locally available non-experts, when they are not able to hold eminent scientists or scholars. Most of the topics for such 'end of season' conferences are in the emerging areas of a discipline and the number of experts on such topics in the region may not be sufficient.

The organizers run from 'pillar to post' to collect the required number of abstracts for such events. In the current scenario, the scientific findings which are not good enough to be published in peer-reviewed journals are being submitted to such gatherings. Pathetically, in some institutions a few faculty are assigned to 'patrol' the conference hall to maintain 'a crowd'. The recent developments (downloaded from the websites) on advanced topics may be difficult for undergraduate students to understand. Some students attend conferences to get a certificate of participation. Such certificates do not discriminate the students who actually participated to seek knowledge. The conferences conclude with a 'vote of thanks' to the funding agencies and special dignitaries with no meaningful discussions.

We only have to question the quality here and need not have second thoughts about the importance of these events. The following points may be useful: (i) Select topics which are familiar to the host institution and also motivate the researchers and students. (ii) Create avenues to use the expertise of the keynote/inaugural speaker for constructive reviews on the topics. (iii) Prepare the schedule well in advance. (iv) Get acknowledgement from the experts before finalizing the dates. (v) Build confidence to ensure that the forthcoming event has moral responsibilities. (vi) The hand-outs need to be given at least for the inaugural, keynote and valedictory addresses. (vii) Recommend certain ideas to the relevant policy makers in the end of the conference.

The scientific gatherings should be arranged with sufficient planning and thought. This starts from the selection of topics. Unsuitable topics lead to lesser number abstracts and results in the inclusion of irrelevant/non-innovative abstracts without any scientific value. More focused scientific discussions are the need of the hour. National-level debates on organizing meaningful conferences/symposiums/workshops are also required.

1. Balaram, P., *Curr. Sci.*, 2003, **85**, 1649–1650.

S. CHANDRASEKARAN

Department of Plant Sciences,
School of Biological Sciences,
Madurai Kamaraj University,
Madurai 625 021, India
e-mail: krishnanasc@yahoo.co.in

India's contribution in the journal *Nature*

Nature, an interdisciplinary scientific journal, is one of the world's most reputed journals. It has been ranked the world's most cited scientific journal by the Science Edition of 2014 *Journal Citation Reports*, and is widely regarded as one of the few remaining academic journals that publish original research across a wide range of scientific fields[1]. Academic Ranking of World Universities considers papers specifically published in *Nature* as a criterion for its world rankings. In 2009, *Nature* was named as the 'journal of the century' by the Bio-Medical and Life Sciences Division (DBIO) of the Special Libraries Association (SLA), USA[2]. Needless to say, having a paper published in *Nature* is considered prestigious. The present study aims to show India's output in this journal.

In 2012, Mahesh[3] had reported that there were 572 papers from India in *Nature* during 1945–2012. We also used *Web of Science* (*WoS*) and found about 600 records as on 1 October 2015 since 1945, published from India in *Nature*. However, going through some late 1940 issues of *Nature*, we serendipitously found that there were a number of

Table 1. Decadal output of papers

Time period	Searchable papers in the *Web of Science*	Papers from manual search	No. of collaborating countries	Papers in all NPG* journals, excluding *Nature*
1948–1954	0	400	7	0
1955–1964	0	726	7	0
1965–1974	32	357	5	23
1975–1984	204		7	106
1985–1994	150		23	303
1995–2004	105		26	502
2005–2014	95		77	1511

*Nature Publishing Group.

Table 2. Institution-wise ranking

Institutions	Papers
Council of Scientific and Industrial Research	190
Tata Institute of Fundamental Research	155
Indian Institute of Science	119
University of Calcutta	80
University of Delhi	71
Indian Agricultural Research Institute	60
Physical Research Laboratory	60
Banaras Hindu University	59
Panjab University	44
University of Madras	39

articles from India which did not show up in *WoS* when doing a search by 'country name'. Consequently, we went through each and every issue of *Nature* from 1948 to 1972, and found that while the *WoS* shows that there are no papers from India in *Nature* (by searching using the address field in the *WoS*) during the period 1948–64, our manual search yielded 1126 papers during that period. While the papers are indexed in the *WoS*, the affiliations of authors are missing. This gives an incomplete and incorrect picture of India's output in *Nature*. It clearly shows the inconsistency of the indexing database and how solely depending on databases can lead to misleading results.

Table 1 shows the number of Indian papers actually available in *Nature* and the number of papers as retrieved from the *WoS* database.

From Table 1 it can be seen that the papers in *Nature* have been steadily declining, with just around 100 papers being published in it during the decade 2005–2014. Figure 1 shows the trend in India's output in *Nature* and other Nature Publishing Group (NPG) journals, and foreign collaboration over the decades.

Although the number of papers published in *Nature* has been falling, it is interesting to note that the collaboration with foreign authors has been increasing. During the decade 1955–64, when the highest numbers of 726 papers were authored, there were seven countries collaborating with India. However, due to many collaborative papers, including mega-authorship papers during 2005–2014, the collaborating countries went up to 77.

In all, 440 Indian institutions have contributed 2037 papers during the period analysed. There are 46 institutions that have published 10 or more papers. The Council of Scientific and Industrial Research (CSIR) and its constituent laboratories have published 190 papers followed by Tata Institute of Fundamental Research (TIFR) (155 papers) and Indian Institute of Science (119 papers). Table 2 shows the top 10 institutions according to the number of publications in *Nature*.

Table 3 shows the top 10 highly cited papers in *Nature* from India. Thirteen papers have got more than 500 citations. The highest cited paper is a mega-authorship paper with 1659 citations. The highest cited paper with only Indian authors (840 citations) is that written by authors from the National Centre for Biological Sciences, TIFR Centre, Bengaluru[4]. The analysed period also contains papers written by world-renowned Indian scientists such as C. V. Raman, H. J. Bhabha and C. N. R. Rao.

Table 4 shows the distribution of papers according to the number of authors writing the papers. During 1948–64, most of the papers were written by one or two authors. Single-author papers started decreasing from 1965, with the lowest being 29 during the period 2005–14. From 1965 onwards there are several multiple authorship papers (>10). Also, the period 2005–14 contains papers with mega-authorship (>50).

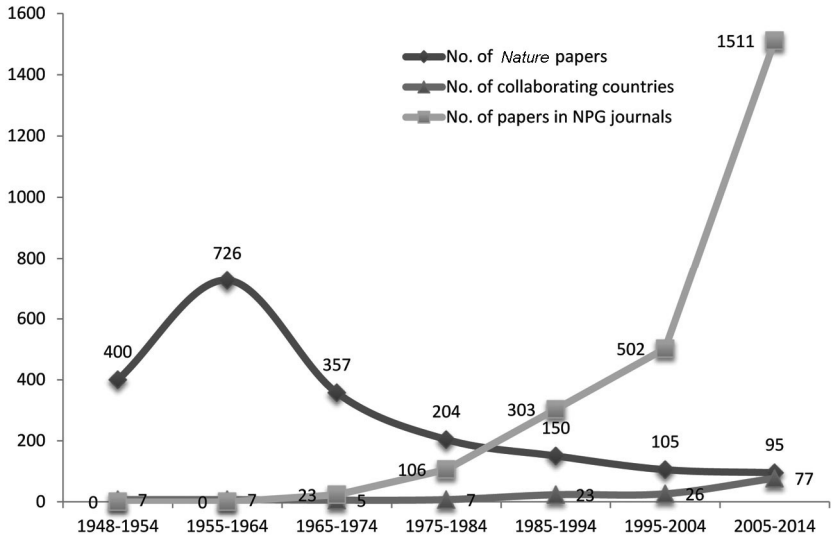

Figure 1. Decadal variation of output in *Nature* and other NPG journals.

Table 3. Highly cited Indian papers in *Nature*

Sl. no.	Papers	Citations[#]
1.^	Matsumoto, T. *et al.*, The map-based sequence of the rice genome. *Nature*, 2005, **436**, 793–800.	1659
2.	Saji, N. H., Goswami, B. N., Vinayachandran, P. N. and Yamagata, T., A dipole mode in the tropical Indian Ocean. *Nature*, 1999, **401**, 360–363.	1515
3.	Ding, H. *et al.*, Spectroscopic evidence for a pseudogap in the normal state of underdoped high-T-c superconductors. *Nature*, 1996, **382**, 51–54.	1103
4.^	Paterson, A. H. *et al.*, The Sorghum bicolor genome and the diversification of grasses. *Nature*, 2009, **457**, 551–556.	913
5.	Varma, R. and Mayor, S., GPI-anchored proteins are organized in submicron domains at the cell surface. *Nature*, 1998, **394**, 798–801.	840
6.	Norman, M. R. *et al.*, Destruction of the Fermi surface underdoped high-T-c superconductors. *Nature*, 1998, **392**, 157–160.	751
7.	Bateson, P. *et al.*, Developmental plasticity and human health. *Nature*, 2004, **430**, 419–421.	698
8.	Sastry, S., Debenedetti, P. G. and Stillinger, F. H., Signatures of distinct dynamical regimes in the energy landscape of a glass-forming liquid. *Nature*, 1998, **393**, 554–557.	647
9.	Ramirez, A. P., Hayashi, A., Cava, R. J., Siddharthan, R. and Shastry, B. S., Zero-point entropy in 'spin ice'. *Nature*, 1999, **399**, 333–335.	576
10.^	Sato, S. *et al.*, The tomato genome sequence provides insights into fleshy fruit evolution. *Nature*, 2012, **485**, 635–641.	549

[#]As on 1 October 2015.
^Papers 1 and 10 are mega-authorship papers with 28 and 24 Indian authors respectively. Paper 4 has 45 authors, with one Indian author.

Table 4. Authorship pattern of papers

Authors	Period							Total
	1948–54	1955–64	1965–74	1975–84	1985–94	1995–2004	2005–14	
1	175	287	110	54	57	40	29	752
2	169	311	149	69	35	15	10	758
3	45	102	52	42	24	9	3	277
4–5	11	24	29	27	25	14	7	137
6–10		2	15	9	6	17	12	61
11–50			2	3	3	9	19	36
51–100							6	6
100+						1	9	10
Total	400	726	357	204	150	105	95	2037

Indian scientists have preferred foreign journals to report their work, but from the declining number of papers in *Nature* it seems that *Nature* does not seem to be the first choice for publishing their work. Or perhaps *Nature* is not considering Indian papers for publication. NPG has started publishing many discipline-specific journals (92 journals in 2015 in the Web of Science Core Collection database). Also, a large number of multi-disciplinary journals have come up in recent times, which may have led Indian scientists to consider publishing in them. As can be seen from Table 1, the number of articles published in other NPG journals has been considerably increasing.

1. Wikipedia contributors, *Nature* (journal), Wikipedia, The Free Encyclopaedia; https://en.wikipedia.org/w/index.php?title=Nature_(journal)&oldid=677340463 (accessed on 25 August 2015).
2. *Nature*, 2009, **459**, 1045; doi:10.1038/4591045f.
3. Mahesh, G., *Curr. Sci.*, 2012, **103**, 127.
4. Varma, R. and Mayor, S., *Nature*, 1998, **394**, 798–801.

NITIN KUMAR*
YATISH PANWAR
MONIKA VERMA
G. MAHESH

National Science Library,
CSIR, National Institute of Science Communication & Information Resources,
Satsang Vihar Marg,
New Delhi 110 067, India
**e-mail: nk24691@gmail.com*

IISERs

I read with great interest and deep appreciation the recent guest editorial by Sathyamurthy[1]. He argues forcefully that IISERs are jewels in the crown of higher education in India, a fact that all Indians can take pride in. IISERs owe their success in large part to the passion and vision of the five founding directors, to the granting of autonomy in the appointments of faculty members, and to substantial support from the Indian government. The students I have met from different IISERs confirm the wisdom and power of this approach. Of course, good things can always be made better, and the article by Avinash Khare[2] raises some important concerns. It is so tempting for politicians to build new edifices rather than address improvements to the infrastructure of those institutions that already exist.

From Sathyamurthy's guest editorial, it might appear to some that all is well with Indian higher education. In the eyes of this foreigner, I would challenge that perception. Soon after 5 IISERs were started, 14 central universities were also started, but it seems to me with much less success. Moreover, some much more established jewels, such as the University of Hyderabad, the University of Delhi, and JNU, to name just a few, are losing their luster. They seem not to receive adequate support and they have difficulty acting autonomously. Of course, I cannot appreciate the situation so well as those who are closer to these institutions, but that is what it seems from afar by someone who truly wants to see Indian higher education achieve its full potential.

1. Sathyamurthy, N., *Curr. Sci.*, 2016, **110**, 747–748.
2. Avinash Khare, *Curr. Sci.*, 2016, **110**, 763–765.

RICHARD N. ZARE

Department of Chemistry,
Stanford University,
Stanford, California, USA
e-mail: zare@stanford.edu

Response:

It is nice to receive a feedback from somebody like Zare, a well-known scientist and an educationist, who has a ring side view of what is happening in science in India and the rest of the world.

However, I would like to emphasize that the guest editorial focused on an experiment in higher education in science carried out recently by India and the indicators of initial success. The emerging success of the model offers hope for the Indian higher education system, if it could be adapted and adopted with suitable improvement. I remain hopeful.

N. SATHYAMURTHY

IISER-Mohali,
SAS Nagar 140 306, India
e-mail: nsath@iisermohali.ac.in