



ethical dilemmas, which arise as we deploy new knowledge. In a practical sense too, as ICTs are used as tools for social transformation, providing government

the need to promote their education and integration into decision-making processes in these domains. The importance of gender issues in Science and Technology has been increasingly given recognition in the outputs of the UNCSTD's Gender Working Group (GWG), the World Conference on Science in 1999, Beijing +5, the World Summit on Information Society (WSIS), as well as initiatives by the European Union (EU) and the (Organization of American States (OAS).

Consequently, the topic of women's and girls' access to and participation in Science and Technology forms a bridge between these two core areas of concern, which have long since held a place independently at the heart of the international development agenda.

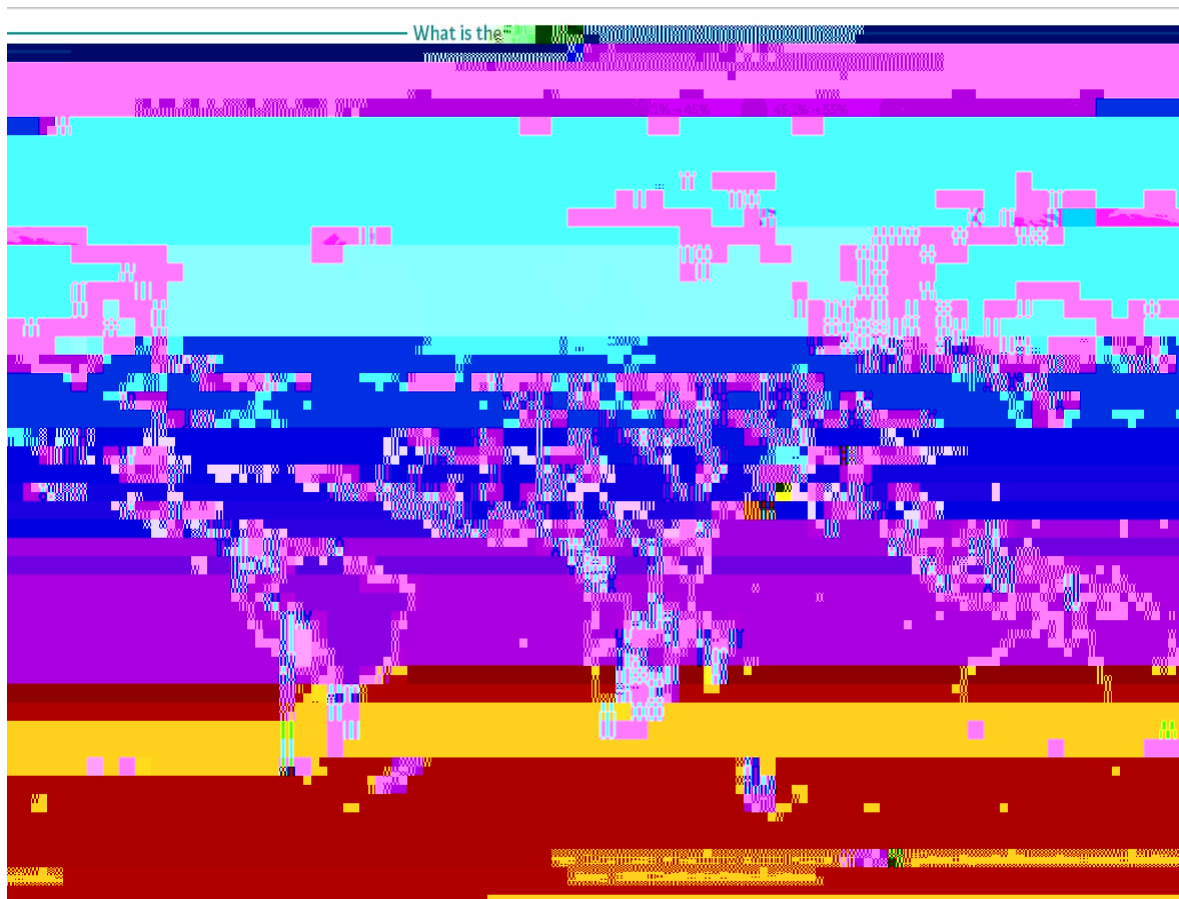
**UNESCO, Science, Technology and Gender**

*UNESCO's 2009 Forum on "Gender and Climate" serves as an example of the  
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The quality, availability and nature of statistical data, an area UNESCO is advocating to improve, constitutes a challenge in assessing the current situation regarding women in science and technology. In the present case, for instance, UNESCO defines ‘researcher’ as ‘professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems.’<sup>v</sup> Although the scope of this term encompasses a broader range of disciplines than science and technology, it can still provide insight into the progression of women into these careers.

Given the constraints of available data, based on a sample of 89 countries, the UNESCO Institute for Statistics (UIS) estimated that slightly more than one-quarter (29%) of the world’s researchers are women.<sup>vi</sup> This global statistic conceals strong regional disparities. Women constitute 46% of researchers in Latin America and the Caribbean, compared with only 15% in Asia. Equally, all Central Asian countries with data reported gender parity, whereas in Europe only 32% of researchers are women.<sup>vii</sup> These regional variations hint at the socio-cultural underpinnings of inequalities in these sectors.



“The 2010 Global Education Digest: Comparing Education Statistics Across the World”, UNESCO Institute of Statistics

gender parity index. Once again, however, these trends conceal complex regional and national disparities, which are frequently amplified, as gender inequalities at primary level are often strengthened at secondary school level.<sup>viii</sup> Overall, in spite of the goals set at the World Education Forum and the Millennium Summit, overwhelming gender inequalities continue to haunt education; the latest statistics reveal that 60% of countries have not reached gender parity in primary and secondary education.<sup>ix</sup> It is undisputed that in most regions of the world, women are more likely than men to be uneducated or undereducated, especially in regard to science and technology<sup>x</sup>, and statistics show the persistently low participation of girls in these areas through all levels of schooling.

### ***Tertiary Education***

Predicting whether the female researchers of tomorrow will outnumber their present-day counterparts crucially involves looking to today's young women graduates of sciences disciplines. Two key observations are of note regarding female tertiary level students of sciences and technology. First, there is evidence of horizontal, gender segregation by sub-discipline *within* the Sciences. Second, it appears to be a breaking point at Master's level after which a number of successful female graduates disappear and fail to reach PhD level and research posts.

Although, the overall number of women enrolled in tertiary institutions has been growing rapidly – over twice as fast as that of men – since the 1970s,<sup>xi</sup> this does not translate to uniformity and parity across all academic disciplines. For instance, in the field of science and technology, the gender gap remains significant.

The canvas against which these debates play out is the familiar backdrop of gender inequality that often combines with other factors of discrimination leaving women at a disadvantage in terms of accessing basic education and literacy, the foundations for all future learning. These multiple factors include: child labour, early marriage, teenage pregnancy, HIV & AIDS, geographic location, armed conflict, gender-based violence in and around schools, ethnicity, multilingualism and cultural barriers. The first leak in the pipe can, therefore, be related to the manifold factors that lead to gender discrimination in poverty, basic literacy and other fundamental areas touching on women's basic human rights.

These issues, whilst providing the broader discriminatory context, do not suffice to explain the gender inequality suffered by women in the highly specific domains of science and technology. More subtle equity issues must also be addressed that lead to specific groups' having unequal access to science and technology education and careers must also be explored. An integral part of the current programme of work, the Expert Group Meeting is held in this spirit of collaborating in order to improve our understanding of the factors that may encourage or prevent women from entering careers in science and technology.







training, is too often denied to women with disabilities in the belief that they will not make use of it.

Without adequate education or training, women with disabilities have little chance of finding decent work, and statistics show that their access to the labour market in general remains limited. Only around one quarter of women with disabilities is in the global workforce, and this figure is clearly much lower in science and technology based employment. Moreover, women with disabilities are frequently victims of discrimination or abuse in the workplace.

For girls and women with disabilities to enjoy their right to benefit from access to scientific and technological progress, there is a vital need to ensure that these girls and women have access to education which is properly suited to their needs, including vocational and technical training. More efforts must also be made to ensure that these women have access to decent employment and that discrimination within the workplace against them is addressed.

### **UNESCO's work on Science, Technology and Gender:**



**Socio-cultural factors, that may disadvantage girls** from entering and pursuing a career in the sciences or technology both implicit and explicit, must be taken into account when formulating policies, including how gender may combine with other factors of inequality and which may leave girls doubly disadvantaged.

**Science and technology should be integrated into Non-formal Education (NFE)**, supported by the appropriate policy-frameworks, capacity-development programmes and trained teaching personnel, to reach out to girls and women in rural or depressed urban areas in particular.

**Effective, high-quality science and technology education programmes** should be developed in order to foster personal and societal interest in these disciplines and to ensure that curricula are socio-culturally

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<sup>i</sup> UNESCO, 2007b.

<sup>ii</sup> See 'Introduction' in Bonder, 2002.

<sup>iii</sup> UNESCO, 2007b, pp.23-24.

<sup>iv</sup> UNESCO 2007.

<sup>v</sup> GED 2010, pp.77

<sup>vi</sup> UIS, UNESCO, 2009.

<sup>vii</sup> The reference year is 2003; UNESCO, 2006b.

<sup>viii</sup> UNESCO, 2009.

<sup>ix</sup> UNESCO,2010.

<sup>x</sup> Science, Technology and Gender, An International Report, UNESCO 2007.