

of the Bhatnagar Prize (Table 1). Eight of these scientists have also been elected to the Fellowship of the Royal Society of London. C. R. Rao, a recipient of Bhatnagar Prize in 1959, was elected to NAS as a member in 1995. Rao, a naturalized American citizen, worked for 40 years in India and then moved to USA after his superannuation from the Indian Statistical Institute². He was elected as Fellow of the Royal Society (FRS), London in 1967 and was awarded the 2001 National Medal of Science by the President of the United States³. Our previous study on 39 FRS of Indian origin, since the inception of Bhatnagar Prize till 2014, indicated that majority (23) of them are Bhatnagar awardees⁴. Another recipient of the Bhatnagar Prize, Ajay Kumar Sood of Indian Institute of Science, Bengaluru

has recently been elected as FRS in the year 2015.

The World Academy of Sciences (TWAS) was founded in 1983 in Trieste, Italy with an objective to promote scientific capacity and excellence in the South. TWAS currently has 1116 members from 90 countries, 73 of which are from developing countries^{5,6}. Till 2014, Academy membership consists of 211 scientists as fellows representing India, out of which more than 50% (112) are the recipients of the Bhatnagar Prize.

It is worthy of mention that 96% of the SSB awardees till date (503) preferred to contribute to Indian S&T, in spite of the lucrative opportunities to work abroad, and have brought recognition to the country through world-class science.

1. www.nasonline.org
2. Prakasa Rao, B. L. S., *Curr. Sci.*, 2014, **107**(5), 895–901.
3. www.nsf.gov (accessed on 15 June 2015).
4. Singh, I. and Luthra, R., *Curr. Sci.*, 2014, **107**(2), 163–166.
5. TWAS Regional Office for Central & South Asia, Fellows Directory-2014. The World Academy of Sciences for Advancement of Science in Developing Countries, JNCASR, Bangalore.
6. <http://twas-old.ictp.it>

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Fostering innovative processes for promotion of animal sciences

During the past decade, multipronged actions were initiated for promotion of basic research in animal sciences by the erstwhile SERC of the Department of Science & Technology (DST), New Delhi and the recently established Science and Engineering Research Board (SERB), a statutory body under DST. Several innovative processes were initiated to foster and promote basic research in animal sciences – the study of organisms from ecosystem to molecular level – through ‘new initiatives’ and ‘capacity-building activities’.

The new initiatives include: (i) ‘intensification of basic research in bird biology’ and (ii) ‘strengthening of faunal research in North East India’. Substantial number of new, fundable projects were generated under each programme after screening a large number of concept proposals and organizing interaction meetings with experts and potential researchers. The capacity-building activities include a series of schools in different sub-areas of animal sciences, such as chronobiology, neurosciences, herpetology, chemical ecology, avian biology and interaction meeting on helminth studies. The schools were meticulously planned to achieve long-term systematic manpower development and value-addition to R&D proposals. The long-term goals of the programmes are to modernize the study

of animal sciences and to build long-term scientific human resource with sound technical base for teaching and research, and to initiate and strengthen research programmes relevant to current needs of Indian science. The activities were aimed to provide interdisciplinary environment as opposed to traditional departments in most universities in India.

The schools, workshops/interaction meetings, etc. with a focus on the future were conceptualized, formulated and organized to establish long-term planning process, determine and understand current and needed core competencies, and to make plans to meet future needs. Each school was organized in an academic environment under the supervision of a Planning Committee which formulated the curriculum, planned the course and faculty, ensured selection of a heterogeneous group of participants from all over the country and provided direction with respect to scheduling, structuring, monitoring and reviewing the progress of each school. The Planning Committee constantly monitored the activities of the school, provided suggestions for improvement or rectification, if required, and ensured continuous improvement of the activities of the schools. The activities involved faculty members from different parts of the country and abroad. Participants were also selected from

different parts of the country by the respective planning committees and were heterogeneous in nature. About 20–25 participants from all over the country were selected for each school for a duration of about two weeks. Gender parity was also kept in mind while selecting the participants. Best faculty from different parts of the country were involved in the schools. Workers in the field with excellent credentials and teaching skills were invited. They were requested to teach within the framework of the syllabus designed by the respective National Planning Committees.

Prior to the commencement of the schools, the selected participants were provided with soft copies of the literature and reviews in the field so as to prime them for the event. The conduct of the schools started with an orientation programme for the first two or three days. During this period, the students were taught fundamentals of the subject with a view to offer level play field to all participants, and also to prepare them for the advanced training to be given in the school. The schools imparted intense training in theory and hands-on exercises. Each school was conducted in accordance with a timetable that provided for classroom teaching, and question-answer sessions, group discussions, panel discussions and evening talks.

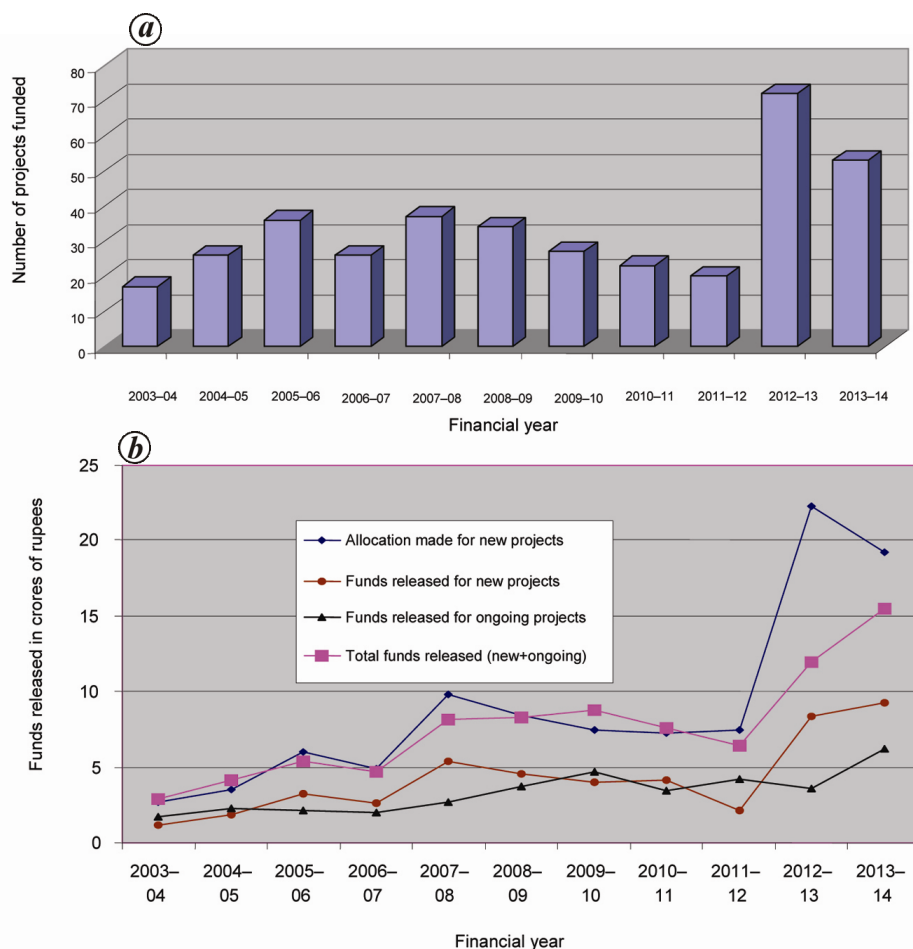


Figure 1. a, New projects launched; b, Investments made for basic research in animal sciences during 2003–04 to 2013–14.

Participants were also encouraged to make poster presentations on a relevant topic. Most of the teachers spent more than a week at the school interacting with the participants. The participants also used the opportunity to interact on a one-to-one basis with the faculty members. Two examinations were conducted during the school to evaluate the performance of the students.

The activities have helped build lasting interaction among participants and faculty and to connect the groups in the country in a bond of shared vision for development of the subject area. Most of the participants have been found to continue in

their area of research. Several of the past students are pursuing successful careers in their respective areas and are publishing in high-quality journals. Many alumni are pursuing postdoctoral research. Some of the participants have joined the R&D units in leading pharmaceutical companies. In some cases the schools have helped in developing fruitful collaborations between faculty and participants. The schools have also served as a platform for the faculty to recruit some of the participants in their research projects. Some alumni have already started careers in national institutions and have initiated research programmes.

Thus, the new initiatives and the capacity-building activities have been contributing significantly to the increase in high-quality fundable projects in animal sciences (Figure 1 a and b).

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