

# CURRENT SCIENCE

Volume 82 Number 5

10 March 2002

## EDITORIAL

### Budgeting for science: A clearing in the clouds

In a normal year, the end of February always brings the annual budget, fuelling expectations from all sections of the national economy. Science is but a small component in an enormously complex budget document. But, science and technology is a sector that is almost completely dependent on government support, making budget exercises critically important for our vast network of research and academic institutions. For the past several years, almost coincident with the rise of the liberalized economy, the academic constituent of the S&T sector has had little to celebrate in each annual budgetary exercise. This year seems different. When the Finance Minister finally unveiled his package, there appeared to be much that the scientific community might welcome, although the budget itself has been met with a lukewarm response from industry and murmurs of discontent from a middle class, which can hardly be enthused by the prospect of higher taxes and prices. While the Departments of Atomic Energy and Space have received their customary annual increases (over Rs 300 crores in each case), researchers in national laboratories and universities may be wise if they cast their eyes over the figures for the three major wings of the Ministry of Science and Technology, the Departments of Science and Technology (DST), Biotechnology (DBT) and Scientific and Industrial Research (DSIR). The increases for these three departments, which are responsible for supporting much of the non-strategic scientific activity of the country, including basic research, are significant; pushing well beyond the normal adjustments for inflation. The budget is indeed good news for the Department of Science and Technology, providing it with the means to execute an ambitious plan to enhance research infrastructure in university science departments. If all plans stay on course, there will be an infusion of much-needed equipment in many departments. The growing backlog in the funding of approved research projects may indeed be checked, and hopefully eliminated. But the figures (see Table 1, p. 496 of this issue) hide many problems, some of which are not widely appreciated. The DST and the CSIR are committed to the maintenance of a string of institutions, many of which have enormously unfavourable ratios of salary expenditure to research

spending. This is also true for the vast majority of our academic institutions and universities. The impact of the excesses of the Fifth Pay Commission and the near impossibility of downsizing staff strength are likely to ensure that it will take a very long time before old institutions are able to fund research to a reasonable extent from their annual allocations.

Even as we welcome a budget that might hold some cheer for scientists, it may be worthwhile to reflect on the costs of research and the functioning of our institutions. In many areas of science the costs of instrumentation and maintenance of major facilities are spiralling. In biology and to a lesser extent in chemistry, the costs of reagents and chemicals increase alarmingly with each passing year, aided by the slow and steady slide of the rupee against international currencies. Since much of the equipment and materials for research are imported, the costs of science increase inexorably with time. With resources necessarily limited, it may also be pertinent to ask whether our institutions and the scientists who inhabit them, spare even a stray thought to the problems of resource sharing and the generation and upkeep of common facilities. A distressing feature of many of our institutions is their remarkable insularity, restricting use of many valuable facilities by those who work in less favoured laboratories. Even within institutions, the practice of science is hindered by disciplinary and departmental barriers, which act as a dampener for resource sharing. Quite often, major grants to university departments fail to benefit a majority of the faculty; the absence of a democratic academic structure ensuring that grants are utilized, with little impact on the activities of those who seek to do research. The internal administration of many universities and institutions ensures 'departmental autonomy', a device which in some places permits the unfettered exercise of despotic powers by heads of departments. Clearly, there are likely to be several instances where the infusion of money alone will not yield any tangible increase in research output. There must be a fresh and purposeful effort by the funding agencies to promote the formation of centres for shared instrumentation, by facilitating a consortium approach between

institutions. Agencies like the DAE, DRDO and Department of Space might also participate in the creation of major facilities in academia, a move which may yield long-term dividends. The carrot of funding may facilitate the formation of research alliances both within and between institutions.

There is also another hurdle to the efficient conduct of research. The internal administrative structure of the funding agencies and the recipient institutions ensures that the tasks of disbursing, receiving and spending funds and finally accounting for their utilization is a process which can be mentally and physically draining for researchers, who do manage to secure funding for their pet projects. In many cases, the financial procedures at the agencies and the recipient institutions appear to work at cross purposes; purchase departments also operate more often as impediments to the use of grants, rather than as important facilitators of research. In the older institutions and in large universities successful scientists need to acquire a new basket of skills that enable them to negotiate the minefield of bureaucratic procedures. Our administrative structure collectively fuels 'March mania', where we see the wasteful and thoughtless expenditure of 'unspent balances', which suddenly emerge from the accountants' pages as the financial year draws to a close. Since no critical piece of equipment or material can be easily purchased at short notice, there is the demoralizing spectacle of money being used for purposes, which are far removed from research and for many a casual observer, non-essential. There have been some recent attempts to re-examine financial and administrative procedures at the governmental level, but more needs to be done. It must be clearly recognized that the issues confronting the

universities and academic institutions are varied and difficult to address. A concerted effort needs to be made to ensure that enhanced budgets can indeed translate, eventually, into improved performance.

Does funding for science have to be limited almost entirely to government sources? The contribution of private industry to the S&T sector is very small. Even in an area like pharmaceuticals, where research may hold the key to future success, investment by companies in academic institutions is negligible. There are also no major private foundations which support scientific research on a notable scale; in contrast to the situation in the US or UK, where private bodies have slowly acquired an important role. We need to devise mechanisms to enhance private sector involvement. Unfortunately, we are at present in a situation where industry perpetually seeks budgetary concessions from the government, with little thought of contributing to overall development. Many schemes introduced to promote a three-way collaboration between academia, industry and government appear to be devices by which private sector laboratories benefit disproportionately, contributing only in a limited sense to a collective research endeavour.

Despite the formidable set of problems faced by researchers and institutions, Mr Yashwant Sinha's new budget holds promise for science. A turnaround may be catalysed by the 2002 budget, which might help to halt the steady erosion in support for science. But, this is only a small, but nevertheless important step, in shoring up the scientific enterprise. A clearing does indeed seem visible amongst the clouds.

P. Balam