

# Indian science in need of overhaul

Advisory council calls for 'warlike' effort to boost research.

K.S. Jayaraman

06 January 2012

India is falling behind in the race to become a global leader in science, the country's prime minister has said.

Speaking at the 99th Indian Science Congress in Bhubaneswar on 3 January, prime minister Manmohan Singh told delegates that despite increased funding, "over the past few decades, India's relative position in the world of science had been declining and we have been overtaken by countries like China".

The applied sciences have suffered disproportionately, and "poorer prospects in science" drive the best students to choose other careers, Singh told the 3,000-plus gathering of mostly students. Although "things are changing", he said, "we cannot be satisfied with what has been achieved. We need to do much more to change the face of Indian science".

Singh's remarks were triggered by a report from his 32-member scientific advisory council, which is chaired by chemist C.N.R. Rao. After reviewing the country's scientific landscape, Rao's panel informed Singh last month that the situation is "somewhat discouraging", and urged him to take "many steps in a warlike fashion" to make India a science leader at least by 2030.

Rao's panel told Singh that India does not have any educational institutions that are in the world's top 100; that its universities have decayed owing to years of neglect; and that even its leading institutions "are not performing well". South Korea and China have "out-classed our performance in terms of the number of PhDs, scientific research papers and so on", the panel says. The problems are not down to funding alone, "but the overall environment for innovation and creative work". Singh was told that a crisis in leadership is also looming, with not enough young people to take on such roles.

## Concrete steps

The council presented a plan to improve the situation. To solve the leadership crisis, the advisers urge Singh to send as many as 1,000 young people to advanced centres abroad for PhD and postdoctoral studies.

It also recommends removing mediocrity from educational and scientific institutions, eliminating bureaucracy, making structural changes for better administration and creating "a large number of small centres of excellence" around outstanding individuals.

"This is a real bottom-up approach," says Lingadahalli Shashidhara, a developmental biologist at the Indian Institute of Science Education and Research in Pune. "It is good to push the average standards upwards; it is key to the success of Indian science." He adds that he hopes India will also provide well-funded, flexible research positions for foreign researchers.

Gangan Prathap, director of the National Institute of Science Communication and Information Resources in New Delhi, says that the suggestions are "implementable and long overdue". Mamannamana Vijayan, a biophysicist at the Indian Institute of Science in Bangalore and former president of the Indian National Academy of Sciences, agrees. He says that the move for structural changes is laudable, because the existing structure of Indian science is "the single most important hurdle obstructing the flowering of Indian science".

But some are sceptical about how these changes will be implemented. "All this has been seen before but the will to implement it is totally missing," says Gautam Desiraju, a chemist at the Indian Institute of Science. "As long as the present dispensation continues in the present way, no progressive change can be expected."

Rao says he has indications that the government is taking the panel's advice seriously. "It has asked us to prepare a set of priority



HARISH TYAGI/epa/Corbis

Manmohan Singh wants India to improve its international standing in science.

recommendations for rejuvenating science and the structural reforms needed for the purpose," he says. "We have just sent these and we are promised that these will be given place of importance in the coming 5-year plan."

*Nature* | doi:10.1038/nature.2012.9750