



The state of Women and Technology Fields around the World

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1. Africa

South Africa

(2006 report available at HYPERLINK "http://women-in-ict.meraka.csir.co.za/images/7/76/National_print.pdf" http://women-in-ict.meraka.csir.co.za/images/7/76/National_print.pdf)

- Bachelors degrees awarded to women in IT fields represent around 25% of degrees and have decreased by 8% between 2000 and 2004
- At the post graduate level, the number of women have increased but women still represent less than 10% of enrolled students.
- In industry, 11.8% of South African companies (in all sectors) have 2 or more women on their boards, and almost 60% have no women directors at all.
- Women make up 18% of the core IT workforce while they represent 75% of the IT end users in the country. In those core categories, women are over-represented in technical sales and systems analysts positions while being drastically under-represented in programming, engineering, and management.

2. Asia

NSF report:

China, Japan, South Korea

- In 2003, for Asian countries/economies, the proportion of first university degrees earned in science and engineering was higher than in the United States. For the past 3 decades, S&E degrees have made up about one-third of U.S. bachelor's degrees. The corresponding figures were considerably higher for China (59 percent in 2001), South Korea (46 percent in 2000), and Japan (66 percent in 2001).
- In Japan, Taiwan, and South Korea, women earn first university degrees at a rate similar to that in many European countries. However, women have high participation rates in NS&E only in South Korea and Taiwan. In 2000–01, the ratio of female-earned degrees in these fields were higher than the participation rate of women in Japan, Germany, or the United States. Among reporting countries, women earned the highest proportion of their S&E degrees in natural and social sciences



India

India is the fourth largest economy in the world and a GDP of \$4.04 trillion [HYPERLINK "http://newsroom.spie.org/x5936.xml"](http://newsroom.spie.org/x5936.xml) (CIA World Factbook [HYPERLINK "http://www.cia.gov/cia/publications/factbook"](http://www.cia.gov/cia/publications/factbook) [www.cia.gov/cia/publications/factbook](#)).

- By 2026, a full 64 percent of the Indian population will be of working age, with half of the country's population currently under the age of 25, contrary to the aging population of Western countries (Indian National Association of Software and India Department of Labor Statistics).

- Employment in the Indian IT has grown by over a million between 2000 and 2005.
- The size of the Indian IT industry has reached \$48 billion in 2007 and represents 5% of the country's GDP.
- India's well established academic institutions are generating about half a million engineers a year.
- US high tech companies are hiring more and more high tech professionals in India. Between 2001 and 2003, around 35,000 Indians émigrés returned to the country to work in Bangalore (Indian National Association of Software)
- High tech entrepreneurship in India is growing as are Venture Capital Investments: Private equity funds in India went from US\$20 million in 1996 to 2 billion in 2006 (Ernst and Young).
- However, Indian women still do not have the same access to education and literacy but primary education in India is not universal. Overall, the literacy rate for women is 39 percent versus 64 percent for men (Women's Education in India, October 1998).
- With fewer than 2 million Internet connections in the entire country, very few women get access to technology (Business Week, 2001) and fewer still get an education in engineering (Women's Education in India).
- Women's representation in technical field is growing. For example, the percentage of women engineers graduating from IIT Bombay has grown from 1.8% in 1972 to 8% in 2005.



Europe (NSF Report)

Western Europe

In 2003, the EU as a whole had 18.6% female doctoral students in Computing (compared to 21% for the US).

- At the bottom in terms of female representation in computing is Belgium with 3.2% of female doctoral CS enrollment. At the top are former Soviet Block countries.:
- Women in the IT workforce in the EU is around 28%.

France (Sources: NSF Report)

- Women obtain and 19 percent of the engineering degrees. (See HYPERLINK "http://www.nsf.gov/statistics/nsf96316/tables/at-20.xls" [appendix table 20](#) .) Women in France have the highest ratio of engineering degrees to total university degrees among any of the Western European countries studied by the NSF in the 1990s.
- In 2006, women represented 15% of the students in Advanced Engineering Schools (“Grandes Ecoles”) and represented Women in France earn more advanced degrees in CS and Engineering than any other Western European Country and than the US (as much as 20% of CS doctoral degrees in 1990s, at 19% in 2005).
- Women represent about 20% of the IT workforce in France

Germany (Sources: NSF Report and German Government data)

- In East Germany, women earned 28 percent of the engineering degrees in 1990 (Gov. of Germany, 1992), while women in West Germany earned 7 percent of the engineering degrees in that period.
- After the fall of the Berlin wall and the German reunification, women’s participation in computer science decreased to West German figures

United Kingdom

(Source: UK Resource Center for Women)

- In the UK, women represent 18.2% of undergraduates in computing and 22.3% of post-graduates.

Eastern Europe

NSF Report

- Historically, Eastern European countries adopted the former Soviet model of higher education, which emphasized science and engineering and an engineering curricula that focused on training for production.



Exemplar: Bulgaria

- University enrollments increased even more sharply in post-totalitarian Bulgaria in the 1990s. In 1992, 20.2 percent of the college-age cohort received a university degree; 7.6 percent in fields of natural sciences or engineering. (See [□ HYPERLINK "http://www.nsf.gov/statistics/nsf96316/tables/at-01.xls"](http://www.nsf.gov/statistics/nsf96316/tables/at-01.xls) [□ appendix table 1](#) □.) The participation rate for women in these fields is slightly higher than for men: 7.8 percent of the female college-age cohort obtained an NS&E degree in Bulgaria in 1992; 7.2 percent of males in this age group obtained such a degree in that same year.
- In 1992, women obtained 57 percent of all university degrees. In addition, they obtained half of the engineering degrees, 70 percent of the natural science degrees, and 73 percent of the mathematics and computer science degrees. These percentages have not changed since 1975 (Stretenova, 1994). (See [□ HYPERLINK "http://www.nsf.gov/statistics/nsf96316/figs/txtfig12.gif"](http://www.nsf.gov/statistics/nsf96316/figs/txtfig12.gif) [□ text table 12](#) □.)

South America

Brazil

Claudia Bauzer Medeiros, professor of Computer Science at UNICAMP and a change agent scholarship recipient of ABI, conducted a study of women in IT in Brazil published in 2006 and has found the following:

- Women represent more than 60% of college graduates in Brazil but less than 5% choose a CS major, yet are the majority in other scientific fields such as math, biology, and medicine.
- While the number of CS enrollments in universities have been stable, women participation in CS has dropped significantly.
- Women graduate students and women faculty in CS has reached 20% but has started declining due to the decrease in interest in recent years at the undergraduate level.