leaders of the states do not seem to favour the variety either[13,14]. The scientist–lay man barrier may not have been scaled efficiently enough, but the need for communication is an area of general consensus. Swaminathan sees the necessity ('there has to be a culture of conversation between scientists and the public through dialogues, media and conflict resolution meetings'). So do Bhargava ('there should be a dialogue between all the stakeholders, including farmers, where no available information should be withheld'), G. Shanmugam ('interactions between the lay public and open-minded scientists may be contemplated similar to the MIT model mentioned by Balaram in a recent editorial in *Current Science*[15]'), and many others. However, the question of who must mediate the communication is still debatable. As Chauhan puts it, 'Scientist is too broad a term. A biologist, a chemist, or a physicist may not know or appreciate the field of transgenics and real issues involved with toxicity, safety, etc. Plant scientists working with transgenic plants and with the *Bt* group should be the ones who should have a dialogue with other scientists and the public. There are a lot of "Googled" scientists and activists who may choose to receive selective information from not too accurate sources and form opinions or further cement them. Unless stakeholders from the civil society, including the scientists, come with an open mind, there will be little benefit from any dialogue. I personally find it difficult to convince "educated individuals" once they have taken a certain stand on any issue'.

Now, after all the debates have been presented, one may want to recall what the current position on *Bt* brinjal is. V. P. Kamboj (former Director, Central Drug Research Institute, Lucknow) summarizes the present status: 'The views of the RCGM and GEAC and three special committees constituted to review it, as also of the six science academies are before the Government of India. Its decision on *Bt* brinjal will decide the fate of transgenic crops.' Would the decision on *Bt* brinjal really have such a great influence on the future of GM crops in India? Well, that is debatable too!


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MEETING REPORT

# Publish and perish*

If one does not follow certain ethics and norms in scientific publishing, one's career is bound to perish. If not immediately, maybe in the future. In a recent brainstorming two-day workshop on academic ethics, a small number of scientists, social scientists, editors and journalists discussed issues in publishing, such as scientific misconduct, plagiarism, and falsification and fabrication of data. It was questioned if an individual committing such a 'crime' must be held accountable or not, particularly when there is no clear evidence of misconduct on his part. Should one be punished because public funds were involved in conducting research? Should one's career be ended or marked forever due to a few misdeeds?

In a way our society encourages plagiarism at a very early stage in one's life – during school days, when a student is not inhibited from submitting a professionally made science project or in college/university level when students are made to copy experiments verbatim from their senior's practical notebooks. Highlighting this Rohini Muthuswami (Jawaharlal Nehru University, New Delhi) said that answers in examinations are expected to be exact points as written in the textbooks. Advent of internet has inculcated among the students the copy–paste tactic of finishing assignments and term papers. 'Plagiarism cases are also fuelled by the race to publish more as our education system demands a Ph D degree with at least ten research publications as the minimum criteria for the post of professor', noted S. R. Hashim (Forum for Global Knowledge Sharing).

Satyajit Rath (National Institute of Immunology, New Delhi) said that talking about ethics conflicts with the emphasis that is laid on newly enrolled Ph D students who are told, 'you have to

*A report on a workshop on Academic Ethics, held at The Institute of Mathematical Sciences, Chennai, during 15–16 July 2011. It was organized by the institute in collaboration with the Forum for Global Knowledge Sharing.

have a good paper published in *Nature*, *Science*, *Cell*, *Neuron*, etc.'. Pressure might lead to dishonesty. He also mentioned of the unrealistic projections that are made routinely in the grant proposals. Gautam R. Desiraju (Indian Institute of Science (IISc), Bangalore) was of the view that the increasing size of scientific community and the race to move ahead in career is leading to ethical violations. He argued the need for an apex body at the government level to handle misconduct. Some cases that occur in small universities and colleges are looked down upon only as 'Indian' though they were not emerging from the centres of excellence of the country. 'Part of the damage to our education system has been done by coaching centres', said Desiraju.

N. Raghuram (Society for Scientific Values (SSV)) said that while plagiarism dominates most of the headlines, there are more serious, unrecognized issues such as falsification and fabrication of data. There are conflicts of interest issues in grants, publications as well as regulatory bodies. He said that there are countering attempts in other countries typecasting India as poor in ethics. Despite efforts of SSV no case was registered against UK scientists who copied from original work published by Indian scientists. Whistleblowers have no protection by law to sustain in the scientific community, either.

Sunil Mukhi (Tata Institute of Fundamental Research, Mumbai) said that cover-up levels of misconduct cases are high in India as well. He suggested that new students enrolled into higher education courses must be conveyed about misconduct and its possible consequences. Chiranjib Sen (Indian Institute of Management, Bangalore) proposed that besides celebrating the work of great scientists, their ethical values must be celebrated. Since students are negative towards ethical considerations, notifying them that misconduct will affect their career might help prevent misconduct.

T. A. Abinandanan (IISc) presented a study of retracted papers in PubMed. His study was prompted by provocative assertions made in a study conducted by R. Grant Steen, one of which was that retracted papers are more likely to be authored by Americans. Abinandanan analysed papers published during 2001 to 2010 and found the misconduct rate from India to be 44 per one hundred thousand papers, as opposed to the world average of 17. P. Balaram (IISc) presented a historical account of plagiarism cases in *Current Science* and those discussed in the pages of the journal, sharing his experiences as an editor and administrator.

Gautam Menon (The Institute of Mathematical Sciences (IMSc), Chennai) presented a comparative analysis of two cases – Schon case from Bell Laboratories and Gopal Kundu case from the National Centre for Cell Science, Pune. The two cases occurred in entirely different academic settings and were dealt with in different ways. Emphasizing the differences, Menon noted, 'Indian public scientific institutions still do not seem to understand their role in shaping and directing the public discourse on such issues by being fair, objective, transparent and public.'

K. Narayanan (Indian Institute of Technology (IIT) Bombay, Mumbai) talked about some issues of data processing and reporting, such as writing an abstract with no data, not reporting contradictory findings and including names of those who have not contributed to the work. L. S. Shashidhara (Indian Institute of Science Education and Research, Pune) concentrated on authorship issues in different fields of science. He mentioned that confusion prevails over the order of authorship; in some fields of science the first author has contributed the most, in others the last author is the senior or the corresponding author. In subjects where field work is required there are hundreds of authors! In some papers, names of some contributors are left out. In the field of mathematics it is a general observation that false claims are not made. This can be easily verified during an interview where selection committee asks an applicant to explain the work; if the work is plagiarised the applicant will not be able to explain it well. This is different from biology and chemistry where illustrations from other's works are common. Some journals such as *Nature*, therefore, demand for a clear indication of the contributions made by each author of the paper submitted.

N. S. Siddharthan (Madras School of Economics, Chennai) touched upon conflict of interest issues of corporate funding in research, e.g. tobacco company funding research trying to prove cancer is not caused by tobacco! Amar Jesani (*Indian Journal of Medical Ethics*) threw light on clinical research organizations and the ethical issues surrounding them. India is increasingly becoming a target for clinical trials because there is poor access to healthcare. Unfortunately, once the trial is complete, the patients are not even allowed a free access to the newly marketed drug that was tested on them. He said researchers working in the field of genetics or biotechnology must not forget that outside the laboratories, their work influences people, they are indirectly dealing with them. He also recognized the increasing privatization and commercialization of research in biomedicine and public health.

Aparna Basu (National Institute of Science, Technology and Development Studies, New Delhi) mentioned that earlier research was about observing the nature, now it is dependent on the availability of resources. She also voiced the need for codified rules and procedures to handle misconduct, as misconduct sabotages the reputation of the institute and colleagues, turning it into a one-to-many problem. Researchers who cite the work (later retracted) suffer damage too. Neelima Gupte (IIT-Madras, Chennai) talked about issues affecting women scientists and how sensitization of fellow men and women colleagues can help. D. K. Srivastava (Madras School of Economics) discussed academic ethics in economics. He said that the recent financial crisis may have resulted from the ethical misbehaviour of economists who held undisclosed multiple positions in business, industry, government and NGOs. Other issues in the field of economics are in the teaching and studying of economics.

During the workshop, conflicting issues such as if media should be allowed to report on cases of scientific misconduct or not were debated. One view was that there is hype created by media and they should be secluded from reporting, other was that some media persons could be indentified to report on such delicate issues that have consequences for the alleged. Two science journalists, T. V. Jayan (*The Telegraph*) and R. Ramachandran (*Frontline*), presented journalist's perspective of misconduct. It was said that majority of the cases of scientific misconduct are broken by the media. Often media is informed about such cases but every incident is not of interest to them. Jayan said that no action was taken when illegal clinical trials came to light because there are no clear guidelines, and the same is true for stem cell

research cases. The situation is exactly as it was several years ago. Ramachandran talked about 'blind watchdogs' – institutes and academic bodies which are to maintain scientific integrity by serving as watchdogs but do not. He provided case histories of high profile scientists who got off scot-free. He clarified that when a misconduct is brought to the attention of journalists, they verify the information before publishing a story. The alleged is interviewed by the reporter, to provide a balanced picture.

K. VijayRaghavan (National Centre for Biological Sciences (NCBS), Bangalore) recommended that misconduct can be handled at three levels – individual, institutional and national. He mentioned NCBS as an example of an institution with ethical guidelines and Wellcome Trust–DBT India Alliance at the national level. Anuradha Lohia (Wellcome Trust–DBT India Alliance, Hyderabad) highlighted the measures taken for the scrutiny of applications for the fellowships offered by India Alliance. Strict norms are followed to avoid any conflict of interest issues and the model is an excellent Indian example of how unethical means are prevented from creeping into the application process (for details see: http://www.wellcomedbt.org/grant-conditions-and-policies.html).

Other suggestions made to avoid/handle plagiarism were: Institutes must disclose plagiarism cases on their websites, a research ethics course for post-graduates must be introduced, remedial English language courses for better communication can be conducted, hand-written assignments can be emphasized upon, and setting up an investigating committee different from the disciplinary committee. A golden rule to publishing, said Rahul Siddharthan (IMSc), is to give credit and check for permissions before using work of others and marking verbatim sentences in quotes with citations. A possible outcome of the workshop will be a policy document laying down guidelines and necessary actions to be taken, particularly demanding a national body from the government to look into misconduct cases (on the lines of the Office of Research Integrity in the US). It was also felt that the national science academies can take a lead in this direction.

*'Many people say that it is the intellect which makes a great scientist. They are wrong: it is character'.*

—Albert Einstein

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# MEETINGS/SYMPOSIA/SEMINARS

**QUEST – 2011, Hands on Training in Molecular Biology Techniques**

Date: 12–23 September 2011
Place: Tiruchirappalli

Techniques include: Total RNA isolation and cDNA preparation; Isolation of genomic and plasmid DNA and confirmation; Electrophoresis and blotting techniques; Primer designing; PCR techniques including overlapping PCR; Restriction digestion; Ligation and transformation; Bioinformatics tools and software for drug designing.

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**National Seminar on Geospatial Solutions for Resource Conservation and Management (GEOS-2012)**

Date: 18–20 January 2012
Place: Bangalore

General theme: Geospatial solutions for resource conservation and management.

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