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CORRESPONDENCE

Science in India: Vision and reality

Pre-independence India was characterized by rank poverty, ill health and social inequalities; diseases were rampant and feudalism was the order of the day in almost all parts of the country and the arms of science and technology (S&T) had hardly reached the Indian Society. Obviously, the primary task of the founding fathers of free India was to mitigate all these miseries and to provide succour to the downtrodden and to make the benefit of S&T available to the lowermost strata of the society. After independence, major efforts were made to remove poverty, illiteracy and unemployment, to control diseases, improve health and provide basic needs like drinking water, clothing, housing, etc. On the other hand, massive thrusts were made on industrialization, building gigantic dams to provide irrigation facilities as well as electricity and also to control floods, etc. During the past few decades there has been a rapid progress in the field of atomic energy, space exploration, electronics, agriculture and medicine. Many things which were beyond the imagination of pre-independence India have become reality. Though India is in the forefront of the Third World group and third in terms of S&T manpower in the world, it is still classified as a developing country. Though we have made considerable progress since independence, there are still miles to go.

It will be wrong to say that S&T in our country has failed, but, at the same time, it is also true that we have been suffering from complacency. There is ample need for introspection. It is true that S&T in our country has yet to percolate down to a man in the street – a farmer in the field or a student in remote parts of the country – even after 48

years of independence. One may ask why outstanding scientists like Sir C. V. Raman, Sir J. C. Bose, Prof. S. N. Bose, M. N. Saha could arise in the pre-independence era when public or government support to S&T was nil, while we failed to produce their counterparts despite phenomenal support from every part of the country. Another may ask why we do not have at least some of our universities holding their heads as high as Oxford or Cambridge. An attempt should be made to bring about a change in our S&T activities and to introduce a proper social work system that would carry the benefits of S&T in an equitable way to the lowermost strata of the society. So, at this moment we need a new tool of thought, a new dynamism and a new spirit of creativity.

The general public is paying directly or indirectly for science. They pay taxes which go to support the universities, research laboratories and so on and so forth. So people have a right to know what is happening to their money. They want to see their basic needs like food, clothing, housing, employment, education, etc., tackled properly and fulfilled adequately as simple remedies are available for years. At another level, they want to see the dependency on foreign technologies and the so-called aid shaken off and new technologies emerging from within the country, and our country assuming a leadership role in at least some selected areas of technology. But in reality the gravity of the situation is far from being satisfactory and no one can say that these expectations are illegitimate. Scientists should, therefore, not avoid their responsibility towards the development of the country. It is true that most scientists in the country are rather guilty of not worrying

about the role of science in society. Of course, most of the scientists by no means find it easy, thanks to the bureaucracy and political interference. Even so, they have not, as a group, bothered about making use of scientific knowledge for improving the lot of the masses and the society in general.

Innovations that could help in improving the quality of life of the rural poor lie rusting in the laboratories. There is so much relevant work already done which only needs to be extended by the CSIR to the rural areas. Today the priorities are being set up by the needs and desires of the top scientists of the country. It is true that these are being distorted and projects that would give international recognition are preferred because they lead to personal advancement. As a result, great brains in scientific institutions in the country are spending their time tackling personal problems of peons and transferring people who they perceive as a threat. As a result, scientific work of high calibre is going on in extreme isolation. In fact, no new S&T is needed for improving the economic level of man. Whatever it has achieved in the past hundreds of years is sufficient to make man comfortable, happy and contented. Today S&T can help only those who are capable of absorbing the fruits of their applications and in the case of our country there is a large number of poor people who are not capable of absorbing the benefits of S&T.

The most unfortunate part of Indian S&T has been that during the last 8-9 years its management has been in the hands of those with no idea of the realities at the grass-roots level, although most of them have had a humble beginning. They have forgotten their past and

have been floating in air with no idea of ground realities. S&T should become a part of the life process, making it ever broader in outlook and subtle in feeling. This is the way the present real men of science are thinking. They want to free S&T from the domination of ambitious politicians and greedy capitalists and put them at the service of the poor and the needy. So efforts should be made to intensify the process of disseminating technology to the field and expose the scientific community to the rural areas so that the learning and unlearning

processes can begin from both sides and should continue on a sustained basis. Only then can the scientists and technologists understand how irrelevant their research work is.

To sum up, it is necessary to change this dismal scenario. A new and comprehensive science culture has to be cultivated – a new science movement where science would work for society and for the common man. The first step is to build a proper work culture where everyone, including students, teachers, scientists, science lovers, popularizers,

professors, research scholars, and so on, begin to understand the importance of hard work. Let us remember that years ago Gandhiji said 'India lives in villages – if villages perish, India perishes'. This is the weakest link in our socio-economic claim of the country and, by and large, we have been oblivious of the needs and aspirations of the villagers.

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NEWS

Jawaharlal Nehru Centre for Advanced Scientific Research – A tribute to the architect of modern Indian science

The Jawaharlal Nehru Centre for Advanced Scientific Research – JNC for short – was established in 1989 by the Government of India as part of the centenary celebrations of Pandit Jawaharlal Nehru. Its campus has been created on a 15 acre plot of land at Jakkur, gifted by the Government of Karnataka, on the northern outskirts of Bangalore. The dedication of the Centre to the nation was performed by Shri K. R. Narayanan, Vice President of India, on Saturday, 4th March 1995.

The objectives of the Centre include promotion of scientific research at the highest level in frontier and interdisciplinary areas of science and engineering, in a selective manner. It had also been planned, at the time of its founding, that the Centre would work in close academic cooperation with the Indian Institute of Science at Bangalore, a renowned institution of higher learning and research with well-established traditions. Thus, while the two institutions are independent and autonomous, they have strengthened each others' activities, and to a considerable extent avoided duplication of efforts.

Thanks to this link, the academic programmes of JNC had begun already during 1989–90, even as the planning

and construction of its own campus got under way. Aided by the advice and guidance of its Honorary Faculty (numbering about 50) drawn from the Indian Institute of Science and from several other leading research and teaching institutions all over the country, a variety of academic activities have been launched. Prominent among them are a series of Discussion Meetings – numbering about 30 a year – where active research workers and students in specialized areas of science and engineering meet to exchange their results, review progress and initiate collaborations; and a Summer Research Fellowship Programme (SRFP). Several of these meetings have involved foreign participation at the level of international conferences, while others have been in the nature of extended schools. Already, approximately 20 volumes as Proceedings of various Discussion Meetings have been published. The SRFP aims at providing talented students in the sciences and engineering, at both senior undergraduate and postgraduate levels, an opportunity to be exposed to a research environment and work on current unsolved problems under the guidance of a faculty member of JNC or any other institution. This programme has become

exceedingly popular and several thousand students apply for the forty odd Fellowships offered each year. In many cases, the skills and training received by students during the two months spent with a guide result in quality scientific publications and act as a great motivating factor determining the students' career and interests.

The Annual Meetings of the Centre, held at Bangalore around November each year, provide a forum for all the Honorary Faculty and Faculty of the Centre to meet and have discussions on topics of current interest. A set of invited lectures by the Honorary Faculty is also arranged on these occasions and they are subsequently published as special issues of the *Journal of the Indian Institute of Science*. Four such issues have already appeared, and the fifth is under publication. To date, about 360 research papers have been published by the Honorary Faculty and others associated with the Centre.

A specialized Library has been created at the Centre, with a unique collection of about 1100 books and reference volumes. Some 35 key journals are also being obtained.

In step with building up its own faculty, the scientific programmes of JNC