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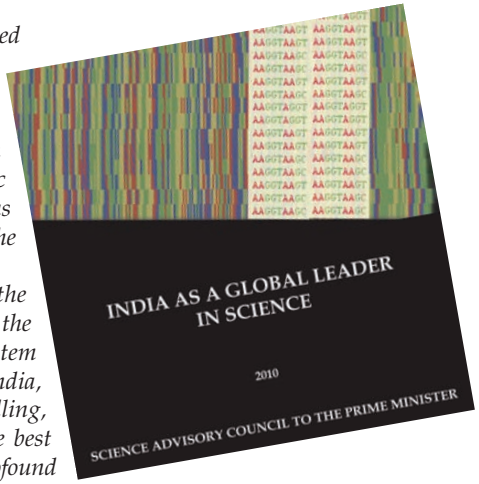
A Vision for Indian Science

What does India have in abundance that few countries could boast of? Of course, the huge population is nothing to be proud of. But the growing youth population could certainly be counted as an asset. Of our population of over a billion, 54% is below the age of 25. In 2020, an average Indian is expected to be only 29 years old, as against 37 years in China and the US, 45 years in West Europe and 48 years in Japan.



A vision document for Indian science, recently released by the 32-member Science Advisory Council to the Prime Minister (SAC-PM), counts the youthfulness of the Indian population as a major advantage. "Only 13% (of the youths) are enrolled in higher education today which means there is vast scope for expansion (of scientific manpower)," says the report. The 47-page report, "India as a Global Leader in Science", has charted a roadmap for the growth of Indian science for the next 20 years.

The report also urges the government to rope in the best teaching talent to improve the quality of education in the country. According to the SAC-PM, "No educational system can be better than the teachers it manages to get. In India, where teaching is unfortunately no longer a respected calling, we need to experiment with new methods of getting the best teachers into the profession and recognising them for the profound national and societal value of teaching — and forming — new generations of citizens." In fact, the vision document notes that the best schools were found in countries that had invested in their teachers and attracted their best talents into this profession.

How many scientists does the country require in the coming future to be able to become a global force in science? Well, the vision document has called for creating an environment that starts producing at least 15 lakh graduate scientists, 3 lakh post-graduate scientists and 30,000 PhDs every year by the year 2025. Subsequently, India's contribution to scientific literature should rise to 10% (from the present 2% or so) and number of patents filed to about 20,000 per year by 2020 against about 1900 filed in 2007.

Obviously, a greater push to science in the country cannot come about without an increase in the science budget. As per figures put out by the US National Science Foundation, Asia's share of global high-tech exports has been rising while the US share has been declining. However, the majority of the Asian growth seems to be coming from countries like China, South Korea and Japan. And these are the countries that have substantially increased their R&D spending over the years while the fraction of GDP that is spent on R&D has remained stagnant in India for two decades now.

The SAC-PM vision document, therefore, has called for the science budget to be increased to at least 2.5% of GNP by 2020 (against 0.8% at present) besides a special economic package for the promotion of high-tech industry in India and its exports. It has also urged states to invest more in science as well as higher education and support their own universities adequately.

The report also envisions the creation of a culture of innovation and entrepreneurship. However, the need is to move beyond mere improvisations or jugaad*-centric innovations to radical innovations. The report has proposed a public company that will invest up to Rs.10 billion a year in start-up ventures besides tax incentives to innovative companies and extra-budgetary grants for new ideas and innovation in government-funded research organizations and encouraging their scientists to set up commercial ventures.*

It is important that the vision document gets translated from paper into reality as soon as possible. It has to be realized that, for a country the size of India, the rewards of a thriving science-based economy could be immense.

Hasan Jawaid Khan

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