

## Science communication and scientific temper\*

The concept of scientific temper is well-known in India. Developing scientific temper is one of the fundamental duties of a citizen of the country and is enshrined in the Fundamental Duties Article 51-A(h) of the Constitution of India. But the concept is far from known to the Western world. An international conference was recently held in New Delhi, where science communication for the reiteration of scientific temper was discussed. An international perspective to the discussion was brought in by invitees from other countries. The conference was attended by science communicators, science journalists and students. About 170 presentations were made at the conference.

Science now influences public discourse more than it used to about three decades ago. While there is public demand for science, there is increasing skepticism surrounding the pronouncements of the scientists on science in policy-making, observed Bernard Schiele (University of Quebec, Montreal). He added that there is a gap between scientists and non-scientists. Incidents such as the Bhopal gas tragedy, Chernobyl disaster and Fukushima disaster remain in the public mind. The public now not only realizes the advancements of science and technology but also acknowledges the risks associated. It has thus become difficult to take science to the public, said Bernard. People usually consider science as a problem and scientists as truth-finders, lamented Hak Soo Kim (Sogang University, South Korea). Even scientists find it difficult to communicate among themselves, let alone with the public.

Justice Markandey Katju (Press Council of India) talked about the significance

of science and social science in public empowerment. He said that social science has perhaps become more significant than science, and it is time one recognizes that science cannot solve the problem of unemployment and recession. The research laboratories and institutes are adequately funded, and there is neglect of the primary schools in rural areas. According to Katju, 90% of the India's population is intellectually backward!

R. Ramachandran (*Frontline*) said that science writers can hardly differentiate between two sides of an argument, as they are required to report both. Due to the lack of communication between scientists and journalists in India, the policy is influenced by the coverage that science in the West gets in Indian newspapers. On television, due to shortage of time, journalists do not present scientific facts behind issues such as Ganesha idols drinking milk. They merely present news facts about science. Journalists need to raise issues of scientific impact and policy on television. Biman Basu (former editor, *Science Reporter*) said that the basic objective of scientific temper is to inform people not to be ignorant and superstitious. While discussing scientific temper in eradicating superstitions, it was mentioned that there was no PSLV-C13 because of the belief surrounding the number '13'.

News modes of communicating science were also discussed during the conference. These include science blogs, facebook, activity kits, hands-on activities and science express. It was suggested that public advertisements and philately be used to communicate science. Visits to laboratories, science cities, and interaction between scientists and the public are other opportunities for spreading scientific temper.

S. Anil Kumar (freelance journalist) named a few vernacular journals published in Kerala. 'As compared to the previous century the science news coverage in traditional print medium has reduced...Science news is ignored due to importance given to politics. A wrong

notion is that there is no demand for science', said Kumar. He also said that only three aspects are considered in science writing – scientists, audience and communication, and unfortunately the writers are largely ignored.

While tracing the history of science communication in India, T. V. Venkateswaran (Vigyan Prasar, New Delhi) said that during the post-independence era, there was uncritical praise and worship of science, particularly technology; science and technology was considered as a harbinger of progress and development in popular science writing, but this changed in the mid-1980s. With People's Science Movements, a critical appreciation of science began. Gauhar Raza (CSIR-National Institute of Science Communication and Information Resources, New Delhi) while talking about indicators of science communication said that even if all the resources are provided for science communicators, and media starts to communicate science, a change in scientific temper cannot be easily brought about. A layman cannot turn into a scientist when science is communicated to him.

The following 12 commandments of science writing were presented at the conference, by researcher P. M. Bhargava: (1) Be accurate and honest. (2) Dramatize; don't sensationalize. (3) While talking about a new discovery, relate to something that everybody experiences. (4) Relate what you write to an individual. (5) Use common words; explain uncommon words, if used. (6) Know your audience. (7) Have a catchy title and presentation. (8) Bring out socio-economic and political implications in the story. (9) Find links between different compartments of knowledge. (10) While writing science fiction, choose whether you want to be realistic or unrealistic. (11) Read a lot. (12) Recognize that excellence in science does not need advertizing.

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