

Higher education with lower budgets

INDIA'S science has a great and probably unique asset: the enthusiasm of young people for science and technology. It is a remarkable phenomenon. India, always a society obsessed with matters of the mind, values academic qualifications as tangible proofs of intellectual attainment. But qualifications are also routes to employment, and jobs in science and technology have traditionally been especially sought after. (Only now are some academics shaking their heads over the extra status attached to an MBA.) So the competition for entry to science and engineering is fierce.

So much can be told from the competitions run by the Indian Institutes of Technology (IITs), and by the Indian Institute of Science (among first graduates from other universities). Entrants to the competitions run by the IITs routinely outnumber the places available by factors of up to 1,000. So it is a cruel disappointment that many universities (but not the IITs or the Indian Institute of Science) say they are now unable to teach their students well for lack of equipment and facilities.

The complaints of the physics and astrophysics department at the University of Delhi (see *Nature* 366, 297; 1993) are typical. Academics worry about several pressures on the system, one of which is said to be a decline of the quality of teachers at the constituent colleges at which entering students read for their first degrees. That, the argument goes, means that the chance that students will be freed from the burden of rote learning is bound to be much diminished.

And why should that be? Because the academic life is full of frustration, and badly paid as well. On both counts, shortages of funds are the root cause. Thus in the financial year (to the end of March) 1991–92, the union and state governments were expected to spend Rs3.26 billion on direct support of 177 university institutions (with research funds from technically orientated agencies routed separately). But with 4.4 million students at universities in that year, the support works out at just over US\$20 per student a year.

For what it is worth, the 1992–97 plan supposes that there will be an extra one million students at India's universities by the end of the period, but that half of them will have to be taught by the several open (or 'distance-learning') universities being founded in India. That development will be a serious test of young people's eagerness to acquire academic qualifications.

In the circumstances, it is hardly surprising that shabbiness is the hallmark of the regular Indian university. Classrooms are much as they were when first built, perhaps in the early decades of this century. When university libraries are

agonizing over the need steadily to reduce their purchases of books and journals, who can wonder that paintwork is allowed to flake off, or that classrooms and offices accumulate dirt faster than it is cleaned away?

The shortage of equipment drives people to despair. Departmental budgets for maintenance and renewal are negligible, consisting mostly of the fees (around Rs20) that graduate students pay each term. It is no wonder (this is the complaint at Delhi) that academics say they are ashamed at being unable to do their duty by their students.

Yet academics, however their self-respect is undermined, are still respected. Moreover, by Indian standards they are reasonably well rewarded; a junior member of a departmental staff may earn the equivalent of US\$75 a month, a full professor twice as much. In addition, a university has a duty to provide either housing of a kind or (where accommodation is to be had commercially) a housing allowance.

The last of these circumstances contributes to the low mobility of academics in India. Indeed, despite the requirement that vacancies for public employees (as academics are) should be open to general competition, there is a natural tendency for people to stay where they are. That no doubt explains why many (but, emphatically, not all) departments at universities in India have the air of being groups of people united only by their mutual suspicion, even jealousy.

In the circumstances, there can be very little comparison between the quality of the scientific life at the harassed Indian universities and at the better public research laboratories, where the buildings are often new, equipment is plentiful and access to journals (and even to international computer networks) almost routine. Especially because the research laboratories are increasingly welcoming of PhD students, it seems inevitable that the universities will be further starved of able researchers.

On the face of things, the years ahead will be even more depressing. Budgets are being frozen in rupee terms, with no allowance for inflation and little prospect of relief. Even at the Indian Institute of Science, people are alarmed at the signals emanating from Delhi.

The government is wanting us to stand on our own feet, says Dr G. Padmanaban, deputy director and professor of biochemistry at the institute. In the past few years, the institute has indeed opened up two new lines of activity – continuing education for people with a technical background and the engagement of members of its faculty in the provision of

consultancy to industrial organizations, publicly and privately owned.

The institute earns Rs2 million from the first of these activities, perhaps ten times as much from the second. But its directors say they would be reluctant to expand the work of the Centre for Scientific and Industrial Consultancy to the point at which members of its staff were engaged on routine consultancy lacking intellectual challenge.

Elsewhere in the academic sector, there are persistent rumours that the Delhi government will seek to come to terms with the high rate of emigration from the Indian Institutes of Technology (see page 618) by raising student fees to levels at which the institutions were almost self-supporting financially. What that will do to recruitment remains to be seen.

Outsiders cannot but be sympathetic of the problem of higher education in India. Even the problem of the Russian universities is more easily manageable. But there is a serious danger, in India, that the national ambition to win prosperity through indigenous technical development will be undermined by the steady erosion of quality in the universities.

What is to be done? Given that the government could not at present afford to support all 177 universities in a manner that would enable them to function well, it could at least single out a number for special treatment in the expectation that the outcome would be a group of institutions capable of serving as an example, or at least a goal, to the remainder. The difficulty is that such a course was followed several years ago, when a handful of universities was chosen for just such reasons. (The University of Delhi was one of those.)

Now there seems no alternative to going through the same procedure all over again. But on this occasion the experiment might be more radical. The effective separation of undergraduate from graduate teaching by means of the system of undergraduate colleges may be a way of dealing with large student numbers, but otherwise is a thief of young people's time and energy.

The colleges may be necessary to put human faces in front of students, but their sharp separation from the universities at which their students graduate hardly seems necessary.

It is also important that the universities should enjoy a greater degree of autonomy. It should not be as difficult as at present to reorganize the curriculum or the disposition of teachers' time. And too often, decision-making consists of guessing what the state governments are likely to decide next, which is debilitating and demeaning. □