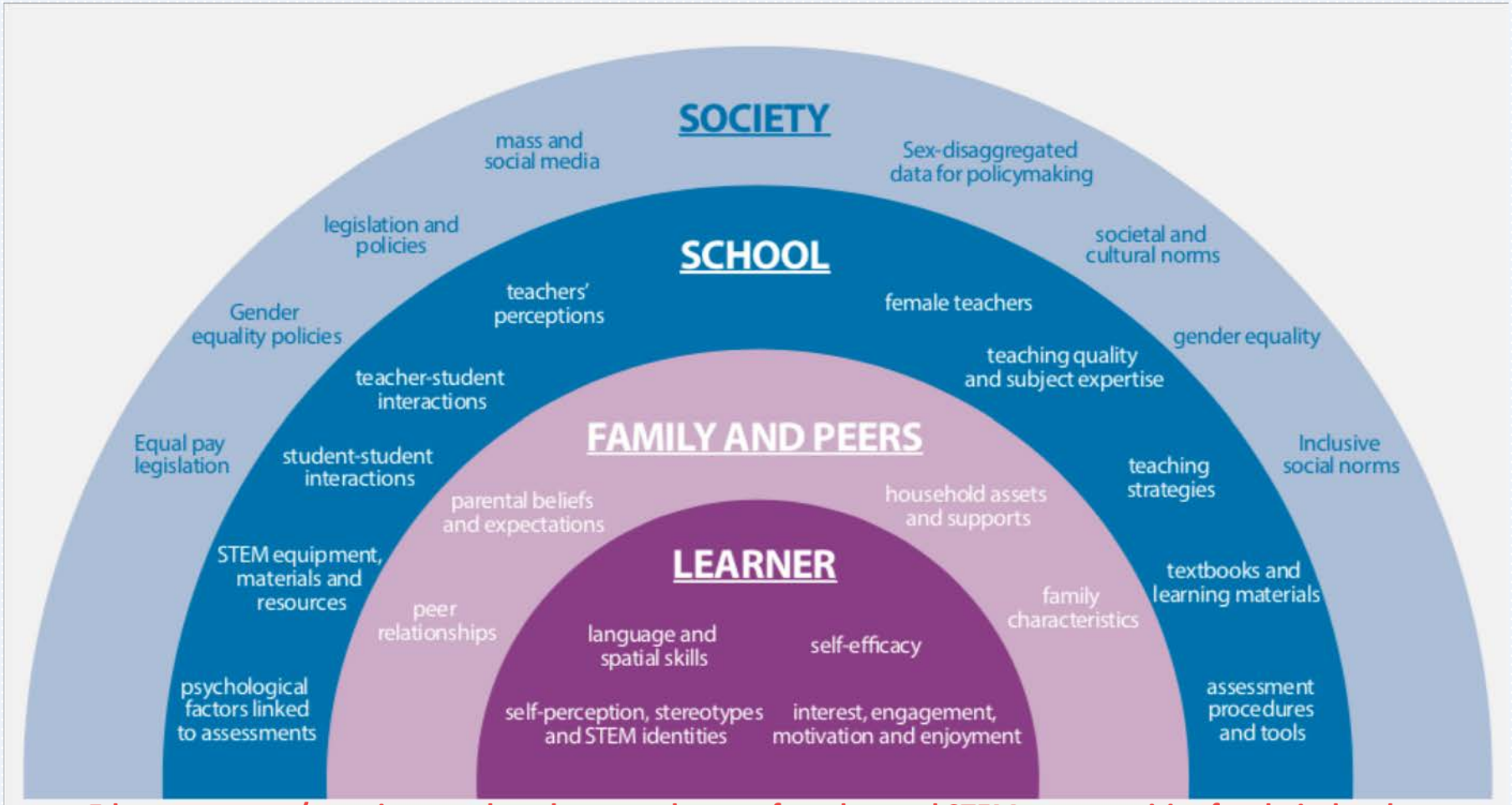


Most 15 year-old girls intending to pursue science careers expect to work as health professionals.
35 OECD countries.

Data source: PISA 2015 (OECD countries)[17]

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

Ecological framework of factors influencing girls' and women's participation, achievement and progression in STEM studies



Educate parents/caregivers on how best to advocate for advanced STEM opportunities for their daughters

- Revise textbooks in a gender sensitive manner and training teachers in gender responsive pedagogy in *Gambia* (Gender Equity Initiative)

- Support and develop female teachers' capacities in STEM subjects in *Nigeria* (Strengthening Mathematics and Science Education -Federal Ministry of Education/Japan International Cooperation Agency)

- Enable adolescent girls to meet women scientists and learn stories from who had to break down prejudices in *Uruguay* (More women in science programme)

- Encourage young girls to attain excellence in their final examinations at secondary school in *Malawi* (Secondary Schools Girls' Award)

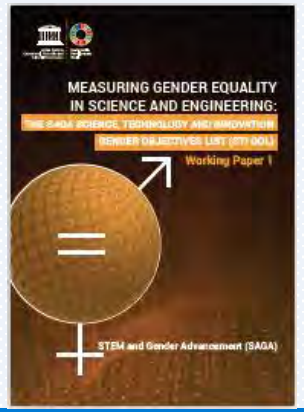
- Outreach effort to encourage educators, both formal and informal, to adopt new, research-based strategies to engage girls in STEM (The SciGirls Seven)

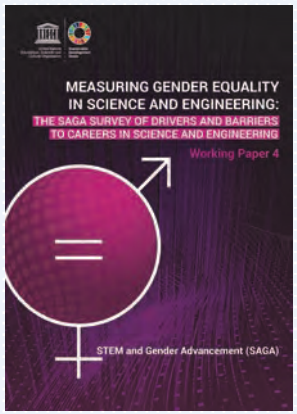
The STEM and Gender Advancement (SAGA)

SAGA is assisting countries in:

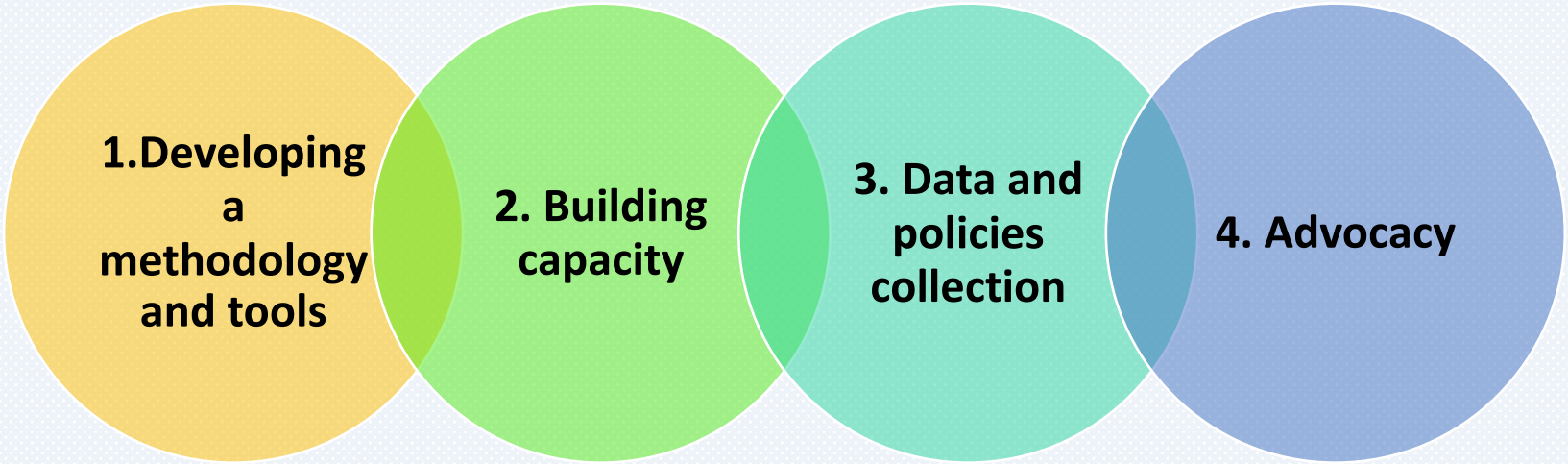
- Reducing the gender gap in STI at all levels of education and research;
- Identifying gaps in the policy mix and improving national STI policies related to gender, based on evidence;
- Building capacity for data collection on gender in STEM

MEASURING GENDER EQUALITY IN SCIENCE AND ENGINEERING:





- SAGA is helping countries in reducing the gender gap in STI at all levels of education and in research



And…

- Increasing the visibility and participation of women in STI
- Improving tools to measure the status of women and girls in STI

Tools

- Concept and definitions;
- **Tool for mapping policies, instruments and measures focused on gender equality STI;**
- Tool to categorize and identify policy gaps;
- Tools to illustrate the profile of gender equality in STI;
- Tool to identify and better understand the drivers and barriers to S&E careers

Partners

SAGA Advisory Committee

European Commission

GenderInSITE

United Nations Educational, Scientific and Cultural Organization

UNESCO Regional Chair Women, Science and Technology in Latin America

United Nations Educational, Scientific and Cultural Organization

UNESCO Chair on Gender Equality Policies in Science, Technology and Innovation

POLITECNICA

INTERNATIONAL CAMPUS OF EXCELLENCE

AAAS

The Nelson Mandela African Institution of Science and Technology
Arusha
Mt Kilimanjaro
2009
Academia for Society and Industry

UN WOMEN

OECD
BETTER POLICIES FOR BETTER LIVES

World Federation of Engineering Organizations
Fédération Mondiale des Organisations d'Ingénieurs

ORGANIZATION FOR WOMEN IN SCIENCE FOR THE DEVELOPING WORLD

ITU

Gender Summit®
Quality Research and Innovation through Equality

SAGA Partners

IDB
Inter-American Development Bank

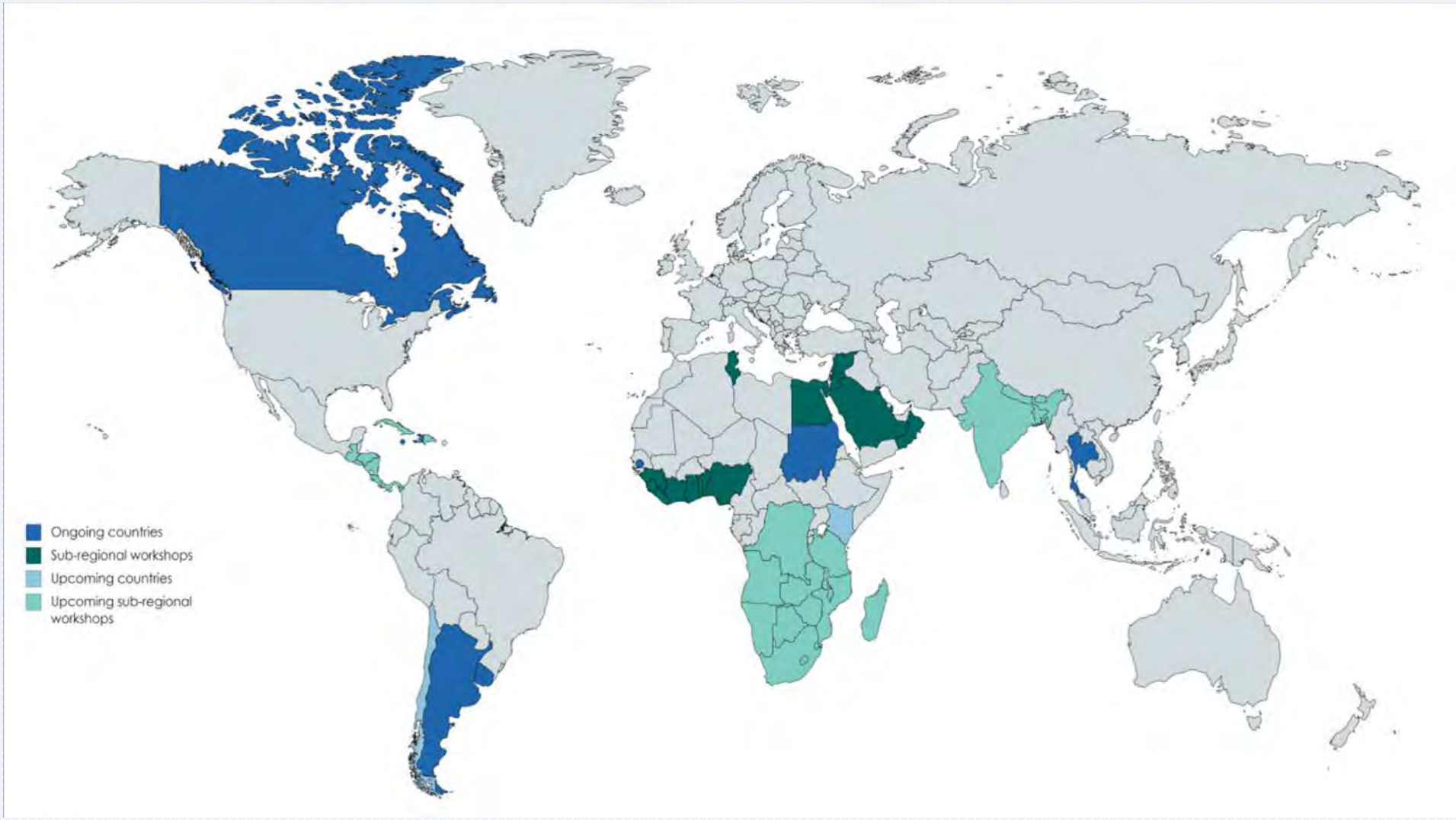
WCCE
WORLD COUNCIL OF CIVIL ENGINEERS

International Science Council
The global voice for science

GLOBAL RESEARCH COUNCIL

Columbus

SAGA pilots around the world



SAGA- some numbers and STI Policy Impact

- Almost **150 experts** from more than 90 national institutions
- Almost **20 international institutions** collaborating with SAGA
- Over **350 experts trained** from 26 countries
- Methodology downloaded more than **10,000 times and 7 country reports** produced

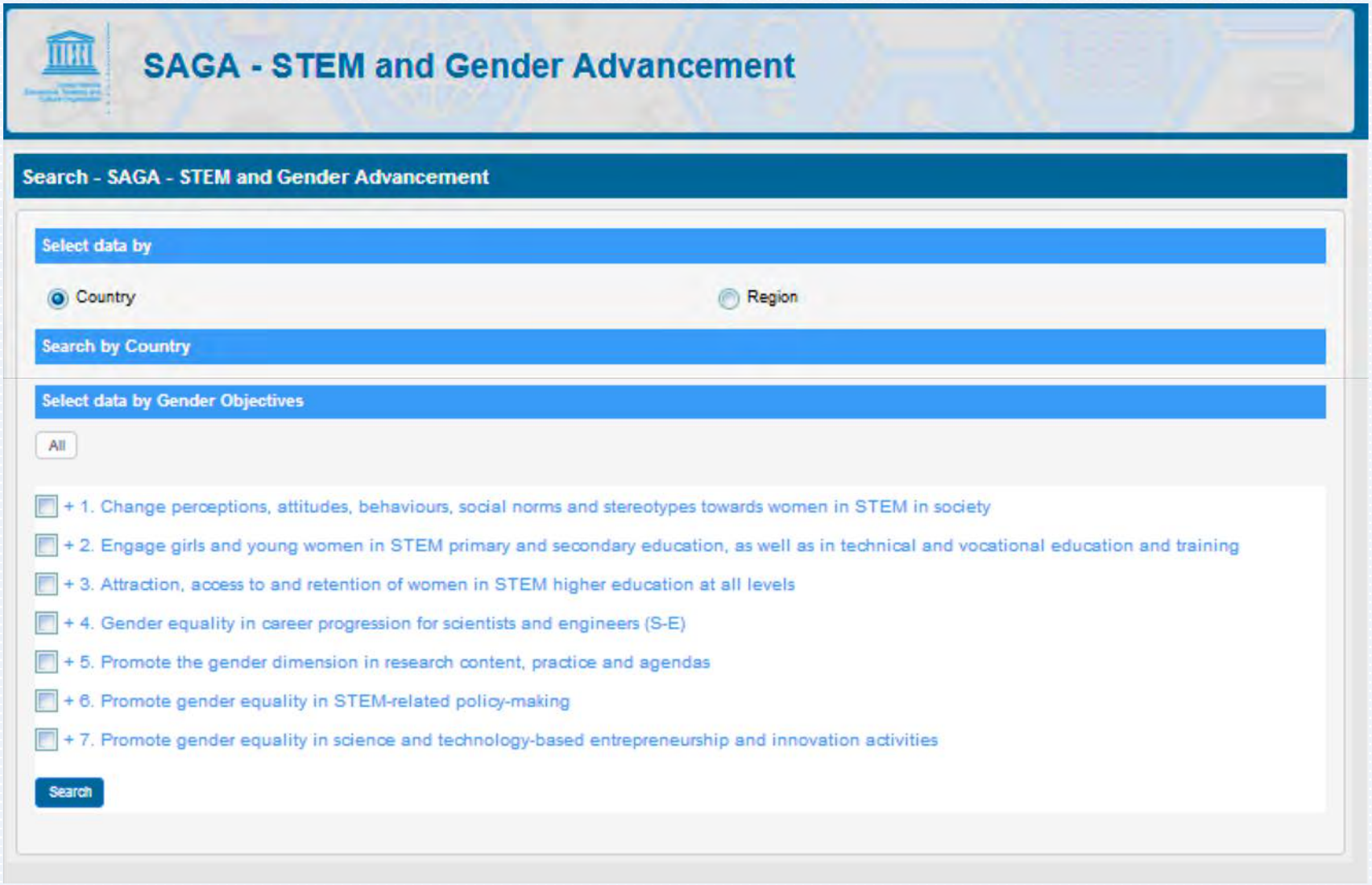
- Reviews of national STI policy based on recommendations after the implementation of SAGA (STI Law Gambia, Programme in Argentina, unit on GE in STI in Quebec , etc.)

Global impacts

DECLARATION OF THE 8TH BIENNIAL WORLD SCIENCE FORUM 2017 JORDAN SCIENCE FOR PEACE

We advocate for innovative measures and the assessment of gender-disaggregated data, as well as support for the design and implementation of science, technology and innovation (STI) policy instruments that positively affect gender equality in STEM.

SAGA Database and GO-SPIN Platform



- It is not simply a matter of waiting for female tertiary graduates to make their way through the system
- Switch from fixing women to fixing the institutions and the knowledge
- Gaps and barriers persist throughout the scientific research system
- Holistic approach
- **No “one-size-fits-all” formula**

Thank you!

a.bello@unesco.org

saga@unesco.org

https://en.unesco.org/saga