

Indian women in science: need for a change in mindset

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Women are the foundation of society and forerunners in a changing world. Their role in and contributions to science influence the relationship between science and society in many ways. Profession, for a woman, is more than a necessity or adjustment; it is a means of realizing self-worth and growth. The under-representation of women in science, poor employment and promotion opportunities, and high dropout rates in scientific professions can be reduced by changing the mindset of society towards a working woman.

The Planning Commission of India has always considered women-related issues a priority while planning the economy. In the First Five Year Plan (1951–1956)¹, the Central Social Welfare Board was set up (in 1953) to promote welfare work through voluntary organizations and charitable trusts. The Fifth Plan (1974–1979) introduced the concept ‘from welfare to development’. The objective of bringing women into the mainstream of national development was reflected in the Seventh Plan (1985–1990), while the Eighth Five Year Plan (1992–1997) changed the concept ‘from development to empowerment’, and promised to ensure the flow of benefits to women in education, health and employment. The outlay for women rose from Rs 4 crores in the First Plan to Rs 2000 crores in the Eighth Plan. The Ninth Plan (1997–2002) had ‘women empowerment’ as its core concept. It assured that at least 30% of funds/benefits from all development sectors would flow to women. The ongoing Eleventh Plan (2007–2012) pledges to end the discrimination faced by women and provide them with their share of economic growth. It also aims to raise the sex ratio, for the age group 0–6 years, to 935 by 2011–2012 and to 950 by 2016–2017, besides ensuring that women constitute at least 33% of the direct and indirect beneficiaries of all government schemes.

The essence of women empowerment lies in its being holistic, including economic, social and political empowerment. Today, women have a strong political interference, right from representation in the Panchayati Raj to the

village council. The fact that India has women chief ministers and a woman president demonstrates the liberation of Indian women. To bring about a radical change in the policies pertaining to women in science, their participation in the policy development process is crucial.

Countries in Africa, Asia, Europe, South America, Australia and the Middle East have incorporated gender budgeting as a part of policy-making. This is a potent tool of women empowerment even in India¹. It does not necessarily require separate budgets for both genders, but conveys a sense of transparency in the way that the government is raising, spending and allocating public money, with a focus on its impact on the development of women. Gender budgeting integrates a gender perspective at all stages of policy-making: identifying the needs of target groups, allocating resources, implementing policies, enacting legislation, formulating schemes and programmes, and assessing impacts and outcomes.

Empowering women in science is also a major commitment of the government. The Scientific Advisory Council to the Prime Minister has formed a Task Force on Women in Science under the Ministry of Science and Technology, to help the government in paying constant attention to the problems of women scientists and thereby encourage women to take up scientific careers.

Scientific organizations in India have been undertaking several initiatives. The Department of Science and Technology has started the Women Scientist Scheme (WOS), Biotechnology Career Advancement and Re-orientation Programme (Bio-CARe) of DBT, National Programme for Training of Women Scientists and Technologists, and Consolidation of University Research for Innovation and Excellence in Women Universities (CURIE). These programmes are intended to build capacity and confidence in both working and non-working women scientists, especially those well-qualified women who have had a ‘break in their careers’ due to motherhood and other family responsibilities. A study, sponsored by the Indian Academy of Sciences and the National Institute of Advanced

Studies, shatters the myth that women do not devote enough time for work and research, post-marriage². It shows that more women (47%) worked between 40 and 60 h/week compared to men (34%), when they were bringing up children.

Despite the positive trends of change, there are some basic questions to be addressed to support women in science:

- Today, are women still considered as stereotyped females when addressing science-related issues?
- Can we afford to waste the talent of half of our expensively trained workforce?
- Are women doing enough to encourage their female peers?
- Are the structures of research and academia still weighted towards men? Does it matter?
- How have women changed science?
- Have men realized the worth of women in science? Are they responsive enough to award women their long-awaited credit?

To help women achievers link together as mentors, supporters and collaborators in science, expansion of their network should be encouraged. A role-model programme, named after famous women scientists, should be started, involving special lectures, special workshops for girl students in science and mentoring. The concerned agencies and institutes need to provide a work culture and environment that encourages the recruitment and retention of women in scientific education and careers. The strength of the idea lies in the integration of four areas – school system, post-secondary education, workplace and community.

For women, the key to juggling family responsibilities and science is to become organized. If men need to plan a day at a time, women need to plan for the whole week. Care must be taken not to bungle the experiments in order to avoid unnecessary repetition. How can the mindset of the society and ‘women in science’ be changed?

- Promote female role models to inspire young girls.

- Promote education.
- Banish gender-specific careers; 'feminine' or 'masculine' subjects do not exist.
- Encourage regulations and quotas for women to take up professions. It has helped in some countries like Norway³ that have 40% women on the Board of Directors due to reservation.
- Encourage family-friendly organization policies such as day-care facility for children, parental leave, work-from-home facility (wherever feasible), campus housing and provision for couples to work in the same institute or city. Such measures can increase the productivity of women.
- Hire more women. This not only enhances the ambience, but also reduce the chances of sexual harassment.
- Emphasize the responsibilities of men in family matters. Young academic couples abroad now share the parental leave; this could be an inspiration for us as well.
- Stop feeling guilty at not being able to do as much for the children as non-working mothers.
- Make space for yourselves; do not wait for the society to change.

To succeed, women need to strive hard together with the cooperation of the organization. When women are supported and empowered, the entire society reaps benefits.

1. Ministry of Women and Child Development, Government of India, In *Gender Budgeting Handbook for Government of India Ministries and Departments*, 2007, pp. 10–24.
2. Supermoms put in 40 hrs on research, *The Times of India*, 17 January 2011.
3. Storvik, A. and Teigen, M., In *Friedrich-Ebert-Stiftung, International Policy Analysis*, June 2010; <http://library.fes.de/pdf-files/id/ipa/07309.pdf>

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