

Gender Equity: Status, Goals and Strategies

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About myself

I am a Theoretical Particle Physicist working in the subject for 35 odd years.

My work deals with theories of interactions among the fundamental constituents of matter : quarks, leptons and gluons.

In particular currently I am engaged in studying theoretical aspects of the experiments being performed at the high energy frontier at the large hadron collider **LHC** at **CERN**.

About myself: context WiS

Founder chair of the WiS panel of the Indian Academy of Sciences.

An invited speaker (among 9) at the first IUPAP International Conference on Women in Physics held in Paris in 2001 & **involved with the IUPAP group on Women in Physics since then.**

One of the editors of the INSA report on 'Science Career for Women in India' brought out in 2004.

Member of the steering group of the DST for WiS.

About myself: context WiS

Co- Editor (with R. Ramaswamy) of two books to encourage girls to take up Science:

**1) Lilavati's Daughters : Women in Science in India
(Publisher: Indian Academy of Science, 2008)**

**2) A Girl's Guide to Life in Science:
(Publisher: Young Zubaan, 2010)**

Can be seen at

<http://www.ias.ac.in/womeninscience/>

Today's presentation

Need for mainstreaming Gender in Science not in question. Serious attention beginning to be paid 2001 onwards. Discussed in Prime Minister's talk.

The INSA report and ensuing DST Task Force for Women in Science, led to a set of recommendations, Presented to the Minister of Science and Technology in July 2009.

Available on WiS web page:

http://www.ias.ac.in/womeninscience/taskforce_report.pdf

Today's presentation

Given: achieving Gender Equity a MUST.

One of the possible measures:

Gender Audit

(mentioned by Prime Minister in his address)

**Want to discuss how to set the goals for it
and how to make sure we have arrived at
the desired end station**

Status

The presence of women students in Schools and Colleges high and their level of achievement high

However participation of Women in Research in Science is low, presence in high positions in academics low as well

Serious leakages in the pipeline from college to university to scientific careers

Human Resource deployment

With the increased spending on Science as envisaged by the Prime Minister in his inaugural address, one of the issues is Human Resource Development.

We can not afford to then not to deploy this trained human resource. So in the case of women scientists the problem is **DEPLOYMENT** of **TRAINED** Human resource as much as its **DEVELOPMENT**.

Women's inclusion necessary

**One Point: Inclusion of Women in Science
NECESSARY for bringing in more diversity
which always improves the QUALITY of
Science and Technology .**

**Pursuit of Excellence in Science NEEDS
to avoid loss due to insufficient and/or
inefficient participation by women.**

**INDIA (INC) is already active in the
context (Sreelaxmi Desiraju)**

**Leaky pipe: find out from those who have
left !**

**Survey: Conducted by WiS of Indian
Academy (with NIAS)**

**Loss of trained scientific woman power :
what fraction are we losing and why?**

Learnt some lessons.

Available from:

www.ias.ac.in/~womeninscience

Policy changes are happening

Major policy changes are being initiated. (DISHA)

Also necessary to continue analysis of the situation to identify crucial policy changes.

A personal remark:

By and large need to provide level playing field for women! After that nothing special is required.

Summary: simple and immediate

Simple things to implement (included in our recommendation)

1) A good creche on every campus

2) High priority to young couples for on campus housing

3) Proactive hiring policies for helping couples manage dual careers.

4) Encourage and reward excellence shown by women .

5) Improve work climate: including harassment issues.

Serious and long term

Gender Audit:

All Institutes must give on the web page information on fraction/distribution of women in faculty, students etc.

One needs to set up graduated goals after determining their feasibility.

The Goals need to be specific to sectors and Discipline

Two points

1)

Lack of numerical representation is a symptom and achieving numerical targets does not mean problems are solved!
Achieving the goals will be necessary but NOT sufficient.

2)

The Goals need to be specific to sectors and Discipline. WHY and HOW?

Why sector specific?

Level of women representation in different sciences very different

Example:

Fellowship of Science Academies in India as well as the TWAS and subject distribution of Bhatnagar Awardees.

Subject and gender distribution of fellowship

IASc, Bangalore:

Subject	Women	Men	Percentage
Total	68	1002	6.8%
Medical	18	60	23%
Math	6	78	7%
Physics	7	187	3%
Chemistry	2	161	1%
Plant and Animal Sciences	31	200	15%

Subject and gender distribution of fellowship

INSA, Delhi:

Subject	Women	Men	Percentage
Total	49	816	5%
Medical	17	52	33%
Math	6	64	9%
Physics	4	116	~ 4%
Chemistry	1	117	< 1%
Plant & Animal Science	20	200	10%

Subject and gender distribution of fellowship

TWAS, Trieste:

Subject	Women	Men	Percent
Total	6	83	6.8%
Medical	16	112	11.3%
Math	11	108	9%
Physics	10	340	< 1%
Chemistry	11	108	11%
Biological Sciences	21	225	8%

Bhatnagar Awardees

Subject	Women	Men	Percentage
Total	14	416	

Division among disciplines of 14

Medical	4
Math	2
Physics	0
Chemistry	2
Eng.	2
Biology	2

Summary

The medical sciences have the highest percentage. Note that mathematics too is well represented.. COMPARABLE to biological sciences..

Interesting aspect is fraction of women entering Biological sciences is much much more than in mathematics! So one should have hoped for even higher percentages in biological sciences.

BUT IS NOT . This is what I mean that the goals have to be sector specific.

Summary

First medical graduate: Anandibai Joshi (1885)
After 125 years women are equal participants in medical education, research and practice

For other areas we should not have to wait for another 125 years. Learn from here.

Important to collect statistics of women in science sector wise and analyse.

Need to continue studies

Basic point is we need to continue to collect information to analyse which can then translate into policy making.

A much broader level study at the National Level such as the one conducted by us at the Indian Academy of Science is necessary to understand the issues better.

Serious and long term

Measures that are not unique to women only

1) Improved, transparent and well defined evaluation processes.

2) Encouraging and rewarding excellence among women at all levels .

Rewards by means of extra travel grants, extra funding for research etc.

Serious and long term

3) Recognise women who likely to be employed below their level and consider people thus employed for special support.

4) Long term steps in improvement of work climate by gender sensitisation at all levels.

What is the main goal?

Major aim should be creation of support structure, societal and institutional , to help negotiate a family and career balance.

Even more important than providing ways to come back after a break is to remove the necessity for a break at all!
Science is a way of Life ..not just a job!!

Thank you

:Necessary measures in Indian Context:

In the Indian context the measures necessary are not so much to attract girls to science and engineering education but more to attract them to careers in science, i.e. **retaining them in science.**

ESSENTIAL:

Creating means to facilitate negotiation of a science career **PROFESSIONALLY** , maintaining a career family balance. Creating awareness for this not just among **girls/women** but also **the parents**, the family **and colleagues at work.**