

# CURRENT SCIENCE

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EDITORIAL

## Luring the Overseas Indian Scientist

Not a day passes without policy makers calling for a dramatic expansion of our university system, to meet the aspirations of a rapidly growing population of young Indians. The need for expansion is widely recognized and accepted. The first steps have already been taken. New IITs, IIMs, IISERs, Central Universities and several private institutions are springing up at locations dotted across the country. Older institutions are in the throes of expansion and many new schemes are on the anvil to inject funds and purpose into a university system that is plagued with a multitude of problems. A recurrent theme for discussion is the shortage of faculty to staff the new institutions and to sustain and expand existing ones. Where did faculty come from when India embarked on the first phase of expansion of scientific and technical institutions in the 1950s and 1960s? A very large number of new recruits in those days were educated in the West, although ironically some of the very best were homegrown. That generation has largely passed from the scene; academicians to whom must be given much of the credit for building the most visible of our current institutions. Unfortunately, not every institution that sparkled with promise in the first two decades after independence has been able to sustain the enthusiasm and optimism of that era. How will we address the problem of faculty shortages today? The consensus, one that leaves me mildly uneasy, is that we must make vigorous attempts to entice Indian students and academics who are currently overseas, primarily in the United States, to return and build teaching and research careers in India. I was, therefore, struck to receive a report, coauthored by a group drawn from the Tata Institute of Social Sciences, Mumbai, Penn State University and Rutgers, entitled: 'Will They Return?' This study was intended to address 'the willingness of potential faculty to return to India and the key factors affecting their decisions' (Venkatesh Kumar, B., Finegold, D. L. and Winkler, A.-L., <http://smlr.rutgers.edu/research-and-centers/smlr-research>).

The authors draw upon a FICCI report (*Making the Indian Higher Education System Future Ready 2010*) to set the stage for their analysis. They use the FICCI data to project a need for an additional 800 universities and 41,000 colleges by 2020. The existing figures cited are 504 universities and 26,000 colleges. They note that 'perhaps the

biggest constraint on being able to meet these ambitious growth targets, while improving rather than diminishing quality, is the availability of a sufficient supply of well qualified faculty members with advanced degrees'. Universities must necessarily recruit faculty with Ph Ds and even undergraduate colleges would benefit by increasing the number of faculty with Ph D degrees, with an interest in research. Venkatesh Kumar *et al.* provide estimates of a staggering faculty shortage and argue that Indian Ph D production rates are unlikely to meet the demands of the Indian academic sector. Curiously enough, even Ph Ds from the best of our institutions will find it difficult to obtain academic positions, given the range of institutional constraints in recruitments. These constraints are not addressed in the analysis and the authors go on to suggest that 'it is vital that [India] be able to attract back some of the thousands of Indian students who left the country over the last several decades to obtain graduate degrees abroad'. The questionnaire based survey is the staple of studies in social sciences. The Rutgers study uses responses from 998 'current or recent Indian students'. The authors note that 'two-thirds of those surveyed are current graduate students – 40% Masters and 26% Ph D – with another 8% completing a post-doc. As expected, 'nearly three-quarters of the sample is male (73%)' and interestingly 'the vast majority (85%) are under the age of 30—52% are 20–25, 33% are 26–30, with another 10% 31–35'. The demographic and educational profile of the respondents may turn out to be one of the key factors diminishing the relevance of an important study. Academic faculty and researchers in national laboratories are generally drawn from the large pool of Indians engaged in post-doctoral research in the United States, most of whom would have crossed the age of 30. This group is extremely underrepresented in the sample studied. The large number of Master's students surveyed are unlikely to be potential candidates for faculty positions in India in the immediate future. In engineering only 24% of those surveyed were pursuing Ph Ds or in post-doctoral positions; in the natural sciences this number was 79%. In the survey sample engineering students (478) vastly outnumbered the science students (98). Interestingly, the vast majority cite 'high-quality teaching' and 'cutting edge research' as the reasons for choosing

the US as a destination for graduate education. Only a very small number cite the 'desire to find a job and emigrate to the US' as a motivating factor. Most respondents (74%) indicate a desire 'to return to India eventually', a finding that the authors describe 'as encouraging news for Indian policy makers'. I suspect that if a similar survey had been carried out a decade ago, or even earlier, a very similar pattern of responses would have been received. Unfortunately, the nature of the sample surveyed seems to defeat the very purpose of the study which was intended to gauge 'the willingness of potential faculty to return to India'. Only 36% of those pursuing science degrees and 16% of the engineering students indicated a definite desire to return, with significant numbers being undecided. The survey summarizes the main factors influencing the decision to remain in the US. The three most cited reasons are 'corruption', 'amount of red tape' and 'academic work environment'. Why do Indians wish to return from the United States? Most respondents cite 'family reasons', 'giving back to the motherland' and 'comfort with society/culture'. Many respondents appear to express a desire to contribute to the Indian higher education system. The authors provide a wide range of suggestions to attract expatriates to return. An interesting suggestion that caught my attention was the creation of a 'Teach for India' – higher education fellowship, with the opportunity to do research. In suggesting ways to attract 'older Indian academics' to return to their country, the authors perceive a 'knock-on benefit of freeing up more openings for new graduates in the US'. The absence of adequate research opportunities and poor governance seemed to concern most respondents.

China has been particularly aggressive in persuading Chinese–American scientists to return. There has been an organized hunt for high profile researchers, who have been enticed to return, being offered benefits and inducements that might even attract the attention of the best of Western scientists. A recent report draws attention to the growing problem that 'high-priced recruiting of talent abroad raises hackles' (Hao Xin, *Science*, 2011, **331**, 834). The price tag for winners of 'prestigious international prizes – including the Nobel prize' is stated to be '150 million yuan (\$23 million), with China setting a target of 10 such recruitments. The most decorated scientists in China may then command benefits that should bracket them with European football stars and Indian cricketing icons. An earlier program (Qianren Jihua) for 'recruitment . . . of global experts' launched in 2008 had a goal of hiring 'up to 2000 experts from abroad over 5 to 10 years'. The program has already notched up 1143 recruitments but the scheme seems to be 'foundering'. The *Science* report highlights the growing criticism of the attempts to lure overseas researchers who are already well established, while underplaying the need to support researchers working in China. The critics are trenchant.

In describing Chinese initiatives as 'a massive waste of resources' one observer notes 'that it is better to invest in a whole new generation of talent than to buy reputation'. Mu-Ming Poo, a prominent neuroscientist in Shanghai, is reported to have characterized the Qianren Jihua program as 'a huge disaster', arguing that China's current policy tells 'the best and brightest to spend most of their productive years abroad'. Inevitably, the new schemes to attract overseas talent have created divisions within the research community, with the incentives sometimes attracting many with undesirable qualities. The Chinese experience may be worth studying and there may be much to learn, even as Indian agencies formulate new schemes to persuade overseas Indian scientists to return.

In recent years several new schemes have been introduced to attract and support young researchers, who choose to explore career opportunities in academic institutions. The Ramanujan fellowship of the Department of Science and Technology (DST) and the Ramalingaswami and DBT–Wellcome fellowships of the Department of Biotechnology provide both salary support and moderate research grants, primarily for starting researchers. Schemes for attracting 'senior scientists' are also on the anvil. A recently advertised program called the Margdarshi Fellowship announced by the DBT appears to be directed at established overseas Indians. Curious about the origins of the name, I made discreet enquiries and was informed by a knowledgeable colleague that 'margdarshi', a Hindi word, could be loosely translated as 'one who shows the path'. Undoubtedly, we are now set on a path by which our way forward will be illuminated by a new cadre of returnees. This scheme is also part of DBT's alliance with the Wellcome trust, all of whose initiatives are inevitably focused on those who return from the UK or the USA. Will the induction of senior scientists from overseas, with large research grants and fellowships, have an impact on our existing institutions, many of which are relatively old with large numbers of faculty already in position? If the Chinese experience is any guide, I suspect that there will be both resentment and criticism. We need to have schemes to retain, absorb and encourage the increasing number of Ph Ds being produced in our own institutions. A growing number of women with Ph D degrees are sometimes unable to spend extended postdoctoral periods overseas. Should there not be a mechanism which allows us to tap this resource and support their research efforts? Strangely, while schemes for attracting overseas talent are enthusiastically administered in the funding agencies, initiatives that promote local talent are invariably run with limited interest and efficiency. Looking outward may be attractive and fashionable. Looking inward may be desirable and essential.

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