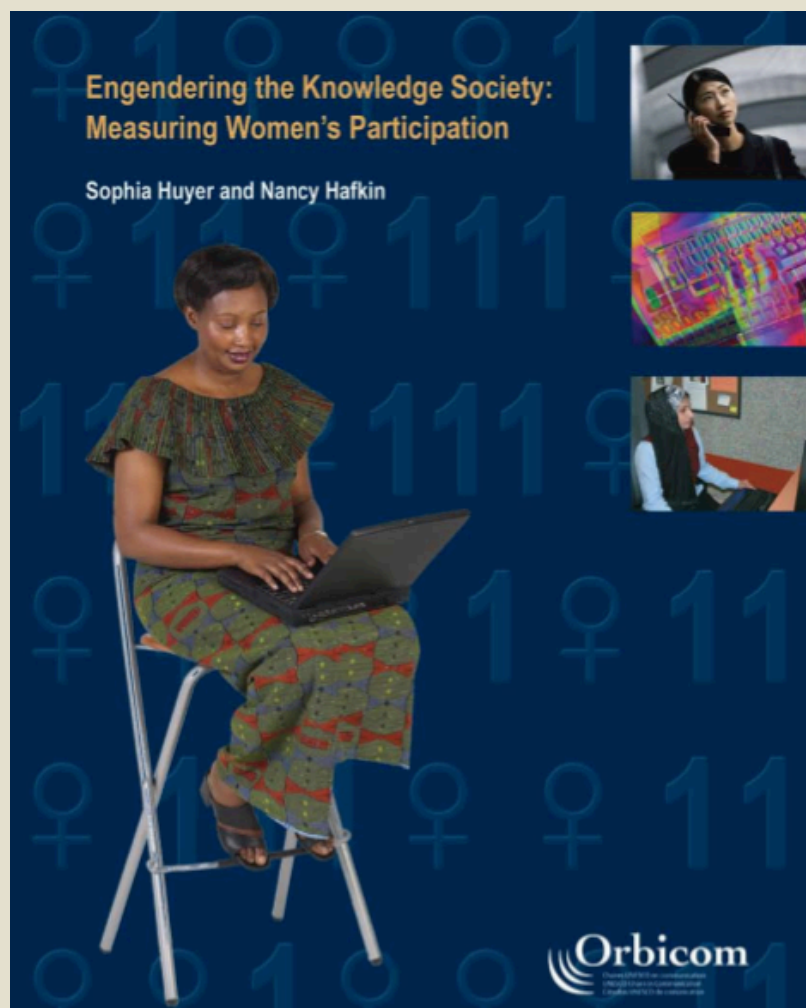


Engendering Innovation and Technology: Measuring Women's Contributions Globally



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w i g s a t
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Purpose of this study

- To provide a framework for data analysis to achieve inclusive knowledge society
- To encourage the mainstreaming of gender in data collection, statistics and indicators for the knowledge society so that gender issues can be taken into account in policy and action.

Based on:

- Absence of integrated data on women and knowledge society
- Concentration on developing countries where lack of data most evident
- Data needed
 - For policy makers to make informed decisions towards competitive national knowledge society
 - Taking full advantage of country's human resources.

Basic assumptions

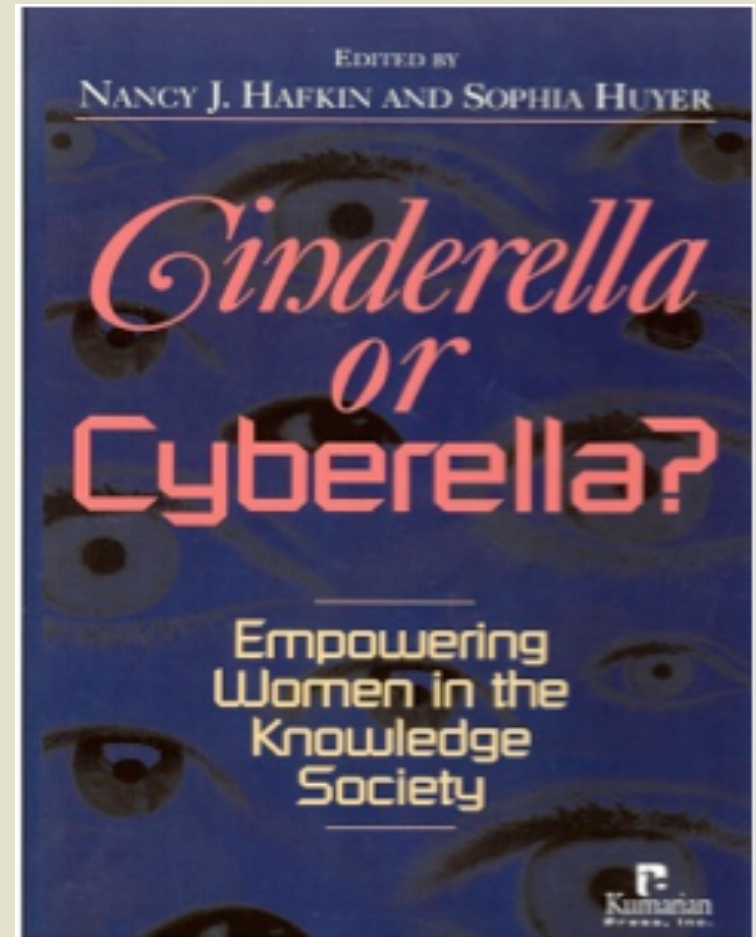
- Knowledge not only for economic growth but to empower and develop all sectors of society (e-inclusion)
- Knowledge, including S&T knowledge, is also generated from and transmitted outside formal education and institutions
- Aims:
 - not only women's full participation in formal STI, but also STI's development and application of technologies for social development, including energy use, food production, clean water and sanitation
 - Promotion of SME development and lifelong learning opportunities in all sectors of society

Society as a whole benefits from women's participation

- ✿ ***under-used resource*** for national development
- ✿ Need for critical human mass skilled in knowledge development
- ✿ Participation of ½ country's resources increases pool of ability, creativity, experience
- ✿ Education and employment of women contributes to ***national economic growth*** and
- ✿ ***Increased competitiveness*** of businesses and national innovation systems
- ✿ ***It's their right:*** women should also benefit from knowledge and innovation opportunities

Why a gender-inclusive knowledge society?

- Gender divide most marked in favor of men in knowledge society
- Overall growth and development insufficient to achieve inclusion
 - Women's internet access/use does not correlate directly with national rates of Internet penetration



What we know about women, S&T

- Girls do not pursue science and technical studies at the same rate as boys
 - Most pronounced in physics, engineering, technology
 - Representation of women declines at successive stages of scientific and technological careers
- Parents' attitudes towards boys' and girls' abilities a factor
- Few differences between girls and boys on standardized measures of math and science achievement
- Data problems even in developed countries on gender of scientific researchers
- Most recent (2010) research shows: Specific domains of gender inequities are responsible for gender gaps in math. **Gender equity in school enrollment, women's share of research jobs, and women's parliamentary representation were the most powerful predictors of cross-national variability in gender gaps in math.** This highlights the significance of increasing girls' and women's agency cross-nationally.

It's not just a pipeline problem

- Need to go beyond “fixing” women to achieve gender equality in STI
- Requires:
 - Societal reform of gender divisions of labour
 - Reform in scientific institutions
 - Questioning gender neutrality of scientific/ technological education
 - Examining institutional attitudes and procedures
 - Introduction of gender analysis in STI: gender analysis as a *resource* to create new knowledge

Gender statistics and indicators: current status

- ICT indexes compare countries at national, aggregate level
 - Mask internal divides (gender, age, education, class, location, ethnicity)
 - Lack of sex disaggregated data on national level in developing countries
- STI indexes have more gender-specific data
 - Mostly from developed countries
 - Most abundant in education and human resources for development
 - Few disaggregated statistics on lifelong learning, enterprise development, technology use
- No real attention yet to measuring women's participation in knowledge society or social, cultural, economic cost of lack of women's participation

Need for composite index

- Existing indices do not cover necessary ground
 - ICT and STI frameworks do not address gender issues or collect/utilize sex-disaggregated data
 - Gender equality indexes do not address ICT, STI, knowledge society issues

Questions addressed

- What are preconditions for women to become full participants in a national knowledge society?
- What resources and access do they need to achieve this?
- Where and how fast are women making progress?
- Use the results to answer:
 - What policies and programs are most conducive to promoting women's participation?
 - How can a country mobilize its full human resource capacity to become a knowledge-based society?

Framework on Gender Equality and Knowledge Society

- Baseline requisites: women can't fully contribute and society can't fully benefit from their contributions without basic level of well-being, opportunity, agency
 - Health, social status, economic status, opportunities available, political participation, access to resources and an enabling environment
- Beyond basics:
 - Access to S&T education at all levels, access to and use of technology
 - Decision-making in knowledge-society sectors
 - Participation in STI
 - Access to lifelong learning

Towards a gender-inclusive knowledge society

- Inputs: constraints and enabling conditions for women to play active roles in the development of national knowledge society
- Outcomes: women's actual participation and contributions
- Approach:
 - Bring together gender-sensitive data on key areas in knowledge society (ICTs, STI)
with
 - Gender indicators of health, economic and social status

Organizing the Framework

Input indicators (base conditions)	Health Social status Economic status Access to resources Agency Opportunity Policy environment
Outcome indicators (Participation and benefits)	Participation in: KS decision making Knowledge economy Science, technology and innovation Lifelong learning

Suggested input indicators

Dimension	Suggested indicator
Health status	Female healthy life expectancy
	Prevalence rates of malaria, tuberculosis, HIV/AIDS (M/W)
	Physical integrity (FGM)
Social status	Equity/discrimination in social institutions
	Sex ratio at birth
	Prevalence of violence against women
	Time use/workload
Economic status	Women as % economically active population
	Earned income ratios (M/W)
	Females by category of workers (self-employed, salaried, family workers)
	Shares of women in poorest quintile

Dimension	Suggested indicator
Access to resources	Ownership rights to land, houses and other property
	Women's access to credit, loans, venture capital
	Percent women using Internet and cellphones
	Use by women of railroads and other transportation infrastructure
	Access of women to electricity, including penetration and reliability in rural areas
Women's agency	Shares of women in lower houses of parliaments
	Shares of women ministers and subministers
	Women in senior positions in political parties, trade unions, employers associations, professional organizations, NGOs and community-based associations
	Contraceptive use
Opportunity and capability	Men/ women's adult literacy
	Net primary, secondary and tertiary enrolments, M/W
	Availability on-the-job, staff, specialized training for women and men

Dimension	Suggested indicator
Enabling policy environment	Inclusion gender issues in national knowledge society policies (S&T, ICT, labor, education)
	Existence gender-specific childcare, equal pay, flexible work, transport policies
	Country signatory to CEDAW
	State budget allocations to benefit women in informal economy
	Institutionalization of inter-ministerial relations on gender

Outcome indicators

Outcome	Suggested indicator
Women in knowledge society decision- marking	Shares of women as legislators, senior officials, managers
	Shares of businesses with 35% or more women in decision-making positions
Women in knowledge economy	Shares of women in professional and technical positions
	Shares of women in administrative and managerial positions
	Employment by economic activity (occupation and status) in agriculture, industry and services in KS areas
	Women with high-level computer skills
	Shares of women among information technology workers

Dimension	Suggested indicator
Women in S&T and innovation systems	Shares of women studying science and engineering at tertiary level
	Shares of women scientists and engineers
	Shares of women researchers
	Comparative rates of publication, M/W
	Gender trends in brain drain in highly skilled fields
	Number of women-run enterprises in sector value chains
	Women's early stage entrepreneurial activity
	Women and lifelong learning
Women as managers of (village) knowledge centres	

Where to go with this?

- Stimulate discussion on indicators
- Undertake trial studies at the country level
- Encourage national interest in sex-disaggregated and gender issues data collection
- Increase awareness of gender issues in KS development
- Influence development of gender-sensitive policy, strategies and programs

Thank you . . . Muita obrigada . . . Muchas gracias

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