

# CURRENT SCIENCE

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EDITORIAL

## Blue sky research

'Blue sky research', a term popular over a decade ago is hardly ever heard in the corridors of funding agencies or research institutions today. The economists and bureaucrats who control the purse strings of government are fond of cost-benefit analysis. While money thrown away on various subsidies (sometimes even in the form of concessions to already fattened industrial houses) yields political dividends, there seems little reason to invest in basic science and higher education, whose returns are not clearly apparent. For a considerable period after independence the personal equations of leading scientists with political powers, insulated scientific agencies from the budgetary imperatives imposed by growing fiscal deficits. Today, except for the departments which preside over strategic science, other agencies face a bleak future. The universities were, of course, cut adrift long ago.

Frozen budgets, rising inflation a quantum jump in salaries and the declining value of the rupee have hit our research institutions hard. Government agencies which disburse research grants and fellowships have also felt the budget crunch, although it is hard to get anyone of importance in the funding bodies to admit that money for research is in short supply. A smaller purse is directly correlated with a diminished position of influence. Consequently, many in the upper echelons of the agencies adopt a somewhat ostrich-like approach and refuse to concede that money for academic research is scarce. Instead they adopt an overly optimistic stance—'show me a good project that has not been funded' or 'no good laboratory will suffer for lack of funds'. Brave words indeed, which unfortunately reflect a lack of appreciation of ground realities.

Laboratories in academic institutions receive little or no support for research from their parent organizations. Most institutions are hard pressed to meet salary bills and the inevitable cost of essential services like water and power. There is invariably no money (or will) for maintenance of physical facilities in academic institutions. Little is left to support specific research activities or even to fund basic equipment infrastructure. The conduct of research in academia, thus, relies entirely on the support provided by external agencies of government;

private funding is too insignificant to be a matter of serious discussion. In areas like physics, chemistry, biology and the earth sciences (mathematics fortunately requires little money), the Department of Science and Technology (DST), the Department of Biotechnology (DBT) and the extramural wing of the Council of Scientific and Industrial Research (CSIR) are the agencies which provide the main support for 'blue sky' research. Agriculture and medicine have specialized councils which run networks of institutions. Even at agencies which apparently look favourably at basic research, the fraction of funds set aside for academic science is diminishing, with increasing pressure to support projects which promise (but often do not deliver) practical utility. While the CSIR has always had as its primary mandate the task of running a large network of national laboratories, over the years 'pure funding agencies' like the DST and DBT have acquired a portfolio of their own research institutions. This process has slowly begun to create two divisions—'intramural research' and 'extramural research'. This is not entirely undesirable. The National Institutes of Health in the United States successfully manages an enormous internal program, together with a very large external commitment to academic institutions.

Unfortunately in India, limited budgets are compounded by a growing breakdown of the administrative structure at the agencies. Today, every academic investigator has to learn to live with increasing periods of delay in the release of approved grants. The hardest hit are the research fellows, students and post-doctoral associates who are the true footsoldiers of the research enterprise. Delays in release of grants and fellowships means that the actual workers in the laboratory go without pay. Uncertainty in the funding process often requires that staff employed in research projects must leave; a tremendous waste of the training period which they undergo in most laboratories. Unfortunately our institutions do not have sufficient bank balances (or administrative flexibility) to step into the breach in times of crisis involving project staff. Since almost all funding emanates centrally from Delhi, a lack of sensitivity to these issues in the finance departments of the agencies ensures that no appeals are ever heeded. What is not

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appreciated is that the key elements in the workforce of academic science are 'temporary' – research fellows and post-doctoral associates; their salaries are met from project funds. Happily, professors and scientists are 'permanent' – their salaries are paid by government even if they have no funds (or will) to do research. Ironically, in science we often have the situation where the generals are paid but the troops are forgotten.

Scientists have unfortunately been turned into servile supplicants who must run from pillar to post to obtain financial sanctions. If budgets are tight there must be a clear signal that this is so. Only then can institutions and laboratories plan their programs accordingly, even limited budgets must be administered and disbursed efficiently. At the scientific agencies there is a clear need to define an administrative chain of command that ensures that the totality of finances are considered before project approvals are finalized. At present, scientists go

through an elaborate rigmarole of peer review of projects with little knowledge of the depths of the agencies purse. There is also an urgent need for the funding agencies to examine their role as facilitators of research. Some of them appear to have evolved into bodies which have a life of their own, quite independent of the research community that they are intended to promote.

It may indeed be the right time to consider creation of a new mechanism for funding science. An autonomous structure like a National Foundation for Science, which operates out of a government corpus supplemented by private funds may be a possible way of breaking out of the shackles imposed by a ministerial structure. If basic science is not nurtured in the academic institutions there is little hope that good applied or 'applicable science' will emerge in the future.

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