The Indian science scene: Is geoscience not science?

I think that among the several good aspects regarding *Current Science*, the best one is its practice of not muting/rejecting correspondence that is provocative or argumentative, or strongly dissenting to the prevailing view or even the Editor's view. This is a feature hard to find in most scientific journals, whether highly reputed or little known, and let us hope that this practice continues.

The present letter is one of criticism from a young researcher in geology–geochemistry who has been working abroad for some time due to unavailability of employment back home. The intent is to comment on the malnourished state of geoscience in India and the related employment situation. By Indian geoscience I imply classical geology plus the inseparable aspects of geochemistry, geophysics and geodynamics.

India is a country gifted with magnificent geology. The vast, complex, ancient Precambrian Indian shield, the huge Deccan volcanic province and the grand Himalaya, are globally important treasures of Indian geology that any Indian-born geologist can be proud of. And this is why a large number of researchers in the West are engaged in research on aspects of Indian geology, and routinely publish a lot in the field. Some are even recognized as authorities on the particular subject. On the contrary, there are many academic/research institutions in India which have varied science faculties; however, most of these have geoscience faculties missing uniformly. One cannot blame this on scarcity of research funds. Institutions which employ researchers in geoscience are woefully few and employment opportunities for geoscience researchers are extremely limited in India. Big organizations like the Geological Survey of India (GSI) do employ geologists, but most research done at GSI (for example) seems to be published in its own journal *Indian Minerals*, and publication is apparently rarely sought in international peer-reviewed journals.

Geoscience research is certainly done at some Indian universities whose resident researchers seek to publish internationally, but many university departments are anyway without any research funding. The responsibility for researching, publicizing, and glorifying Indian geoscience therefore lies mostly with the most prestigious and very well-funded science institutions. Ironically, most of these prominent, prestigious institutions do not even have geoscience faculties, while they do have faculties in several branches and disciplines of physics, mathematics, chemistry and biology. Two examples that immediately come to mind are the Tata Institute of Fundamental Research (TIFR, Mumbai) and the Indian Institute of Science (IISc, Bangalore). If basic sciences are supposed to be pursued at India's science institutions, why is geoscience consistently not included? Or is geoscience not science?

Of the six Indian Institutes of Technology, only two (IIT Mumbai and IIT Kharagpur) have geoscience departments. From among the tens of science colleges affiliated to the University of Mumbai, geoscience departments exist in a pathetic two (K.J. Somaiya and St. Xavier's colleges). Physics, chemistry, botany, zoology and mathematics departments exist in all of these science colleges; why then no geoscience?

Some minor geology (e.g. basic definitions of igneous, sedimentary and metamorphic rocks) is a part of geography curricula in our schools. My proposal is that geoscience be treated at par with other sciences in college education, and that geology faculties be created in all the general science institutions in India. Modern-day geoscience, with its strong components of geochemistry and geophysics, is obviously as important and useful to humanity as are the other science disciplines.

If more geology departments are opened in India's research institutions and universities, this would greatly benefit many young researchers working abroad who are interested in returning to India. One may argue here that India has a long way to go towards providing jobs to those at home before it can worry about those working abroad. The fact is, many of those working abroad (I for one) are doing so precisely because of the lack of opportunities back home. Many of us also have very considerable research experience and have published extensively in both Indian and international peer-reviewed journals.

After a postdoctoral research experience of several years, a research associateship for a year, fetching a consolidated salary of Rs 8000 per month (subject to tax), with its inevitable intellectual exploitation is not attractive enough. The problem is, even these are hard to come by.

Imagine faculty positions being announced for new geology departments opening in all of the prominent Indian science institutions, or say in fifty science colleges in Mumbai alone. At the moment this is only a dream, but I hope that some day it comes true. The young geoscientists working abroad are no less patriotic than any of our respected science custodians who have been picturing them as unpatriotic culprits of the phenomenon called brain drain. Pandey[1], Sheth[2], Virk[3] and several others have commented earlier on the sad state of young Indian researchers with achievements (particularly so for geoscience), but the situation seems to have changed little since. I hope, perhaps in vain, that geoscience, already endangered in India, will not go extinct. Young Indian geoscience researchers are calling for opportunities to be created. Until then, the custodians and policy-makers of Indian science should stop shedding crocodile tears on the brain drain that is of their own making.

1. Pandey, V., *Curr. Sci.*, 1999, **77**, 1007–1008.
2. Sheth, H. C., *ibid*, 1999, **77**, 1385–1386.
3. Virk, H. S., *ibid*, 2000, **78**, 536.

HETU C. SHETH

Department of Geology and Geophysics,
School of Ocean and Earth Science and Technology (SOEST),
University of Hawaii at Manoa,
1680 East-West Road,
Honolulu, HI 96822, USA
e-mail: sheth@soest.hawaii.edu