

Gender Equity: Status, Goals and Strategies

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Women in Science
An Indian Academy of Sciences Initiative



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INSA-AASSA Workshop on WiS

September 24, 2013

Generalities

Need for main streaming Gender in Science is not questioned .

The World over **as well as in India** serious attention beginning to be paid 2001 onwards.

First steps involved just taking stock of the situation.

Various steps have been taken. Need still to discuss

how to **set the goals for gender equity** and **how to reach them!**

Generalities

The INSA report brought out in 2004 (all of you have a copy) and ensuing DST Task Force for Women in Science, led to a set of recommendations, These were presented to the Minister of Science and Technology in July 2009.

Both of these are available on Panel for Women in Science (WiS) web page:

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

Implementing the recommendations

Government has taken these seriously

Some of the recommendations are already implemented and others are in process.

You will hear about some of these from Dr. Vinita Sharma of the Department of Science and Technology.

Today's presentation

Given: achieving Gender Equity in Science is a **MUST**.

Want to discuss

1) What is the status in India of the gender balance in Science?

2) What the academicians are doing.

3) How to set goals as to where we want to go?

Of course in the Indian Context.

What can we do together?

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

: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.**

It is not just for Women !

Inclusion of Women in Science NECESSARY
for bringing in more diversity . It is known
that Diversity can only ADD to the QUALITY
of Science and Technology .

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

Summary: simple and immediate

Simple things to implement (included in recommendations submitted to the Govt.)

- 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.**

Serious and long term

- 1) Improved, transparent and well defined evaluation processes.**
- 2) Recognise women who likely to be employed below their level and consider people thus employed for special support**
- 3) Long term steps in improvement of work climate by gender sensitisation at all levels.**

Things academicians can do

Not just Policy Changes, but programs to Inspire and Guide, which is what academicians can do!

To make young girls (and society in general) aware that a career in Science is a possible career option for Women

A role model programme and Mentorship

Mentorship programs of the WiS

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1)

Brought out a set of stories told by Women Scientists:

Lilavati's Daughters

Girl's Guide to Life in Science

Mentorship programs of the WiS

to science, what kept their interest alive, and what has helped them achieve some measure of distinction in their careers.

The young student with research ambitions will find this an important collection where she can be inspired by a host of women who functioned and achieved their goals in the Indian social and academic environment. We believe that others will also find the essays to be of value and interest for what they say. And also for what they do not say.



LILAVATI'S DAUGHTERS The Women Scientists of India



edited by
ROHINI GOODBOLE
RAM RAMASWAMY

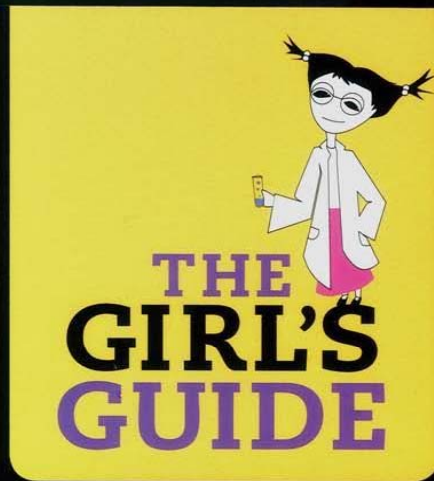
The *Lilavati* is a thirteenth century treatise in which the mathematician Brahmagupta addresses a number of problems to his daughter, Lilavati. Although legend has it that Lilavati never married, her intellectual legacy lives on in the form of her daughters—the women scientists of India.

What makes a successful career in science possible for a woman? We believe that the many answers to this question can be found somewhere in the essays written by *Lilavati's Daughters*.

This collection of biographical and autobiographical sketches is one of the initiatives of the Women in Science (WiS) part of the Indian Academy of Sciences,

Bangalore. Covering a range of disciplines, in these essays about one hundred Indian women scientists talk of what brought them

Mentorship programs of the WiS



TO A LIFE IN



EDITED BY
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Mandakini Dubey

**A new book :
contains a small
description of the
Science done by
women whose
stories are in the
book .**

**They also discuss future
challenges in their area.
Stories of 25 women.**

Some more things we do

2)

WiS : A career in Science workshops (One day long workshop)

Presentations by leading women scientists about latest developments in their area of activity, to showcase the work done by women scientists, to an audience of **both genders** and **to create an awareness on various career options** available to young women in science

Information about this and more available from :

www.ias.ac.in/~womeninscience

**Leaky pipe: find out from those who have
left **WHY?****

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

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

**Contacted those who have dropped out of
science after doing a Ph.D. *Where does the
Shoe pinch? The wearer knows best!***

Leaky pipe: find out from those who have
left **WHY?**

Learnt some lessons.

**Available
from:**

**A better and bigger survey necessary to
impact policy making.**

Policy changes are happening

Major policy changes are being initiated.

Still 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.

Gender Audit

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 different Disciplines/areas.

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 (2012):

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 (2012):

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 (2012)

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.

However:

Mathematics COMPARABLE to biological

sciences.. 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 . So situation is

complex and goals really need to be discipline 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.

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

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/>

Human Resource deployment

With the increasing focus on Science 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**.