

Making science-related jobs (less) attractive

It is sad to read almost regularly that the younger generation of Indians (including school/college going students) are less inclined to take science as their career and a large section of bright minds is either moving out of the country or opting for jobs that pay more. An important question is: Are we not popularizing through various available channels (research papers, seminars and the media) that Indian science is on the decline and there is limited job opportunity/scope in choosing science at higher education? What impact will it have on students and jobseekers who are in the process of choosing a career? I feel it is high time to introspect and accept the fact that the present generation of scientists, faculty members, heads of Divisions and Directors of various national laboratories and different universities, have failed to promote scientific culture in India, and many of them have made science a (less) attractive career. It is unfortunate to read the opinion expressed by respected C. N. R. Rao, Scientific Advisor to the Prime Minister that 'Science is on the death bed in India' (cited by Paliwal, B. S., in *Current Science*, 2008, **94**, 1114).

I would like to share some of the findings of an on-going exercise being carried out at NISTADS on 'How attractive are science-related jobs in India' in the eyes of the scientific community*. The results are based on a sample of 270 Heads of Divisions/faculty members of selected ICAR institutions and seven agricultural universities of India. The main aim is to show how the prevalent mindset of these 'senior members' of the scientific institutions, about science, scientific manpower (including Ph D students) and incoming workforce, can make science-related jobs (less) attractive.

*The exercise is aimed at developing an indicator of 'attractiveness' towards science and indicator for 'retaining' researchers for a longer period, based on the opinions of incoming workforce, Ph D students, JRFs/SRFs, S&T personnel, Heads of Divisions and Directors of research organizations (ICAR, CSIR, DRDO, ISRO, Atomic Energy) and faculty members of selected universities on concepts representing intrinsic and extrinsic motives of people. An overall sample of 2500–3000 is expected to respond to the study.

The respondents are of the opinion that the 'overall inclination of incoming Indian workforce towards science or making science related career' is 'low' (score of 2.43 on a five-point scale). Further, they perceive that the general 'awareness' about the structure, functioning and the (specific) work methods of research organizations is 'very low' (score of 2.33 on a five-point scale) among the general public. Would high level of awareness among the general people about functioning of research organizations or jobs lead to greater attraction towards science?

On the contrary, the respondents perceive that: 'opportunities available to Ph D students and various JRFs/SRFs associated with them have "limited chances"' (score of 2.79 on a 5-point scale) of making a science related career'. These students perhaps are 'aware' of the work culture of research organizations, working relationships among scientists/divisions and also the recruitment procedures (written and/or unwritten) being adopted in these institutions. Overall, the opinions of the respondents suggest that whether students or jobseekers are 'aware or not' about science-related jobs and the functioning of research organizations, the general choice/trend is towards jobs other than science.

Despite such perceptions, about 82% of the respondents suggest/recommend that the incoming workforce should opt for science and a science-related career. Prima facie, it reflects their concern about the importance of science as a necessity for India (in its developmental programmes) and also their optimistic/positive attitudes towards science. However, only 19% of the sample of 270 Heads of Divisions/faculty members have their children in science-related jobs. Interestingly, they show a high degree of satisfaction (score of 3.97 on a five-point scale) with this decision of their children (maybe with their guidance).

While examining the levels of achievement (science-related goals of life) of these respondents, particularly the way they desired, the result shows a miserable 'average' satisfaction (score of 3.03 on a five-point scale). The concepts that could increase their level of satisfaction

with 'achievements' are: sense of pride, pay comparable with others, and working on national developmental projects. The average score on achievements may be because of the limited presence of these concepts in their research tasks.

The concept of pay requires special attention, because it can lead to the development of comparative judgemental values among scientists. This, in turn, can be reflected in their interactions with colleagues and members of other departments and organizations. The overall impact could develop into a process of 'trust vs mistrust', 'faith vs lack of faith', 'fair vs unfair' practices and the like, among team members or even in organizational functioning. These judgements – biased (or otherwise) – can be harmful for any organization, including scientific ones.

The limited satisfaction of the respondents with their own 'achievements' coupled with the above observations, clearly suggests that these Heads of Divisions/faculty members perhaps may find it difficult to make positive contributions to enhance the attractiveness towards a science-related career, even among those scholars who are currently working with them like Ph D students, JRFs/SRFs, project assistants and other temporary staff. The results, to some extent, support the issue raised above, that it is we who are making science less attractive and at the same time popularizing our failures through 'quality' papers in (SCI) journals.

Let me conclude with the concern shown by our Prime Minister in his inaugural address of the 94th Indian Science Congress (Jayaraman, K. S., *Nature*, 2007, **445**, 134–135). 'While our government will do its utmost to invest in science, I call upon the scientific community to also invest its time and intellectual energy in the revitalization of our science institutions'

SUNIL K. DHAWAN

*National Institute of Science, Technology and Development Studies,
K. S. Krishnan Marg, Pusa Gate,
New Delhi 110 012, India
e-mail: sunilkdhawan@yahoo.com*