

Why Indian women scientists need affirmative action

International women's day celebrated on 8th March is the usual time to highlight problems faced by women. Until a few years ago women scientists from India, who are in a minority in their profession, got a mention in this fashion alone. However, over the past few years things are changing for the better.

In 2003, the Indian National Science Academy, New Delhi, set up a committee to look at the status of women in science in India. At around the same time the Indian Academy of Sciences, Bangalore, also set up a panel on women in science with broadly similar objectives. Since 1999, Indian women physicists had started participating in international initiatives to bring women physicists together. Much earlier than that, in 1973, the Indian Women Scientists Association (IWSA) was established in Mumbai. Unfortunately, despite an early start and with a membership close to 2000 today, IWSA did not function as an effective pressure group to promote the cause of women in science. Poor employment and promotional opportunities in the context of social handicaps, high drop-out rates and poor visibility of scientifically trained woman-power have come up as serious concerns in the national context only in the 21st century. As a major step forward in December 2005 the Ministry of Science and Technology constituted a task force on women in science. Its primary function is to suggest appropriate measures which would eventually help in bringing in gender equality, prevent loss of woman-power and encourage women to take up science as a career.

Urban Indian households and women in science

Indian women scientists are no different from their counterparts in most of the developed and developing world. In fact many problems faced by women scientists are shared by other Indian working women as well. In patriarchal societies, women are expected to perform a supportive, subordinate role to the man in the family with the prime responsibility of a nurturer and care-taker, and not as a wage-earner. A daughter may not be welcome in every family as the skewed 0-6 year sex-ratio of 906 in 2001 in urban India indicates [1]. However, girl children from the urban middle classes are often encouraged to get educated and obtain a bachelor's or a master's degree. There were 39.4% women amongst the students enrolled in the science stream in Indian universities in 2001 [2]. But higher education in science does not change societal perspectives. A science-educated mother may be an asset for looking after the children's studies, but she does not always have the freedom to take up a job to use the same skills! Even in families where a working woman's income provides the necessary support for a better lifestyle, her job is perceived as one which provides a useful secondary income. Nonetheless, the number of families which belong to urban, middle class India is steadily going up and it is mostly these families which provide the [wo]man-power for science and technology field.

If the problems of all educated middle class working women are arising out of a common societal mindset, do women scientists need special attention at all? I believe

yes, they do, because of the requirements of the profession. Researchers in science and technology spend many hours reading and updating their knowledge on a regular basis in order to conceive, pursue and improvise on the research problems they address. Much more mental space and time is required for this to achieve respectable productivity. If women practitioners of science are constrained to a 9 to 5 job with limited or no opportunities for professional interactions because of a significant load of looking after the house, family and children, the probability is that they will not be as productive and successful as their men colleagues. If women scientists and technologists, despite getting jobs, are not performing to their or their employers' satisfaction who are the losers? Not simply the two concerned parties but society is also a loser because these women constitute an expensively trained work-force. They have mostly been trained either in government-funded or government-aided educational institutions. Completing a masters degree, even more so a doctoral degree in science and technology involves a lot of expenditure on the concerned person by the government in direct or indirect form. If this trained woman-power is either poorly productive or simply lost from any professional activity it is a major loss to national wealth. This loss should at least be curtailed if not prevented altogether.

What is needed?

As mentioned earlier the proportions of girls and boys enrolling for a science degree are not very different in urban middle class India. This is in stark contrast to socially underprivileged sections of Indian society where school entry level onwards there is a major deficit in female numbers which worsens at higher levels. A major loss of woman-power then takes place during doctoral and post-doctoral periods. Sketchy statistics available from a few prestigious institutions offering a PhD in biology in India show that nearly 50% of the student enrolment is of women. On an average the proportion of women faculty in these institutions is 25% [3] and the trend is similar in other areas of natural sciences. Thus despite showing perseverance in completing the highest degree in science, few women manage to find a suitable professional employment opportunity. The pipeline becomes extremely leaky at this stage in a woman's life because of child-bearing and child-rearing responsibilities. Thus the major problem that the Indian science establishment faces is not of training women so much but recruiting and retaining them in jobs. Thus, providing multiple enabling measures and putting in place systems which will keep track of their implementation appears to be a major concrete option.

If couples are looking for jobs, a policy should be in place to encourage their employment in the same institution, or the same city. Potential employers of one spouse should take proactive steps in helping the other spouse find a job, thereby facilitating the woman's entry into the workforce. Provision of campus housing similarly improves the quality of life, and a preference should be given to women scientists for campus accommodation. Provision of good, clean crèches and day-care homes for elderly, preferably in close proximity of the workplace or home, is also a promising proactive step. Providing child-care allowance until the child reaches a certain age is another option. Extra efforts are needed to facilitate a congenial work environment by having frequent gender-sensitisation programmes for men and women. Sexual harassment is a significant but unrecognised problem which needs sensitive and prompt action. Providing security and a women-friendly workplace

atmosphere should thus be a responsibility of the head of an institution and specific recommendations have to be in place for achieving it.

Some women simply quit science after a post-doctoral training because after a break in career they simply do not manage to get employment anywhere. This loss of trained woman-power needs to be minimised. Efforts of a variety of kind will help.

Opportunities for refresher courses should be made available in different parts of the country, catering to local job needs. Training in new areas where primary science training will be an additional advantage, such as in law and patenting or science journalism, should be made available. Jobs which can be competently handled by part-time input from two employees should be specifically identified and offered to women as a measure of affirmative action. Some jobs are amenable to flexibility of working hours and/or working from home. Women should be given preference for such jobs. Paternity leave for fathers after childbirth has found very few takers in India, so increasing duration and flexibility of leave under a broad heading of 'child-care' leave which can be availed over a period of few years with every child born might help in retaining women.

What should be remembered is that working women need many options of this kind to choose from. Making a wide range of choices available is the responsibility of planners and plan-implementers.

Who will benefit?

In India the government spends a lot of money on training of scientific work-force, thus when the work-force simply stops working, it is a loss to the government and the society. Hence it would be beneficial to announce and implement measures which will enable women's retention in science or enable their re-entry so that government-funded and -aided establishments benefit. Over the past decade private science and technology establishments have grown in numbers with job opportunities in information technology, pharmaceutical companies, clinical research organisations and biotech companies; these are likely to expand further, recent global financial crisis notwithstanding. Retaining competent women in the job by providing enabling measures will benefit the private sector as well.

It is likely that announcing measures for promoting women's entry, retention and re-entry may not suffice. It is also necessary to put in place a monitoring authority which will collect data on implementation of promotional measures, analyse the impact every five years and suggest course corrections if necessary. Stopping the leaky pipeline and increasing numbers and proportions of trained women in science is likely to benefit society as a whole. It will not only benefit the economy but aid social progress as well, since a society where more women have financial independence is likely to move a bit further towards gender equality.

References

1. Unicef. <http://www.unicef.org/india/CHILD-SEX-RATIOin.pdf>
2. University Grants Commission, Information and statistics bureau, New Delhi. (1995-1996 to 2000-2001) University development in India- basic facts and figures on institutions of higher education, students enrolment, teaching staff.

3. Bal V. (2004) Women scientists in India: nowhere near the glass ceiling. *Economic and Political Weekly* 39, 3647. (Reprinted in *Current Science* [2005] 88, 872).

Address for correspondence:

Vineeta Bal, National Institute of Immunology, Aruna Asaf Ali Road, New Delhi 110067. 011 2670 3695. vineeta@nii.res.in