

## Proposal for a National Science School

Many responses to the proposal for a National Science University (NSU) and the report on 'University Education in Science' clearly show that this kind of a discussion was long overdue.

The objective of setting up the first three universities of the country – Bombay, Calcutta and Madras – in the middle of the nineteenth century was to train personnel to work for the administration, under British superiors. The Indian officers were expected only to obey orders. Because of this there was no emphasis on independent thinking or innovations in these universities. It was feared that these would lead to indiscipline. A university degree was (still is?) considered as a passport to a good job, to earn a decent living. In a job, one was expected only to respect the superiors, obey orders, perform duties and follow rules. At the time of independence there were nearly 20 universities, and now there are around 200. In spite of this phenomenal increase in the number, the university system still remains as a hangover of the colonial past. Only as recently as 1993–1994, introduction of 'vocational' components at the undergraduate level is realized as necessary. Science education in India suffers the most because of the lethargy to modify the system according to the changing times. There is an urgent need to reform science education radically at the school, college and university levels.

Increased political interferences in the functioning of the universities and the trend of appointing Vice-Chancellors on political considerations are the major reasons for their rapid deterioration. In initial appointments and in promotions, when 'ministerial approbations' can substitute for many years of hard work (in libraries and laboratories), how can meritorious and dedicated research workers enter our universities as faculty members and how can the existing faculty members sustain their interest in research. Something needs to be done (very urgently) to keep (politics and) politicians away from our universities.

The problems of research institutions

are many. Most important among them are: (i) a career in science remaining the last resort for those who opted for the science stream and failed to make it to a professional course, (ii) confusion whether science is a 'profession' or a mere job and (iii) poor career prospects.

In all work environments there are three categories of people. The first category enjoys the job, gets involved in it completely and does not need any external motivation. These people are sincere and have a natural liking for their jobs. For them, job is like a favourite hobby and a mission. The second category considers the job only as a means to earn money; their involvement in the job is very little, and their enjoyment is elsewhere. They put in the least possible efforts necessary to continue in their jobs. The third category is interested in everything else except work. They are interested in money, promotions, authority, manipulating and controlling people, publicity, etc. These are the politicians of the workplace. They do not promote any cause other than their own career, for which they may be willing to do anything and everything. Our science establishments are also filled with these three categories. And the tragedy is that people belonging to the first category are very few.

To have more people belonging to the first category in our science establishments, we must start searching for students having a natural liking for science. This needs to be done at a very early stage. First, many regional science schools (RSS) need to be established (these schools can be similar to Sainik schools). This should be followed by a National Science School (NSS – similar to the National School of Sports). Admissions to RSS and NSS can be on the basis of a national talent search examination, at the end of lower primary school (LPS) and upper primary school (UPS) stages, respectively. The syllabus and teaching in the RSS and NSS must have greater emphasis on science. Once these students complete their studies in the NSS, they can be trained in a National Science

Academy (NSA). The NSA can be similar to the National Defence Academy (NDA). After completing studies/training in the NSA, they can go to a National Science University (NSU). Starting an NSU without doing this ground work is very unlikely to bring about the desired changes.

Another ill plaguing our science establishments is the absence of any distinction between scientists and technicians. Research institutions are like any other government offices. Much in the same way as lower division clerks (LDCs) get promoted to Class I officers in the course of time, technicians also become scientists on the basis of seniority. This raises a basic question – Who is a scientist? Can anyone become a scientist? In defence services there are officers and other ranks. In medical profession there are doctors, nurses and pharmacists. In all these, the selection procedures are different, and the duties, responsibilities and pays are also different. The promotional avenues of other ranks are different from those of officers. Nurses and pharmacists do not become doctors on the basis of seniority. Why is there no such distinction in science? Excepting ICAR, where there is an ASRB (Agricultural Scientists Recruitment Board), why is there no Scientists' Recruitment Board?

Lastly, will this NSU become a 'super IIT', from where scores of young Ph D's and faculty members would migrate to greener pastures? In that case, what purpose will it serve the country? We must stop producing professionally qualified manpower for other countries. There has to be at least a rough estimate on our need for trained/skilled manpower in different areas, and only somewhere near that many people should be trained. The service conditions of scientists need to be made attractive so that best students opt for science education and a career in science.

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