

## Editorial

# Research Fund Crunch, Real or Created, is Hitting India's Academia on the Wrong Side

SUBHASH C LAKHOTIA\* 

*Editor-in-Chief, and Cytogenetics Laboratory, Department of Zoology, Banaras Hindu University, Varanasi 221 005, India*

It has become a common experience in recent times that any meeting with young investigators or even senior established scientists, irrespective of their being from better endowed research and/or academic institutions or from the less endowed universities/colleges, ends up in sharing anguish at the state of governmental support for research. A general impression is that an increasing number of research project proposals are being declined to be funded by the different governmental agencies. In the cases of approved project proposals, the initial or the subsequent continuing grant does not get released for months or sometimes even for one or more years after the approval letter has been received by the investigators. More depressingly, when the grant is indeed released, it is often a fraction of what would be due on basis of the approved budget.

A higher rate of proposals not being approved for funding may reflect either poor quality of proposals or a higher competitive situation. However, discussions with various stake holders seem to provide a consensus view that the total funds being available for disbursement for extra-mural research project proposals are getting limited. This view also finds credence when members of the various committees, who formally approve or reject financial support for a research proposal, indicate that the funding agency itself directly or indirectly lets it be known that fewer projects should be approved because of constraints on the available funds. While rejection of a poorly planned proposal is necessary, rejection of a reasonably planned proposal has long-term adverse consequences, especially if this happens to be proposals by young investigators or by investigators from less-endowed institutions who are trying to initiate themselves into active research. It would of course

also be a setback to more established researchers if they are denied the opportunity to continue on what has been built up over the years. More serious is the situation when funds are not timely released for a new or for an ongoing project. A standard reply in response to queries about the delay is that the budgeted amount is not yet made available to the given agency or the allotted funds are already exhausted. Such delays obviously disrupt the research work leading to demoralization of the investigators and the staff involved in research. Delay in progress of projects in fast moving fields can be self defeating. The net result in all cases is negative, since an opportunity lost is lost. The reduced possibility of getting funded, and the inordinate delays in receipt of actual funds for approved projects have led to a high level of frustration. This prevailing situation has also disillusioned the increasing number of young scientists who go abroad on their own merit or are funded by the government to go abroad in the hope that they could come back to the country and engage themselves in futuristic cutting-edge research. In view of this state of disillusionment, we need to ask if the substantial money spent by the government on fellowships for doctoral or post-doctoral research abroad is doing any good to the country or is actually promoting 'brain drain'? Expenditure on training abroad does reduce the kitty available for supporting S&T activities within the country.

The inevitable slow-down on new recruitment in better endowed institutions adds to the worries of young aspirants. Although a large number of vacancies exist in many universities and colleges across the country, these positions are either not being permitted or planned to be filled. When these do get advertised, positions in most of the universities and colleges

\*Author for Correspondence: E-mail: lakhotia.eic.insa@gmail.com

across the country fail to attract applications from competent and committed persons because the infrastructure and the working atmosphere are not attractive and conducive enough to start one's career at these institutions. Consequently, the overall competence in these academic institutions continues on the downward spiral.

Research is an integral part of higher education. As expected, a relative measure of the state of development of a nation is determined by the quality of research that leads to new knowledge, which directly or indirectly helps in improving the quality of life of its citizens. Despite the large number of universities and colleges, and the dedicated research institutions in the country, the overall quality of research contributions emanating from India has remained much below the satisfactory level. Reasons for such disappointing performance of research and development (R&D) activities in a large and hugely populated country are multiple. Besides the limitations imposed by organizational bottlenecks and unhealthy ecosystem, grossly sub-critical funding remains the major root cause for the generally poor quality of R&D activities in the country.

The present condition is particularly disturbing because the overall quality of research from India showed some improvement during the past 10-15 years, thanks to a large number of young investigators who started their labs in many of the newly established institutions of higher learning, like the IISERs (Indian Institute of Science Education and Research), new IITs (Indian Institute of Technology), central and private universities and also in the earlier established research institutions. The major funding bodies such as DBT, DST, SERB etc had also introduced new initiatives to promote and fund individual as well as institutions (including universities and colleges) to encourage high-quality research. The general synergy of young and enthusiastic researchers, the good initial funding and congenial administrative setup at many of these institutions helped them kick-start relatively better research output within a short span of their establishment. At the same time, several programmes initiated by different governmental agencies and the UGC indicated that the established universities and colleges in the country can also expect to receive a little better attention in terms of funding for research and infrastructure, although this continued to be much

less than the minimally required quantum. However, several of these enabling programmes appear to have been discontinued or put on hold. The recent announcement of six institutions of eminence in the country is welcome, although the criteria for identifying them has raised some issues. The more serious concern, however, is that unless there is an overall improvement in the higher education across the country, the few liberally funded institutions of eminence would remain starved of appropriately-trained and competent young researchers.

It is a sad commentary that during the past two decades, the governmental R&D funding in India has remained static at about 0.7% of GDP; disappointingly the private sector in the country spends less than 0.2% of GDP on R&D activities. Together, this is much less than the >2% of GDP spent on R&D activities by developed countries across the globe. In terms of the total amount, there would have been some increase in funds available for R&D in India because the GDP is increasing with improved economy. However, this marginal increase is offset not only by the increase in numbers of researchers and institutions, but also by the inflation and several other new initiatives that do not contribute to the real R&D activities in the country. The net result is that in real terms the per capita funds available for R&D activities have not increased but, in fact, may be less. This seems to be primarily responsible for the depressing scenario noted above. Such self-defeating static or even diminishing (in real terms) allocation for R&D activities is indeed unjustified, especially when one considers that substantial collections are made by the government through the 2% education cess since 2004.

The young researchers who started their academic careers with great optimism, now feel disillusioned, and are worried if support, even at the minimal threshold level required to sustain the momentum, would continue. Since the strategic sectors take up the major share of the R&D budget, the pool of governmental funding for research projects proposed by investigators in diverse research and academic institutions gets reduced to a minuscule. Undue emphasis on translational or applied research has also affected the scenario of research funding in the country. Agreeably, the country needs greater emphasis on translational research to address issues of relevance to the country. However, to promote

translational research at the cost of support for basic research is a short-sighted policy which will, in the long-term, adversely impact the country's R&D activities. Country needs a policy that ensures a good balance between 'blue sky' and applied research. Researchers who like to engage in basic science also need to engage in more challenging areas and develop new paradigms around novel indigenous issues and problems. The private sector also needs to actively involve itself in this direction. Although recent years have witnessed some impressive philanthropic as well as commercial acts by some of the industrial houses in country in supporting higher education and research, the volume of industry-academia partnerships remains minuscule, considering the size and demography of the country. Industry should support not only translational research but also basic research which alone would lead to innovative and sustainable technologies. The 'Make in India' mission cannot succeed only on imported technologies, which often may even be outdated in the countries of their origin.

The new programmes initiated to validate the ancient Indian science and technologies are also eating into the limited funds for research. Although no one would deny the importance of examining and learning from the ancient knowledge, the general, and disturbing, impression is that such enquiries are initiated with a bias to 'prove' them, an approach which is inherently damaging on every count. Research is not undertaken to prove the hypothesis but to see if the hypothesis can be falsified. Unless the studies on ancient Indian science and technologies are undertaken in a truly rational and unbiased manner, the money spent on such 'directed research' would indeed be counter-productive.

The current situation is greatly alarming since it is slowing down the momentum of resurgence in research output from various academic institutions. At this critical time, instead of making them disillusioned, the country actually needs to strengthen and expand the system so that the young manpower is encouraged and facilitated to use their competence and capability at more than optimal levels. This of course needs a massive exercise to improve the infrastructure at the large number of existing and coming up academic institutions. The government has to have a comprehensive policy plan for the urgently needed liberal and uninterrupted support required to revamp the poor infrastructure at the existing universities and colleges. Ad-hoc proposals like the replacement of the University Grants Commission with the Higher Education Commission of India (HECI) by itself would not catalyze resurgence of higher education in the country. Rather, given the proposed constitution and unilateral powers of the proposed HECI, the outcome may indeed be more damaging. Likewise, imposing unplanned and second-rate translational research, while neglecting basic research, cannot take the country to the desired strong position of leadership.

These and related issues have been discussed many a times, including in these columns. Yet, even at the cost of repetition, it is incumbent upon us to keep reminding the policy-makers and the researchers' pool at large, about the long-term adverse effects of policies that are focused mostly on short-term goals.

(Views expressed here are author's personal.  
These do not in any way reflect opinion of the  
Indian National Science Academy)