

## Bridging the gap: Converting our best national laboratories into 'IISER'

Hasnain<sup>1</sup> had discussed the glaring anomaly in science education and research as practised in India. While I agree with most of what is said, I feel that problems are far too many to be solved by mere enhanced funds that everyone is talking about. No doubt, more money is absolutely essential, but there are many other issues that plague our universities today and are needed to be seriously addressed. Gone are the days of Raman, Saha and Bose, who could sacrifice many comforts for the sake of science. Those were the days when highly motivated individuals carried out research even under adverse conditions, not giving excuses of excess workload (read 'teaching load' for university professors) or poor infrastructure facilities. Today, we are doing only '10 to 5' jobs, treating science like any other profession. The passion is also missing. Lack of motivation, or even compulsion, for doing research coupled with meagre funding and poor infrastructure facilities brought research activities to a grinding halt in most of our universities, barring just one or two. As I said, problems are manifold and yet, with sincere efforts, solutions are not difficult to find.

While everyone seems to be worried about the problem, few have shown the courage to take any immediate step to address this issue head on. The fear of adverse outcome always makes us afraid to take any decision, temporary or permanent, even in an alarming situation. All of our energies are spent in discussing about the problem, with no concrete practical suggestion coming forth. I wrote a letter, not so long ago, in this forum<sup>2</sup>, giving some suggestions about how 'to woo students to science', which are pertinent even today, especially to address the present issue. Here I take the liberty to loudly think of some of those ideas, penned down in the form of five concrete steps, which our science policy makers may kindly ponder over.

(i) Whatever decisions are suggested by the science policy makers, for example,

SAC-PM, and implemented by the Government to alleviate the problem should be binding to all universities, institutes, State and Central boards, etc. of our country. It is high time that some uniformity is forcibly introduced in the education system throughout India. The chaotic state created by every university and board following its own agenda – syllabi, admission procedures, exams and evaluation patterns, etc. – deprives us of a uniform national standard. All State boards, Central boards, universities and institutes should have uniform syllabi, exams, evaluation and grading methods, the last two of which can probably be tackled by objective-type questions and answers.

(ii) Recruitments in all Government, State or Central, funded universities and institutes should be transparent, preferably through some common service commission, and steps should be taken to stop 'in-breeding'. Here, enhanced pay packages will, hopefully, be able to help and ensure quality in recruitments.

(iii) The existing degree courses in all branches of science and engineering, should be replaced everywhere with four-year programmes and all degrees like B Tech, B E, B Sc, etc. should be replaced with a uniform Bachelor of Science (BS) degree in all universities and engineering colleges, including the IITs. The role of the undergraduate colleges, which now teach mainly B Sc (except autonomous ones) and universities teaching M Sc can be redefined.

(iv) Students should be allowed to write NET, GATE or equivalent exams after completing their BS degree and join the Ph D programme.

(v) Finally, and most importantly, to bridge 'the gap between universities and national laboratories/scientific research institutions', some of the best national laboratories and science institutions should be made to undertake undergraduate teaching, gradually taking them to the status of newly created 'IISER' or equivalent. While setting up new institutes like IISER or

new IITs is a welcome move, introducing undergraduate teaching in some of our best national laboratories, belonging to CSIR, DBT, ICMR, etc. which already have excellent infrastructure and research facilities in place, could have provided more practical and immediate solution to the problem. All that were required was to recruit additional faculty members, who along with the existing scientists could have handled the teaching. Once again, I ascertain that enhanced pay packages will have to be introduced to attract quality brains into this profession.

As everything else is in place, imagine how smooth the transition could be! The excellent infrastructure facilities, large scientific pool and robust Ph D programmes already present in many national laboratories and research institutes, can play a crucial role to meet the growing demands in our country today for world-class science education and research. The culture of undergraduate science education will bring out sea changes in these laboratories, making the atmosphere conducive to further improve our research activities and encourage students to take up science as a profession. Let us reiterate that good research only can lead to the development of top-order technologies. Some shock treatments, even if the ideas sound absurd at a first look, are necessary today to arrest and lower the increasing 'gap between universities and national laboratories/scientific research institutions' in the country.

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1. Hasnain, S. E., *Curr. Sci.*, 2006, **91**, 1435–1436.
  2. Chakraborty, T. K., *Curr. Sci.*, 2002, **82**, 1069.
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