

NSU: Is it a solution?

A 'Special Section' of *Current Science*, Vol. 67, 10 October, 1994, carries excerpts from a proposal by S. M. Mahajan of the University of Texas, Austin, for launching a National Science University (NSU) in India. The section also includes some comments on the proposal by three Indian scientists: P. Balaram, D. Balasubramanian, and T. V. Ramakrishnan. In a separate article P. N. Srivastava argues the need for setting up a NSU in India. His advocacy repeats verbatim many of the arguments in Mahajan's proposal. Balaram characterizes the proposal as 'extraordinarily naive and completely divorced from the ground realities in India'. But I think Mahajan's proposal is a highly significant document in that it typifies quintessentially the attitude of many of the NRIs to the deep-rooted problems of India and ways of grappling with them.

Mahajan's proposal focuses on the sorry state of the Indian Universities and their low quality of performance both in science teaching and research. He traces the root cause of this to the organized self-aggrandizing behaviour of what he refers to as the 'giant Indian scientific establishment'. The only way to counter their pernicious behaviour is by setting up a NSU, according to Mahajan.

I am not now, and have never been, a member of the 'giant scientific establishment that rules over a number of universities and national institutes' (according to Mahajan). Also, being only an engineer-technologist and not a 'pure scientist', I consider myself to be an 'outsider' to the science-scene in India. As such my reactions to the Mahajan-proposal may complement those of practising Indian scientists.

Assessment of the problem

Mahajan's discussion of the problems besetting the Indian universities consists of a sweeping, generalized indictment of something he keeps referring to as 'the scientific establishment'. He says: 'The scientific establishment is managed by a few extremely powerful people who, (a) control most of the money, (b) are on all important job, promotion, and national committees, and (c) decide what are the important scientific areas and directions

to explore.' One wonders who these all-powerful, god-like individuals are who, according to Mahajan, go about 'distributing scientific honours and laurels among themselves giving totally lopsided assessment' of the state of science in India. In a life-time's professional career spent in India, I have not come across 'science managers' here whose megalomania, venality, and vindictiveness exceeded significantly those of comparable individuals (including NRIs) elsewhere in the world.

Also Mahajan's account carefully avoids making any mention of several positive initiatives that have already been taken in India to strengthen the role played by young scientists in teaching and research. For example, specific mechanisms have been instituted to identify young scientists for awards and appreciation, to provide special research supports to them, and, more importantly, to involve them in open brain-storming sessions to identify 'thrust areas' for research funding.

Srivastava's assessment of the problem is more sober and closer to the realities at the ground-level. But even he omits to mention what is probably the single most corrosive factor destroying our universities. This is the politicization of our university administrations at the state-level, and the consequent pervasive corruption perverting all aspects of university-functioning including teaching. The truth of this can be immediately seen if one compares the functioning of state-administered and centrally-administered universities. IITs are more telling examples of what can be accomplished by shielding university-level institutions from the debilitating influence of state-level politics. How does one keep education and politics apart? This is as much an intractable issue in India as keeping politics and religion apart

Even in the better managed universities (e.g. the best of the central universities), a very serious and dispiriting problem faced by the faculty—especially the younger ones—is 'intellectual isolation'. They have no easy means of keeping in touch (at a working-level) with their peers inside the country, and more so with those outside the country. Library facilities are poor, and physical mobility is highly restricted. In the economically better-off countries this problem of intellectual isola-

tion has been almost completely eliminated through the provision of easy access to e-mail, and to more conventional communication facilities such as telephone and fax. Investing a small fraction of the Rs 200 crore being asked for from the Indian government to establish NSU, to creating similar communication facilities for use by university faculties would transform the educational scene in India significantly.

Proffered solution

There is a *Thirukkural* couplet which, laying down guidelines for a physician, says: 'Let the physician enquire into the (nature of the) disease, its cause and its method of cure, and treat it faithfully.' The standard approach in India, on the other hand, to tackling existing problems is to ignore them and start something new *ab initio*. If existing universities do not work, dump them, and build a new one. This is the solution proposed by both Mahajan and Srivastava. There is much handwaving on how to ensure that the new university does not end up the same way as the existing ones. After all no existing university was started with the explicit assumption it would end up as a failure.

Srivastava says: 'The administrative structure of NSU will have to be worked out by a suitable panel . . . We must stress that NSU is a brand new experiment . . . We cannot take wholly, or even partially, an established structure and impose it on NSU . . .'. Were't IITs started with the same visionary zeal? Every central university was started as a 'brand new experiment'. In every one of these cases a 'suitable panel' was constituted to work out its administrative structure. Who are the 'suitable' panelists who are *now* going to be discovered to innovate and come up with hitherto unthought of ideas for implementation in NSU?

Mahajan puts all his faith in 'defeudalization'. He believes that by keeping administrators away from the scientists, and by instituting a government of the scientists, by the scientists, for the scientists, NSU will turn out to be a shining example—'a model university'—for new and old universities to emulate. He lists

eight desiderata for NSU governance to satisfy: (these are repeated verbatim by Srivastava in articulating his concept of NSU). As far as I can see, most of these desiderata are already in place in IITs. For over a quarter of a century, IITs have been with us as role-models. Why were't their structure and functioning transplanted to any of the central universities? Who should be blamed for this? The scientists? The UGC? The ministry? If any of these, how can this inherent problem be rectified?

Mahajan opts for a typical NRI solution. Make a special case of NSU. Bend the rules. Or, better yet, take NSU outside the existing laws of the land. After all we have created Export Promotion Zones; Technology Parks for NRI-use under special dispensation. Why not, then, a NSU for the benefit of NRIs who will have a reserved quota of 20% of the faculty positions to be held on a 'mobile basis'?

According to Mahajan, 'Indians living abroad will be approached for donations of equipment and facilities'. What kinds of equipment and facilities? Supercomputers? Nuclear reactors? Particle accelerators? Optical and radio telescopes? 'Nonresident Indians will be called upon, additionally, to make contributions of journals and books.' If this is being made as a serious proposition, Mahajan should make some rough estimates of what it takes to build a library facility to meet 'world-class' scientific research and teaching. One wonders what the annual budget of the library facility in the University of Texas, Austin, is!

On not being arrogant

Mahajan says: 'We must go out of our way in stressing that this proposal for NSU is not an arrogant non-resident solu-

tion for the ills of Indian science.' Nevertheless the text of his proposal is saturated with *implicit* arrogance. The mother of all arrogance is, of course, his tacit assumption that Indian scientists are incapable of figuring out, on their own, what ails Indian science and what corrective measures are needed. Before rushing in to 'change the turf', it pays to study and understand the nature of the existing turf.

Mahajan's contention that 'institutes devoted to basic sciences must become adjoined to universities or universities must be built around the institutes', has been a reality in India for several years now. Yet the science education problems at the university-level persist. The reasons for these are complex and deep-rooted. One must confront them and tackle them at many levels simultaneously. Running away from them by trying to establish NSU will not solve these endemic problems.

Mahajan urges that Indian science must 'create knowledge, translate it into products, and market and sell these products, lest we be continuously bullied by the Carla Hills of this World'. But what was worrying Carla Hill was not that Indian scientists were spending their time 'writing footnotes to the work of their Western counterparts' (as Mahajan dismissively characterizes what goes on in India). Her worry was that Indian science was beginning to establish its global credibility by designing and building supercomputers, successfully launching missiles and satellites, and making alarming inroads into the software market of USA. Hundreds of young scientists trained in Indian universities have been playing critical roles in these accomplishments.

Mahajan contends that Indian scientific institutes should provide 'convenient and ever open-channels' to enable NRIs 'to

repay some of their debts... to the country of their birth'. The operative terms here, one presumes, are 'convenient' and 'ever open'! Perhaps Mahajan does not know that NRI medical professionals have creatively solved this problem by establishing hospitals in India as purely business propositions depending only on the market mechanisms for financial support.

If NRI scientists want to establish privatized universities on a similar basis, there is nothing to prevent them from doing so thus creating 'convenient and ever open' avenues for repaying their debts to the country of their birth.

A concluding remark

NRI scientists' eagerness to establish NSU as a privatized university with Indian government's financial support is understandable. One can even sympathize with the emotional dilemma in which some of them find themselves. But what I find very puzzling is that an eminent educationist like Srivastava, who understands thoroughly *from the inside* the complexities of the Indian educational scene and its ailments, should have convinced himself that an elitist proposition like setting up a NSU (along the lines envisaged in Mahajan's proposal) catering to a handful of students and scientists is a solution, or even the beginning of a solution, to the ills plaguing our universities and the teaching of science in them. I find this not only puzzling but infinitely saddening.

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The National Science University—A holistic conceit?

The proposal for the National Science University (NSU) reads as an extraordinary conceit of holistic or Utopian social engineering. The talk is of 'revolutionary and massive programme of rehabilitation'^{1,2}. Only someone who has not read Popper³ could have designed such a concept.

Popper advocates a gradualistic, piece-

meal approach to designing institutions. He said, 'Only a minority of social institutions are consciously designed while the vast majority have just 'grown' as the undesigned results of human actions'. Thus, if Oxford and Cambridge, Harvard and MIT, and our own Indian Institute of Science grew to be enviable bastions

of excellence, it is because the Darwinian forces of natural selection that acted on the *unintended consequences of rational actions* of its constituents led it in that direction. And if most of our universities and research institutions have degenerated into cesspools of mediocrity, complacency and corruption, it is because similar Dar-