

## Enhancing quality of research

India's share of science publications over a recent five-year period was nearly 2.0% and the relative impact compared to global research was low (−37 to −71). On the other hand, the relative impact of publications from USA in science was in the range of +50 or above. A recent ranking of world universities and institutes is given at <http://ed.sjtu.edu.cn/ranking.htm>. There is no mention of Indian universities in the top 500. It is obvious from the above comparison that things are far from satisfactory. One of the foremost reasons for the present lack of 'quality research' in science (with few exceptions) is the absence of objective criteria for entry into science as a career. As a result, individuals even with a below-average academic record all through, are faculty members in many universities and research institutions. Some organizations do have certain criteria in place, but in the vast majority of the institutions criteria other than merit prevail. This has resulted in a vast pool of mediocrity. A mediocre mentor cannot

impart education or guide research 'by example'. This has led to mushrooming of local journals, which are not listed in the ISI database or have a poor impact factor (<http://www.sciencegateway.org/impact/if03a.htm>).

There should be 'objective criteria' for entry into science as a career and subsequently for accreditation as research guides. The best objective criterion at the entry level for any candidate could be 'cumulative impact factor' of the publications as first author. Such a parameter at the entry level (say, at the level of assistant professor) could be 3–4. I believe that with such criteria in place, only individuals with a strong inclination for doing science would adopt science as a career and would look around for the best laboratories for doing a doctorate or postdoc before joining faculty. After entry, the next crucial factor could be a 'step-up' parameter, which has become essentially 'automatic' in many organizations irrespective of any worthwhile research to the individual's credit.

Sometimes one gets the impression that individuals busy with activities other than doing or guiding research but with better visibility due to 'PR', reap a better harvest so far as step-ups are concerned. A superior intellectual attainment in research as evidenced by strong publications should be an indispensable qualification for promotion. The per capita spending on R&D in India is low (USA, 720 USD; India, 3.15 USD). There are departments with many fancy/modern names, but without infrastructure or faculty. An earnest discussion and implementation of the above aspects might go a long way in enhancing the quality of research and make it globally competitive.

OM P. SHARMA

Biochemistry Laboratory,  
Indian Veterinary Research Institute,  
Regional Station,  
Palampur 176 061, India  
e-mail: [omsharma@sancharnet.in](mailto:omsharma@sancharnet.in)

## Indian science: Diagnosing malady and suggesting remedy

It is encouraging to learn that serious attempts have been made to diagnose the malady afflicting Indian science by some authors in *Current Science*<sup>1–4</sup>. What we need now are remedies to check the decline of science in India.

Political and bureaucratic control of science research has proved harmful for growth of scientific enterprise. However, I agree with Subba Rao<sup>2</sup> that it is lack of science culture at society level and scientific temper at the individual's level that hampers the growth of science in India. Indian society is deep-rooted in rituals and myths and our media plays its role in propagating these unscientific myths of Indian culture. During the current year of

scientific awareness, there is hardly any attempt being made to promote science culture in India. We need *gyan–vigyan jathas* at the village level to create scientific temperament in society.

Vision 2020 of our President will become a reality only if some concrete steps are initiated to remedy the situation. Retired scientists may be re-employed on a large scale in the mission mode projects. Like IAS, Indian Science Service (ISS) may be created to attract brilliant students. Some of our gold medallists in science prefer a career in IAS to choosing scientific research as a career. Differential pay scales must be introduced for good scientists as is being done in USA. Job opportunities

will determine the quality of science in India. And, last but not the least, we have to create proper infrastructure at the grass root level for teaching of science in India.

1. Kothari, L. S., *Curr. Sci.*, 2004, **87**, 1029.
2. Subba Rao, K., *Curr. Sci.*, 2004, **87**, 1029.
3. Sahni, A., *Curr. Sci.*, 2004, **87**, 851.
4. Prathap, G., *Curr. Sci.*, 2004, **87**, 732–734.

H. S. VIRK

#360, Sector 71,  
SAS Nagar 160 071, India  
e-mail: [virkhs@yahoo.com](mailto:virkhs@yahoo.com)