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GUEST EDITORIAL

A Fine Balance: Making it Work for Women in Science

The Indian science community has for long contended with one embarrassing statistic: more than 50% of the women who train for a Ph D in science do not eventually choose to make a research career in science. At the school level, the enrollment of girls in the sciences, as a fraction of all Indian children who complete school, is not particularly low. Their level of achievement is high in terms of performance in school leaving examinations – ‘Girls lead in all streams!’ is a fairly common newspaper headline. At the undergraduate level enrollment in science courses is also not particularly low. But as one goes further along the path, to research and teaching careers, the numbers start reducing: the attrition rate increases along the line from school to college to university and eventually to careers. This is the so-called *leaky pipeline*.

The scarcity of women in decision making bodies, and their underrepresentation in positions of academic or administrative authority is a reality in India today. Regardless of which of the science academies that one looks at, women constitute about 10% of the fellowship or less. When it comes to major awards like the CSIR’s Bhatnagar Award, the number is lower, less than 5%. And going beyond that, to look at positions of science administration, the numbers are even more stark: fewer than 10 directors of major laboratories are women.

Why so few? Some years ago the Indian Academy of Sciences constituted a Women in Science (WiS) panel to enquire into the causes behind the low representation and low participation of women in many areas of academics within the sciences, and further, to suggest what might be done about this in our context.

As one of the activities of the panel, Rohini Godbole of IISc, Bangalore and I decided to ask a number of working women scientists who had made successful careers in India to share their experiences of what influenced their choices and what helped them sustain their science. Of the nearly two hundred women whom we wrote to, about half responded, and along with a small number of biographical essays, their stories comprise the book, *Lilavati’s Daughters: The Women Scientists of India (LD)*. The book came out in late 2008, and a shorter adaptation of it, co-edited with Mandakini Dubey, and titled *A Girl’s Guide to a Life in Science* appeared last year.

Given a country that is as culturally diverse as ours, the representation of women in *LD* is very uneven in terms of region, social groups and community. This may have been largely for historical reasons, but is also a consequence of complex cultural and social biases. In this, as in other such phenomena in India, there is a strong interplay of gender with other aspects of inequality such as class and caste.

Several of the successful women who wrote in *LD* spoke of the importance of the emotional support system offered by parents in encouraging them to pursue their interests, and of the help given by the family during early career stages especially with regard to raising children. They also spoke of the need for inspiring role models, usually female, in schools and colleges and of the help given by senior colleagues and mentors, both female and male.

Why so few then? For both social and economic reasons, the participation of women in science in India needs to increase considerably. It is therefore important to facilitate ways in which the pursuit of science by women can be effective. Research in science in India is in the public sector mainly in centrally or state funded universities and research institutes. There are also research laboratories as well as a few universities that support and encourage research in the private sector. In order to understand the different dimensions of the problem, the WiS panel undertook to carry out a survey of women who did *not* pursue a career in science *after* acquiring a Ph D. The results of this survey, which was completed in 2009 and the results of which have been published in *Current Science* (2011, **100**, 43) among other places, are telling.

Many of the things that men and women want from a career are not very different, but when the career is in science there are many apprehensions, particularly in terms of expectations of what this entails. The data suggests that more women than men in science choose to not get married, or to not have children. Given the social realities in our country, it seems difficult to balance the requirements of career and family, and the conventional explanation for the small number of women in science is that women scientists are overwhelmed by family responsibilities, particularly after childbirth, and are therefore pressured to drop out of research.

The answers thrown up by the WiS survey gave a very different picture of the Indian woman scientist. As many as 85% of all women said they successfully balanced work and family, many of them choosing to negotiate 'winding career paths' in an attempt to stay on the research track after childbirth. About two-thirds of women Ph Ds who classified themselves as unemployed said they 'did not get jobs', and 'family reasons' was cited by a very small fraction as the main reason for not working.

The glass ceiling that cuts short many women's careers in science appears to come at least as much from a systemic bias at the institutional level as from family responsibilities or other societal pressures.

The reality is that there are many genuine problems that women face both with regard to working conditions as well as to job opportunities. The proportion of women faculty in the sciences in most institutions of higher education and research is quite low, around 20% in the best cases, and close to 0% in the worst. Basic amenities that would facilitate their work are often lacking, along with an enhanced sense of embarrassed patriarchy that makes discussion of some issues very difficult, if not impossible. There is a need for transparency in selection procedures at institutions, and a need for gender audits: institutions should give information on the distribution of women on their faculty and students, and should also work towards establishing a more gender equitable campus.

With all the effort that is going in to build a body of competent researchers in the country, not enough attention is being paid to the question of gender. How best to create circumstances that are conducive for a woman to pursue a career in science? What are the special sensitivities that are needed, what are the important policy decisions that are needed, and especially in these changing times, what are the rules that need to be looked at again?

There are big and small changes that are needed. On reading through many of the essays in *LD*, particularly those written by younger colleagues, it becomes evident that there are any number of small initiatives that can go a long way in improving things. Having a good and reliable crèche on every campus can greatly help women with young children contribute more effectively. Having adequate transport, healthcare, sanitation and security are essential. There is also a need to educate all members of the institution for the need to have a gender sensitive campus – and this could mean both having a body to deal with issues (such as a Committee Against Sexual Harassment) as well as ensuring training programmes at all levels – from the security and support staff to students and other faculty. A real commitment to gender sensibili-

ties is needed, and not just a patronizing attitude that 'facilitates' women's careers.

Bigger changes are more difficult, but are also more necessary. Many aspects of career choice for women, as for men, are constrained by complex considerations that include the career choice of the spouse. Although not specific to women in science, some institutions have implicit or explicit rules that make it difficult to solve the so-called 'two-body' problem, when academics are married to other academics and both contend for positions in the same institution.

Governmental policies that locate new universities or other institutions in remote places may have a certain logic, but on the whole the gender imbalance in the more remotely located institutions is quite high. There are two broad reasons for this. The first has to do with the fact that it is easier for two people to find positions in different organizations in Hyderabad or Pune than it is in Thiruvananthapuram or Koraput. Even when competences are comparable institutions often discourage linked appointments. Although it can be an administrator's nightmare since it mixes personal and professional commitments, some flexibility in this regard may be necessary when there are few options for working couples. Further, in the more remote locations or even in many of the smaller towns in the country, much of the support system that is needed to enable a career – good schooling, adequate medical facilities for oneself and one's dependents, and so on – is for the most part not available. Institutions outside the four metros, and, arguably a few other cities have a surprisingly large fraction of academic positions unfilled. National priorities and policies need to consider these realities too.

And then there is the issue of size. Smaller institutions tend to be highly specialized and typically offer a limited palette of academic options. They also typically find it impractical to set up facilities such as childcare since the numbers are so small and their need may be sporadic. An institution thus has to be of sufficient size to offer a gender sensitive as well as family-friendly environment.

In the end, why is this important at all? The diversity of an institution correlates with its vitality, with the new ideas that can come forth, and with its essential character. Gender is one component of such diversity. Academic institutions that are committed to ensure and enable the participation of women at all levels of academics are the richer for it, so measures that can be taken to promote institutional gender balance are important and should be encouraged. A corollary, therefore, is that policies and attitudes that suppress or reduce such diversity need to change.

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