

The Minister's remarks

The Minister Jairam Ramesh's remarks¹ about faculty in IIT not being world class – reflect a regrettable lack of awareness of the 'facts of life' in research. Coming as it does from a high ranking member of the government of India, it does not augur well for the research community in India.

It takes time and effort to train researchers. If high standards are to be maintained, the process of training researchers needs to be highly controlled, with autonomy being a critical ingredient. Not all the money in the world can increase the number of world class researchers overnight.

On the other hand, the demand for under graduate education far outstripping

supply, in a country such as ours, means that not every teacher employed can be expected to be a world class researcher. Ironically, the divergent requirements of teaching and research means that very often it is the students who benefit when the teacher is not a world class researcher! Another consequence of this demand is the diversion of resources away from research and into teaching. The demand for education in the period after independence and the consequent expansion of the university system, destroyed the research environment in the universities. Whether the clamour for admissions to our top higher educational institutions like the IIT's will destroy research there remains to be seen.

Science and technology are increasingly seen as critical, not just for national development, but even more so for fulfilling our 'super power' ambitions. It would be unfortunate if those perceived as not of 'world class' are made the whipping boys when these ambitions remain unfulfilled.

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1. Balaram, P., *Curr. Sci.*, 2011, **100**(11), 1601–1602.
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Dilemma of women scientists

The report by Bora¹ regarding the low level of participation of Indian women in science is a matter of great concern. In my opinion, their participation is low job-wise and not in procuring degrees.

School and college results from all over India show participation of a large number of girls in the examinations followed by good performances. However, most of these girls are unable to take up jobs.

In India, for married women who have to move out of their home town (where they would have studied) is one of the problems they face when they apply for

jobs in the 'sons of the soil' policy in the government sector. The agony is double for the daughters of defence personnel. This situation is not inspiring!

In this context, in addition to the suggestions put forth by Reddy² and Shah³, I would like to add that organization such as the Indian Council of Agricultural Research should reserve at least 25% of jobs at the State Agricultural Universities for meritorious candidates from other states (men and women). This would also improve the quality of education and should be implemented in government colleges and universities as well⁴.

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1. Sinha, U. B. and Sinha, D., *Curr. Sci.*, 2011, **100**(6), 837–840.
 2. Reddy, V. R., *Curr. Sci.*, 2010, **99**(9), 1162.
 3. Shah, I. A., *Curr. Sci.*, 2010, **99**(5), 556.
 4. Singh, A. K. and Singhvi, A., *Curr. Sci.*, 2010, **99**(4), 432–433.
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Women scientists in India are marching ahead

Sinha and Sinha¹ have analysed the data of women's participation in scientific research. They have considered women's participation in the areas of basic science researches including physics, chemistry and mathematics.

We wanted to see whether participation of women scientists in biomedical research in the Indian Council of Medical Research (ICMR), is equally dismal.

Our present analysis is based on participation of women scientists in various institutes of ICMR where more than 600 scientists are employed across the country. All the women scientists considered in our study hold a Ph D, either in biology, biochemistry or microbiology. About 5% of women scientists hold an MD in different branches of medicine.

ICMR is a premier research organization in the country working under the Department of Health Research. Under the umbrella of ICMR there are 21 permanent centres and 7 Regional Medical Research Centres (RMRCs) spread across the country. Figure 1 shows the percentage of women scientists employed in various ICMR institutes. Overall 26% of the total scientific manpower in

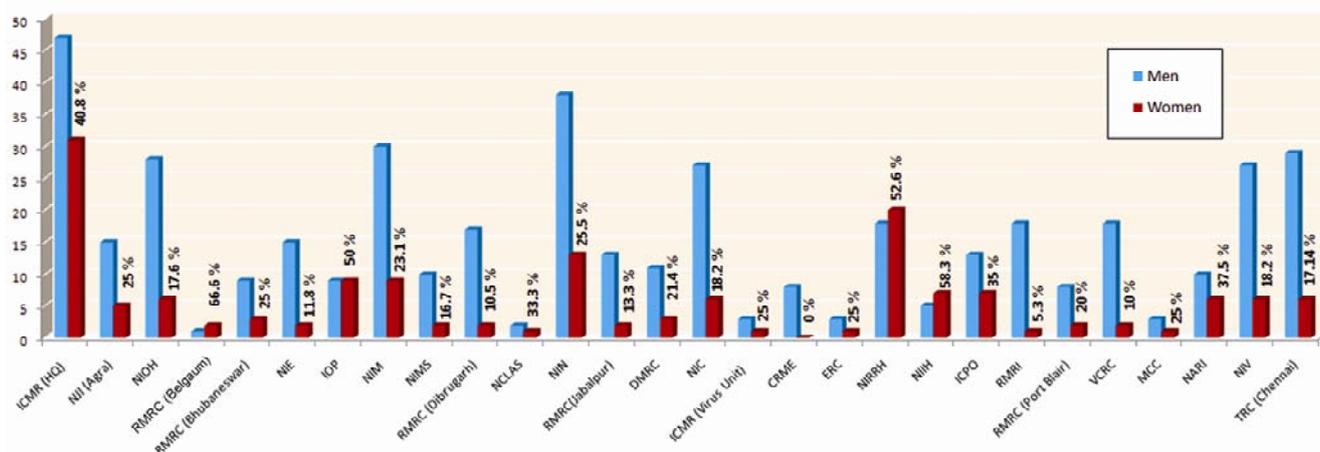


Figure 1. Women scientists employed at various ICMR institutes in India (shown as percentage). ICMR (HQ), Indian Council of Medical Research, Headquarters, New Delhi; NII, National JALMA Institute, Agra; NIOH, National Institute of Occupational Health, Ahmedabad; RMRC, Regional Medical Research Centre, Belgaum; RMRC, Bhubaneswar; NIE, National Institute of Epidemiology, Chennai; IOP, Institute of Pathology, New Delhi; NIM, National Institute of Malaria, New Delhi; NIMS, National Institute of Medical Statistics, New Delhi; RMRC, Dibrugarh; NCLAS, National Centre for Laboratory & Animal Science, Hyderabad; NIN, National Institute of Nutrition, Hyderabad; RMRC, Jabalpur; DMRC, Desert Medical Research Centre, Jodhpur; NICED, National Institute of Cholera and Enteric Diseases, Kolkata; ICMR (Virus Unit), Indian Council of Medical Research, Kolkata; CRME, Centre for Research in Medical Entomology, Madurai; EVRC, Entero Virus Research Centre, Mumbai; NIRRH, National Institute of Research in Reproductive Health, Mumbai; NIIH, National Institute of Immuno Haematology, Mumbai; ICPO, Institute of Cytology and Preventive Oncology, Noida; RMRI, Rajendra Memorial Research Institute, Patna; RMRC, Port Blair; VCRC, Vector Control Research Centre, Puducherry; MCC, Microbial Containment Complex, Pune; NARI, National AIDS Research Institute, Pune; NIV, National Institute of Virology, Pune; TRC, Tuberculosis Research Centre, Chennai.

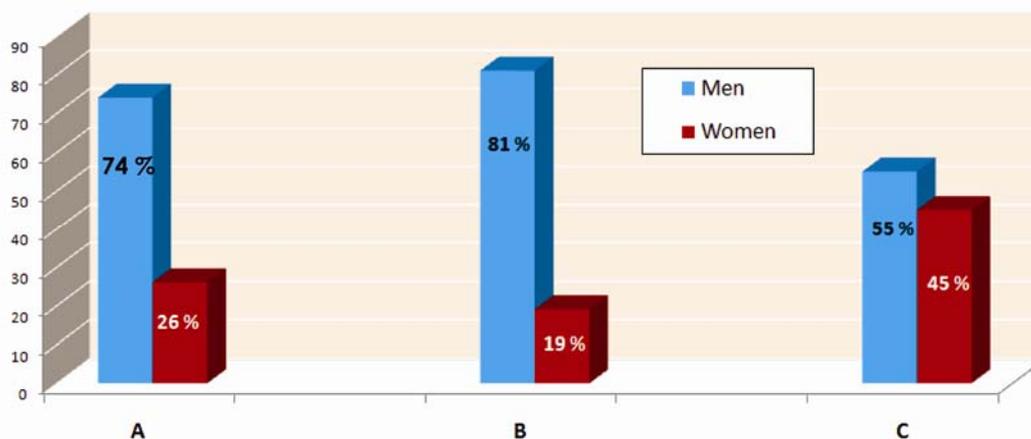


Figure 2. Comparison of male and female scientists working in different ICMR institutes. A, ICMR: NII, NIOH, NIE, NIM, NIMS, NCLAS, NIN, NICED, ICMR (Virus Unit), CRME, EVRC, ICPO, VCRC, MCC, NARI, NIV, TRC. B, RMRCs at Belgaum, Dibrugarh, Jabalpur, Port Blair and Bhubaneswar; Rajendra Memorial Research Institute, Patna, and Desert Medical Research Centre, Jodhpur. C, ICMR (HQ), New Delhi, IOP, NIRRH and NIIH.

ICMR are women, but there is considerable heterogeneity across various institutes (Figures 1 and 2). Figure 2 shows seven RMRCs situated in remote areas of the country, employing only 19% of the women scientists.

It may be observed that the percentage of women scientists working at the ICMR headquarters in New Delhi; the National Institute for Research in Reproductive

Health (NIRRH), Mumbai; the National Institute of Immunohaematology (NIIH), Mumbai, and the Institute of Pathology (IOP), New Delhi, are significantly higher than all other ICMR centres combined (Figure 2, $X^2 = 34.456$; $P < 0.0001$).

Women scientists in these four ICMR institutes (C in Figure 2) represent 45% of the scientists employed there compared to 26% of the scientists in the

remaining institutes (A) and 19% of the scientists in RMRCs (B).

Generally, RMRCs of ICMR are located in relatively remote areas focusing their research on regional health problems. Working in RMRCs could involve considerable field work. Similarly, some of the other ICMR institutions work on highly infectious diseases such as cholera, hepatitis and tuberculosis. To work

satisfactorily in those institutes, the scientists have to handle several disease-causing organisms, which may not appeal to women scientists, explaining their lower participation in these institutes. Women scientists from bigger cities are likely to be reluctant to accept jobs in the regional centres away from important metropolitan cities and in centres where dangerous pathogens are handled or extensive field work is required. This

explains their relatively sparse representation in those institutes. It may be concluded that women scientists in ICMR do not face the problem of a 'glass ceiling'. It is expected that in course of time they will equal the number of male counterparts or outnumber them in these august institutions.

1. Sinha, U. B. and Sinha, D., *Curr. Sci.*, 2011, **100**(6), 837–840.

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Planting cycas

Landscaping and garden designing nowadays is professionally managed by companies. Residential and commercial landscapings (hotels and hospitals, institutions, parks and private residences) bring aesthetically pleasing extension of indoor living to the outdoors. However, some traditionally grown plants are replaced with some evergreen plants. Traditional wisdom of growing which plant to grow near the prayer hall, hospital or residential area is not given importance. Cycas is traditionally not cultivated as a household plant, now we see it in all the gardens. It is even commercially grown in nurseries and marketed at Rs 500–1000 per plant. Cycas is a gymnosperm – naked



Cycas plant.

seeded plant. Its history can be traced back to Mesozoic era. It is called as a 'living fossil' as it looks like its fossil ancestor. It has practically not shown any modification during this long geological period. It is sluggish in its growth and is dioecious. Male and female plants are separate. Cycas is represented in species like *Cycas circinalis*, *Cycas revoluta*, *Cycas beddomei*, *Cycas rumphalii* and *Cycas pectinata*. Of these, *C. circinalis* and *C. revoluta* are cultivated as ornamental garden plants. The plant is, no doubt, good to look at with its evergreen leaves. When it starts producing cones, male cones are fairly big and compact. It has a number of microsporophylls which bear microsporangia on its abaxial (lower) surface in groups. Each microsporangium has thousands of spores which are boat shaped. Each cone produces pollen grains, microspores in billions. The plant is mainly wind pollinated. It emits most disagreeable smell. The spores affect the lungs, and is bad for asthma patients. Hence, it is not advisable to grow it in private gardens, hospitals, libraries or laboratory buildings. However, it can be grown in public gardens where people sit for a while and go. It produces seeds rich in starch and is

used as food. But its continuous use may lead to digestive disorders. It is difficult to know the sex of the plant before cone formation. However, Shetty and Subramanyan¹ showed that the cytological studies are helpful in determining the sex. We suggest that the Cycas should not be grown near the hospitals, laboratories, libraries, ashramas in private or personal gardens. But it can be grown safely in public gardens. In Indonesia it is grown in graveyards.

1. Shetty, B. V. and Subramanyan, K., *Proc. Indian Sci. Congr. Assoc.*, 1962, pt 3, p. 259.

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Reintroducing the cheetah in India's grassland – glamour or conservation?

Among the wild cats, cheetah is unique and is the only extant member of the genus *Acinonyx* notable with its non-retractable claws and pads. This fast-running cat derived its name from Sanskrit, *citrakayah*, meaning, the spotted. Like the lion, the cheetah came to India from south-western

Asia by the way of north-western passes, and established in the plains of northern and central parts stretching south up to the Deccan and Mysore¹. Recent genetic study indicates that the last common ancestor of all existing cheetah populations lived in Asia about 11 million years ago².

The fascinating cheetah or hunting leopard was indeed hunted to extinction in the wild in 1952. According to Prater¹, the last authentic record of the cheetah hunting in India was of three males shot together at Bastar District in Madhya Pradesh in 1948.