



WORLD ATLAS
of gender equality in education

Women in Science

UNESCO Institute for Statistics , Montreal, QC, CAN
4th Global Forum on Gender Statistics, Dead Sea, Jordan
27-29 March, 2012

How many seasons does Canada have?

UIS in the winter...



and UIS in the summer...



Objectives

- Discuss the importance of **statistics** for **evidence based policy and decision making** in the field of science, technology and gender (STG)
- Analyze the general issues of STG **information, statistics and indicators.**

Atlas: Between Promise and Progress

The *World Atlas on Gender Equality in Education* comprises more than 120 maps, charts and tables featuring a wide range of sex-disaggregated indicators produced by the UNESCO Institute for Statistics.

It allows readers to visualize the educational pathways of girls and boys and track changes in gender disparities over time.

One-third of countries have equal proportions of boys and girls enrolled in secondary education ...

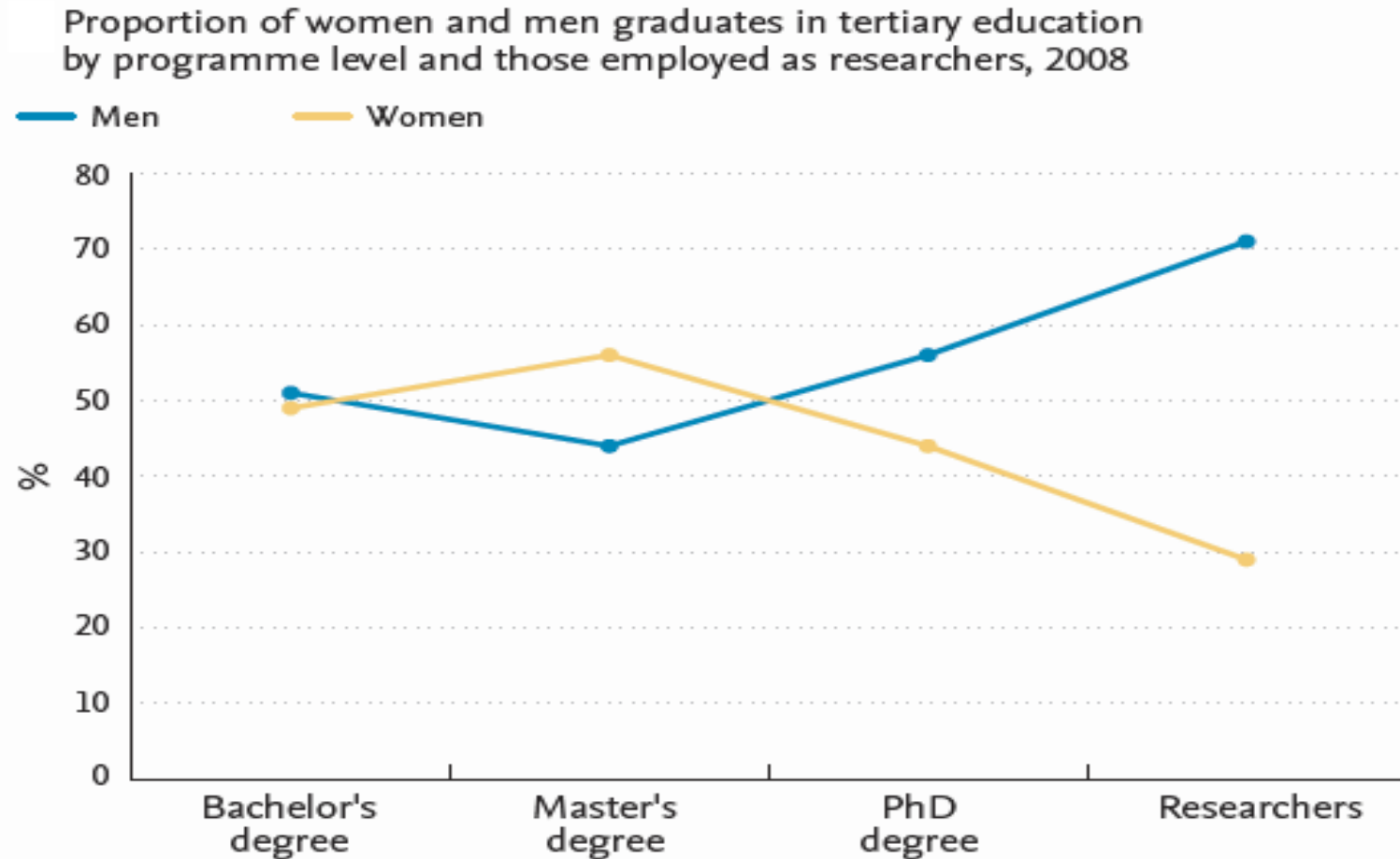


Women account for the majority of tertiary students in two-thirds of countries...

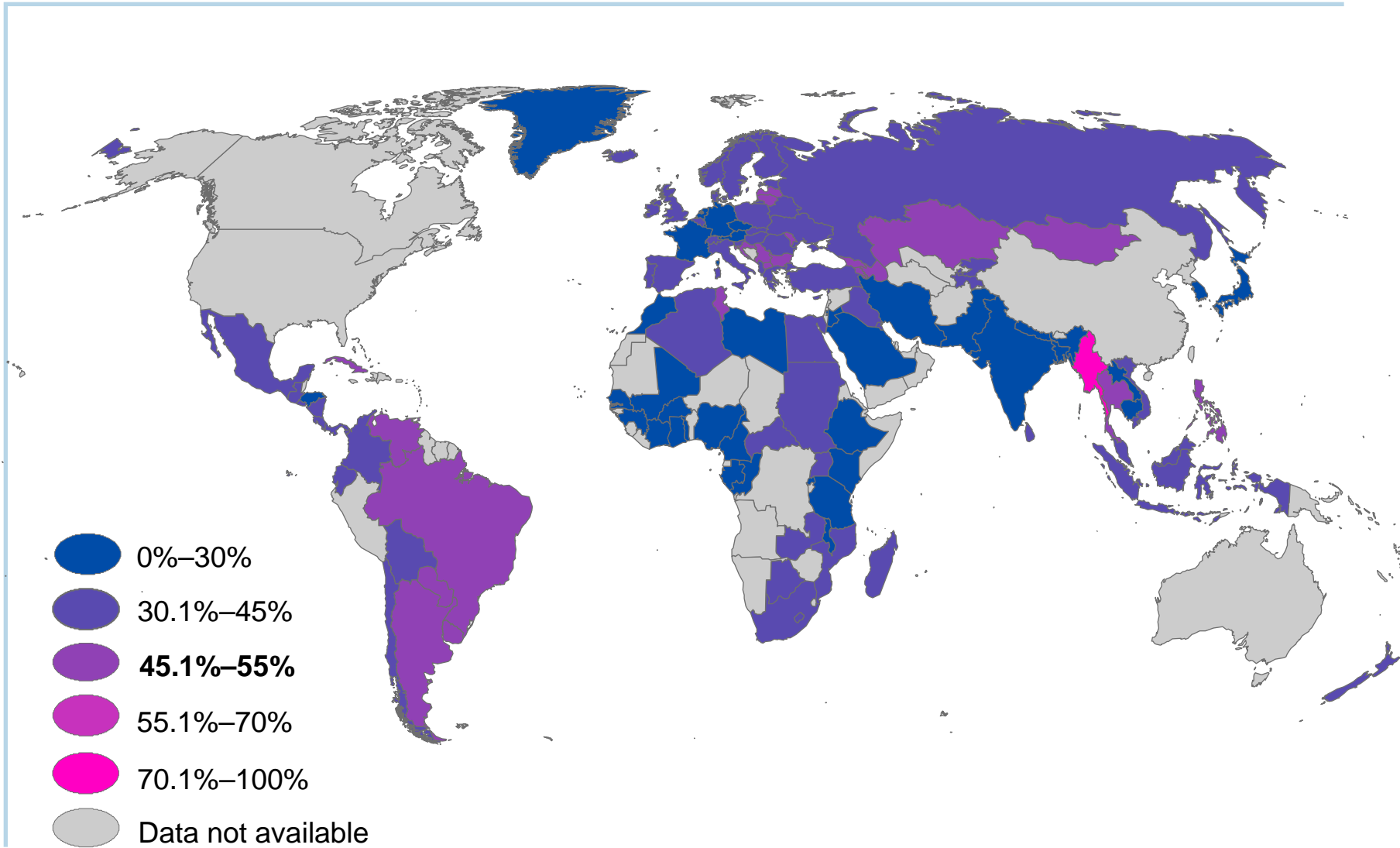


... But men continue to dominate highest levels of study

56% of PhD graduates and 71% of researchers are men.



The gender gap in science. Women as a share of total researchers, 2009 or latest available year



Source: UIS, July 2011

Note: Data in this map are based on HC, except for Congo and India (based on FTE).

The gender gap, an issue at all levels

- EFA Global Monitoring Report 2003/4: Gender and Education for All :The Leap to Equality
- **Women in science and technology:** A policy issue raising more and more attention worldwide
 - European Union (How to meet “Barcelona target”?)
 - NSF (“Realizing America’s Potential”)
 - UNESCO:
 - 1999 World Conference on Science, “A new development?”.
 - International Report on Science, Technology and Gender - 2007 (IRSTG).
 - *Mainstreaming gender issues is one of the top priorities identified in 2004 International Consultation on S&T Priorities and Information Needs carried out by the UIS.*

Therefore, there is an increasing demand for cross-nationally comparable indicators on “Women and Science”.

Measuring STG: Progress

- UNESCO has recommended collection of data on R&D personnel by gender from the beginning:
 - Recommendation concerning International Standardization of Statistics on Science and Technology (UNESCO 1978)
 - UNESCO Manual for Statistics on Scientific and Technological Activities (1984)
- EU created (2001) a sub-group to the Helsinki Group of Women and Science and adopted a legal basis in 2003
- Eurostat and OECD are collecting a sex-breakdown into R&D surveys, following the OECD Frascati Manual recommendation in 2002
- UIS is collecting more data with gender breakdowns:
 - stated as priority in the UIS Immediate, Medium and Longer-Term Strategy in Science and Technology Statistics (2003).

UIS Global R&D Survey

- Biennially since 2004
- 4 R&D surveys completed (2004, 2006, 2008 and 2010)
- 2012 survey will be launched in June 2012
- Results released on UIS website (<http://stats.uis.unesco.org>).
- OECD and Eurostat provide data for their Member States.
- RICYT provides data for Latin America and for a few Caribbean countries.


Data collection: R&D Survey

R&D Personnel

- By sector of employment, occupation, qualification, and field of science
- In headcount and FTE
- **By gender**

R&D Expenditure

- By sector of performance and source of funds
- By type of activity and field of science



UNESCO
INSTITUTE
for
STATISTICS

United Nations
Educational, Scientific and
Cultural Organization

UIS/ST/2010
Montreal, May 2010

Country:

QUESTIONNAIRE ON STATISTICS OF SCIENCE AND TECHNOLOGY (S&T)

Data for the year 2009 and prior

This questionnaire is designed to collect the most recent statistics on science and technology (S&T), specifically resources devoted to research and experimental development (R&D), in order to update the UIS database on S&T indicators. The data can be accessed on the UIS website and will be published in reports prepared by UNESCO, other UN agencies, and public and private institutions or individuals worldwide.

Please return **one** completed questionnaire before **31 August 2010**. The UNESCO Institute for Statistics (UIS) strongly encourages the use of the electronic form available at <http://survey.uis.unesco.org>. The electronic form can be submitted directly to the UIS by clicking on the [Submit] button at the end of the questionnaire or emailed to survey@uis.unesco.org. Questionnaires completed using the printed forms should be sent to:

UNESCO Institute for Statistics
Data Processing and Standards Unit
P.O. Box 6128, Succursale Centre-Ville
Montreal, Quebec H3C 3J7
Canada

For any queries, please contact the UIS by email: survey@uis.unesco.org, fax: (1 514) 343-5740 or telephone: (1 514) 343-6880.

Please refer to the *Instruction Manual for Completing the Questionnaire on Statistics of Science and Technology* and *Data Entry Manual* before completing the questionnaire.

Only one questionnaire per country should be completed by the institution responsible for S&T policy or S&T statistics (e.g. Ministry of Science and Technology, Ministry of Research and Higher Education, National S&T Council or a similar organization) or by the National Statistical Office.

Data reported in this questionnaire should cover all institutions carrying out R&D activities in your country. If this is not the case, please provide a detailed explanation using a comment in the electronic form or footnote in the printed form. To enter comments in the electronic form, please press on the [Shift] key and the left mouse button simultaneously.

Please do not leave any cell blank. The following codes should be used wherever figures are not available:

- a = category not applicable
- m = data missing (or not available)
- n = quantity nil
- x = data included in another category (please specify where, using a comment or footnote)

Estimated or provisional data should be marked with an asterisk (*).

The electronic form contains automatic error checks. A list of these checks is available in the *Data Entry Manual* for reference when using the printed forms. Kindly correct or explain failed checks using a comment or footnote.

Data collection: R&D Survey

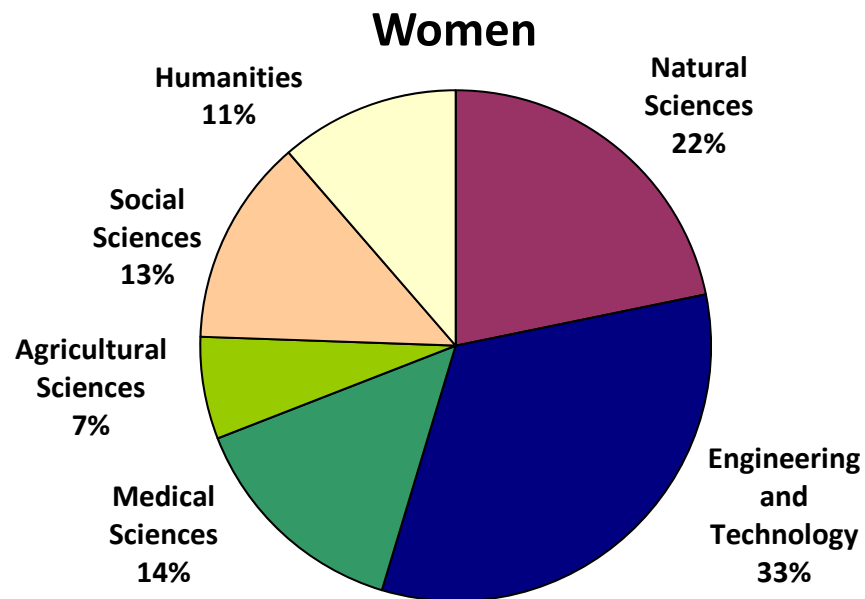
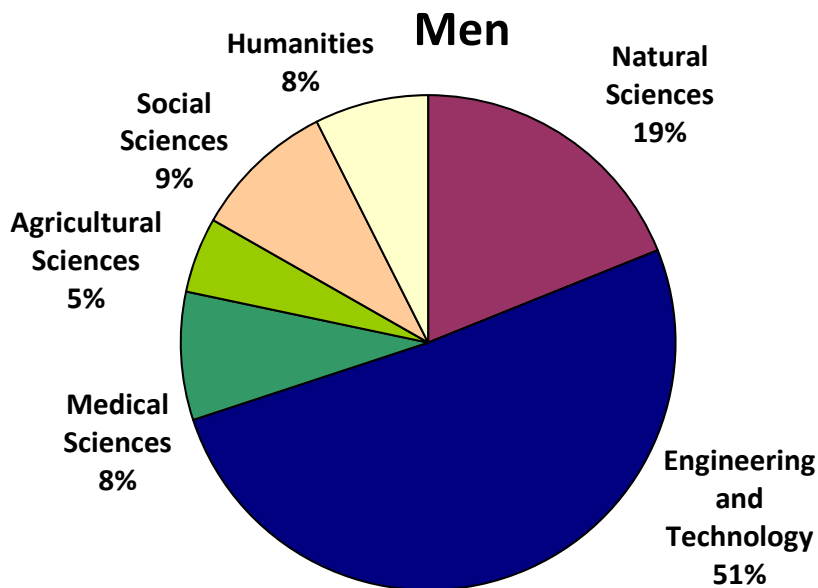
- R&D personnel by sex
- R&D personnel by sector of employment and sex
- Researchers by formal qualification and sex
- Researchers by field of science and sex

Data and indicators can be found at the UIS website at:
<http://www.uis.unesco.org/ScienceTechnology/Pages/gender-and-science.aspx>.

Representation of Women in Fields of Science

The proportion of women researchers varies widely between countries, but also between sectors and fields

Researchers in world by main scientific fields and sex (HC): only for available data (N= 47), 2007-2010





Factors: for lower number of female researchers

- Preference for fields of study less likely to lead to a research position
- Work-life balance
- Gender stereotyping
- Performance measurement and promotion criteria
- Governance

Conclusions

- STG statistics have been progressively mainstreamed
- New indicators are available

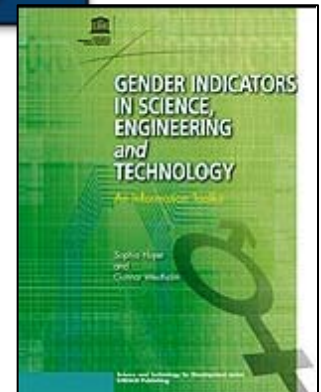
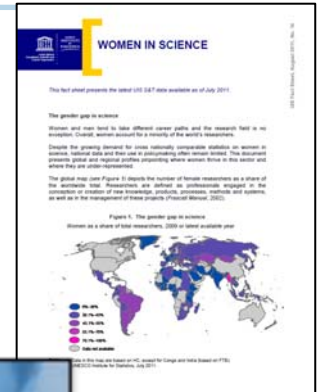
However,

- Information available is still insufficient
- Provides only a partial picture

A better measurement of STG requires an important effort from the various stakeholders in order to produce quality statistics that respond to the demands of policy makers and at the same time allow better cross-national comparability.

Publications

- Women in Science – UIS Fact Sheet (July 2011):
<http://www.uis.unesco.org/FactSheets/Documents/fs14-women-science-2011-en.pdf>
- UNESCO International Report on Science Technology and Gender, 2007:
<http://unesdoc.unesco.org/images/0015/001540/154045e.pdf>
- UNESCO Gender Indicators in Science, Engineering and Technology: An Information Toolkit, 2007:
http://publishing.unesco.org/details.aspx?Code_Livre=4535



Other resources

- **UIS Gender and Science webpage:**
<http://www.uis.unesco.org/ScienceTechnology/Pages/gender-and-science.aspx>
- **UNESCO Gender and Science webpage:**
<http://www.unesco.org/new/en/natural-sciences/priority-areas/gender-and-science/>
- **UNESCO's For Women and Science Programme (L'Oreal Prize):** <http://www.unesco.org/new/en/natural-sciences/priority-areas/gender-and-science/for-women-in-science-programme/>



Thank you