Encouraging more women to become scientists or engineers

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Women with PhD EU (2009)

- Overall (46%)
- Biology (57%)
- Computer Science (19%)
- Engineering (23%)
- Other fields: (32-42%)

Women in Research EU (2009)

- Overall employed in science and eng (32%)
- Countries lower: Luxembourg (21), Germany (25), Netherlands (26)
- Countries higher: Latvia (52), Lithuania (51), Portugal, Bulgaria, Romania, Slovakia, Poland, Estonia (40)
- In Education (40), Government (40), Business (19)

Horizontal and vertical effect

- Vertical: hierarchal segregation (glass ceiling and sticky floor)
- Income, prestige, stability remain issues
- Women less than 44 years old
- Women 44-55
- Women more than 55



Singapore: Engineering & Technology Sector

- 30% more men than women.
- Little difference between no. of men & women in general workforce, but 19,048 male researchers & scientists compared to 6,697 women.
- Women make up 31% of senior research scientists and engineers (up from 26% in 2002)

Singapore: University enrollment

- Engineering: 30% women
- Computing/IT: 35% women (27% IT professionals in workforce are women)
- Science: 57% women

Other parts of Asia

 Scientific employees/researchers – China:10% India: 12% Japan: 15% Korea: 12% University enrollment – India:80% in biology & health sciences 35% in engineering & Physics Korea: 20% in science & engineering

MAIN ISSUES IN EDUCATION

- Stereotyping of women, that they are not qualified and seen as the weaker sex
- cultural pressures against women taking-up S&T careers
- pressure to marry young and have children, to be primary caregivers, nurturers
- the masculine image of S&T careers and lack of information on these

MAIN ISSUES IN THE WORKPLACE

- Hiring practices and interview protocols
- career progression and retention
- need for flexible work options to balance work and family or personal life
- maintaining competency while on extended leave
- need to fast-track women at higher levels
- support women entrepreneurs

MAIN ISSUES IN RESEARCH

- Ensure fairness, access, and career progression (measure quality, not quantity)
- humanizing the academic and research workplace and introduce more flexible tenure and promotion criteria
- special funding programs (grants) to reintegrate a research career
- ensuring a 'critical mass' of women on committees

MAIN RECOMMENDATIONS

- Existing data to be shared widely
- Set goals (not quotas) and how to get there
- PhDs, academic ranks, industry
- Identify potential collaborators: national committees with decision-makers; local committees in each larger centre, each company.
- Measure progress on a 2-5 year basis

DATA COLLECTION PRIORITIES: Education

- Enrolments in S&T-related study programs
- emphasis where the job market is growing rapidly
- track career choices after high school diploma
- track career after college or university

DATA COLLECTION PRIORITIES: Workplaces

- Track employment: full-time, parttime, unemployment, and lay-offs
- track years of experience and age at <u>each promotion</u>
- track the proportion of time spent on household and parenting chores
- rate of participation at seniority levels

DATA COLLECTION PRIORITIES: Research

- Track graduate school enrolments, allocation of scholarships, teaching and/or research assistantships, post-doctoral fellowships
- need for tracking <u>quality</u> versus <u>quantity</u> for performance
- track rate of hires in academe, level on entry, awards and prizes, recognition

A Singapore Initiative

- The Singapore Committee for UN Women is implementing a programme to encourage girls to take up careers in Science, Technology, Engineering & Mathematics (STEM).
- Students will be identified through partnering primary & secondary schools, girls' shelters & family service organizations throughout the country.
- Interested students will be linked up with ambassadors & mentors who will further engage them through field trips to their work places in their respective industries, in addition to structured programmes & day camps.

IUPESM, IFMBE, IOMP

Registry of distinguished women
Proactive mechanism to nominate women for awards, keynotes, chairs
Encourage women to volunteer their time, commitment.

CONCLUSION

- All economies would benefit from using all of their resources (women and men)
- Recruiting and retaining more women is critical to achieve harmony, success, and sustainable and equitable development
- For our people, our societies, our economies.