

'India's spending on science below economic capacity'

Losing out: There were more than 100,000 people with PhDs, who were born in India but now live and work outside, with more than 91,000 in the U.S. alone, said the Survey. Reuters

India currently spends far below its economic capacity on research, according to a chapter in the Economic Survey. India spent only 0.5% of its Gross Domestic Product (GDP) on research and development in 2015.

In comparison, China and the U.S. spent 1% and 2.5%, when their per capita GDP were similar to that of India. Currently China's GDP is five times and the U.S.' about eight times that of India.

"At this rate, India would barely reach 1% of GDP by the time it [becomes] as rich as the USA," the Survey noted. This is the first time the annual survey of the economy earmarked a dedicated chapter on the state of science and technology in India with Chief Economic Adviser, Arvind Subramanian stressing that India needed to work hard to improve its output. "For the first time, we have a chapter on science and technology. We are saying that science and technology needs a big push. We need to increase the R&D, and perhaps we need to do this much more in mission mode. It's also very important to have a scientific temper of debate and openness without religious obscurantism," he said at the press conference discussing highlights of the Survey. In the last two decades, India had improved its output of scientific publications and was currently sixth in the world. However, in quality, India was still woefully short.

For instance, in 2001, China had 174 high quality scientific publications and India 103. By 2011, China had soared ahead at 980 and India was still only at 153.

'Creating gene maps'

To fix this, India needed to unveil programmes in "mission mode", for example in areas such as "Dark Matter", the invisible building blocks of the universe. This would be through building on existing strengths in astronomy and international collaboration. The Survey also proposed missions in mathematics as well as genomics. The latter involved emulating projects in Finland and the U.K. and creating a detailed gene map of a sample of Indians that can be used as reference to better understand disease patterns. The government also ought to be reaching out more to scientists based abroad, it said.

There were more than 100,000 people with PhDs, who were born in India but now live and work outside (more than 91,000 in the U.S. alone). "...with the strength of India's economy and growing anti-immigrant atmosphere in some Western countries, India has an opportunity to attract back more scientists," the Survey noted. "There has been an increase in the number of Indian scientists returning to work in India during the last five years, but the numbers are still modest."

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