

# FRONTLINE

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**EVENTS**

## In defence of science



Students and scientists at the India March for Science organised in Bengaluru on August 9.  
Photo: V. Sreenivasa Murthy

### In the face of drastically reduced funding for science and research bodies and the blatant promotion of unscientific ideas and mythologies in institutions, members of the scientific community take out massive marches for science across the country. By DIVYA TRIVEDI

THE Uttarakhand government has started a hunt, sponsored by the State Department of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH), for the mythical herb *sanjeevani booti* in the State's forests. Indian Institute of Technology Delhi has become the nodal agency for researching the benefits of cow excreta. The Madhya Pradesh government recently stirred up a controversy by announcing that it will set up astro-OPDs where astrologers will be employed to diagnose patients in hospitals. "Our country has gone back several centuries," said an educationist marching through the streets of Delhi holding a banner in defence of science. Along with other scientists, students, engineers and rationalists, he bemoaned the recent efforts to undermine scientific temper in the country.

The Bharatiya Janata Party (BJP) government's diversion of resources from scientific pursuits to pseudoscientific preoccupations has forced the scientific community to come out on to the streets. Not usually known for carrying placards or organising processions, the Indian scientific community responded to the assault on science through the "India March for Science". Institutions and individuals responded to the call given by the Breakthrough Science Society, an organisation of scientists which has its central office in Kolkata and chapters in most States. On August 9, close to 10,000 protesters marched through more than 30 towns and cities, including Chandigarh, New Delhi, Allahabad, Patna, Ranchi, Pune, Ahmedabad, Hyderabad, Gangtok, Agartala, Guwahati, Bhubaneswar, Mumbai, Kolkata, Chennai and Bengaluru. But prohibitory orders issued by some institutions and the fear of losing funding from the government kept many scientists and academics away from the march.

Still, such a large mobilisation of the scientific community was a rarity. Partly inspired by the global March for Science organised across 600 cities around the world on April 22, the India chapter took a while to organise itself. In the United States, the movement was born as a response to Donald Trump's budget cuts and decision to pull out of the Paris Agreement on climate change. In India too, funds for research were being slashed. Financial support to the Indian Institutes of Technology (IITs), the National Institutes of Technology (NITs) and the Indian Institutes of Science Education and Research (IISERs) had been reduced over the past few years. The IITs and the NITs were asked to manage their expenditures from students' fees. Research funding agencies such as the Council for Scientific and Industrial Research (CSIR), the Department of Biotechnology and the Department of Science and Technology were facing severe shortage of funds. The march was organised to demand that the government allocate at least 3 per cent of the gross domestic product (GDP) for science instead of the current 0.8 per cent.

Some protesters were there just to reclaim the idea of protest. "When I look at my country today, they are researching urine. The right to protest is also being taken away from us. I am here to reclaim that right," said an educationist at Jantar Mantar in Delhi.

"If unscientific ideas and superstitions are vigorously promoted the way they are being done now, it will restrict the space for science in people's minds. While science demands evidence, the kind of mentality being propagated today encourages people to believe without questioning. Science is not just a set of theories, it is a way of life which is seriously being undermined," said Prof. Soumitro Banerjee, professor of physics at IISER Kolkata. He was referring to some recent government initiatives that had the footprint of the pseudoscientific fixations of the Sangh Parivar.

#### Unscientific Beliefs

Recently, IIT Kharagpur announced in a workshop that vastu shastra would be included in undergraduate and postgraduate programmes in architecture. Commenting on a journal published by the Ranbir and Chitra Gupta School of Infrastructure Design and Management, IIT Kharagpur, Prof. Amitabha Datta, president of Breakthrough Science Society, West Bengal Chapter, said that the journal "advised people to follow vastu practices in day-to-day life— like keeping idols of Hanuman and Ganesha in front of the house. An article titled 'A to Z of Vastu Vidya' by Prof. Joy Sen claims that these idols can protect us from 'evil powers'!... This is not an isolated incident. We are now witnessing a concerted effort to infuse unscientific, mythical beliefs into the common peoples' minds in

the name of science. We appeal to science-loving people of the country and particularly the members of the IIT community to protest against the move and to stop the introduction of vastu in the syllabus.”

IIT Delhi, meanwhile, has emerged as the nodal centre for “cow science”. The institute initiated research on the cow’s excretions under the direct chairpersonship of Harsh Vardhan, Minister for Science, Technology and Earth Sciences. This R&D initiative will focus on the uniqueness of indigenous cows and the use of panchagavya in food and nutrition, agriculture, medicine and health. Panchagavya is a mixture of cow’s milk, curd, ghee, dung and urine. An official memorandum directing the constitution of a national steering committee called Scientific Validation and Research on Panchagavya (SVAROP) was sent out by the Science for Equity, Empowerment and Development (SEED) of the Department of Science and Technology on April 25. The committee will be co-chaired by Vijay Bhatkar, Chancellor, Nalanda University, and the national president of Vijnana Bharati, the science and technology front of the Rashtriya Swayamsewak Sangh (RSS).

The March for Science was a response to “science facing the danger of being eclipsed by a rising wave of unscientific beliefs and religious bigotry, and scientific research suffering serious setback due to dwindling governmental support”, said an organiser.

High Court judges extolling the cow’s virtues or the Education Minister of a State claiming that the cow is the only animal that breathed out oxygen, however problematic, do not have the backing or validation of a scientific institution. But when scientific institutions backed by the government push for obscurantist ideas, it threatens to crush the foundation on which the scientific temperament of future generations is to be built. Organisers of the march said there had never been a greater need for scientists to interact with society as now. “While we can justly be inspired by the great achievements in science and technology in ancient India, we see that non-scientific ideas lacking in evidence are being propagated as science by persons in high positions, fuelling a confrontational chauvinism in lieu of true patriotism that we cherish. Promoting a scientific bent of mind can certainly help improve the social health of our country where incidents of witch-hunting, honour-killing and mob lynching are reported regularly,” said one of the organisers.

The march in Pune saw participation by the anti-superstition organisation Maharashtra Andhashraddha Nirmoolan Samiti, and Narendra Dabholkar was remembered as the first martyr for science in India. Dabholkar, Govind Pansare and M.M. Kalburgi were all murdered between 2014 and 2015 for advocating a scientific way of thinking.

While there is a lot of rhetoric coming from the Centre for the promotion of science, it does not help when the Prime Minister himself claims, in a room full of doctors, that Ganesha’s elephant head was proof of the prevalence of cosmetic surgery in ancient India. Or that the myth of Karna being born outside his mother’s womb was testimony to the prevalence of genetic engineering. Rather than being isolated incidents, these fantasies of a glorious past are being mouthed by the highest bodies of decision-makers in India and the discipline of science itself is being remoulded to prove such theories. Meanwhile, scientists in government laboratories are being asked to generate a part of their salary by selling their inventions and from other sources. In Dehradun in June, a two-day *chintan shivir* (brainstorming session) was organised, influenced and attended by the RSS affiliate Vijnana Bharati.

Acting on one of the conclusions arrived at the session, the Ministry of Science and Technology directed all CSIR laboratories to raise their own funds and turn research projects into for-profit ventures over two years. As priorities moved towards economically beneficial and profitable science, and even as demands for a knowledge society increased, everything that was required to sustain a knowledge society had been undermined, said Prof. Dhruv Raina, a science historian and professor at Jawaharlal Nehru University, New Delhi.

### Concrete demands

The March for Science made some concrete demands. First, to allocate at least 3 per cent of the GDP for scientific and technological research and 10 per cent for education. Second, to stop the propagation of unscientific, obscurantist ideas and religious intolerance, and encourage development of a scientific temper, human values and a spirit of inquiry in conformance with Article 51A of the Constitution. Third, to ensure that the education system imparts only ideas that are supported by scientific evidence. And last, to enact policies based on evidence-based science.

“What is being spread are essentially various mythologies presented as science, and the exercise of science and scientific research seems to be to explore the correctness of these mythologies. All kinds of budgets are being created for this, including budgets for yoga and vastu shastra. It is being propagated that if one is sick, then one should do yoga instead of going to a hospital. There is a move away from public commitment to health and developing science and education. The funding for science itself is being diverted. R&D budgets of the government are being diverted to flagship programmes of the government or the Prime Minister,” said Prabir Purkayastha of the Delhi Science Forum.

Seventy years after Independence, a great proportion of the population is illiterate and semi-literate, and science does not reach them. “Most schools do not even have laboratories. How will you teach science to them? The great majority of students are taught in such schools and they will never become scientists,” said Soumitro Banerjee.