

What the Indian science community expects from new govt.



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Today Indian scientists are actively and successfully involved in everything from basic research to applied technology-oriented world-class research. Chandrayaan-3, Aditya L-1, Gaganyaan, reusable space shuttle Pushpak and whatnots bear testimony to it.

These are the fruits of scientific institutions created by India's first Prime Minister Jawaharlal Nehru with the vision of the country standing on its own feet and achieving progress when the western countries were questioning in a mocking tone whether India, being a poor country, should engage in scientific research.

Now Indian science has to innovate itself in order to face the challenges of the fourth technological revolution, climate change and so on. But the million dollar question is if today's government is fully interested in scientific development?

Inadequacies

Way back in 2011-12, 0.76 per cent of Gross Domestic Product (GDP) was allocated to science and technology research. Despite several announcements in the subsequent budgets, the allocation was whittled down to just 0.64 per cent in 2020-21. Comparatively China allocates 2.4 per cent and Brazil 1.3 per cent of funds for science and technology research. Specifically, China spends dollar 413.4 per capita per year on science and technology research, Brazil dollar 197.9, and South Africa dollar 88.7. But, India spends just 42 dollars.

Likewise human resources and institutions are important for scientific development. We need competent people to carry out research and also need higher education institutions to train and develop competent and potential researchers. In India in 2009, 164 persons per 10 lakh people were engaged in science and technology research. This figure almost doubled to 262 in 2020. But during the same period in China, the number rose from 863 in 2009 to 1,585 in 2020 and in Pakistan this number is 383, much more than the Indian figure. The figure on this count is

484 in South Africa and 888 in Brazil. We used to be at the forefront among the Third World countries, but today we are facing setbacks. In the last 10 years, no new research institutes have been set up to employ a significant number of researchers.

Status of higher educational institutions

Though India boasts about 40,000 institutions of higher education, only a very few have facilities for research.

Jawaharlal Nehru University ranks first among over 400 universities, according to the rankings by the London-based Quacquarelli

Symonds (QS). But the problems such as funds crunch, crisis for the university democracy etc., which have been rocking this university for the last few years, are galore. There are several institutions of higher education in India, which are sailing in the same boat, in terms of problems.

China, on the other hand, has been seamlessly building world-class institutions of higher education. Rattled by China's amazing growth, the U.S. and European countries have started taking STEM higher education-oriented initiatives.

Freeze on research

In 2019, the Indian government decided to change the system of providing research funding through various organizations and institutions and to centralize and execute research projects through a single organization called Anusandhan National Research Foundation (ANRF). The 2021 Budget announced an allocation of Rs 50,000 crore for it over the next five years. However, no administrative action has been taken in this regard. There is no announcement on this count in the subsequent year's budget. A mere Rs 2,000 crore was allocated in 2023. Now the government has distanced itself, saying that private companies will give the lion's share of the proposed Rs 50,000-crore fund. Except for a few individuals who voluntarily donate for scientific research, Indian private companies do not invest in research. As the scheme has not taken a full shape and has become a non-starter, there has been a lag in the implementation of research projects over the past few years. Funds do not flow steadily to research students either.

It is quite unfortunate that Anusandhan National Research Foundation has been designed as an organization administratively mostly helmed by government officials, except a few scientists. Autonomy and freedom of expression are essential for the survival of higher education and research institutions. But bureaucratic intervention and direct control from the center are increasing. It is to be recalled that when many researchers expressed their dissent during the Pokhran

nuclear bomb blast, the then government scientific adviser did not allow any counter measures against the dissident scientists, saying “Critical outlook is essential like oxygen to scientific research’.

But the present circumstances are different. When ground reality and data were not favorable to the rulers, the head of a crucial data collection institution was fired. When there was a landslide in Joshimath, public information about it was gagged. Disciplinary action is taken against researchers who criticize the government’s principles on science, saying that the rules of conduct for government employees are also applicable to the researchers and professors who are also branded as government staff. So, there are several complex issues including repressive measures against dissent in the world of Indian science.

How to recover

Only 3.7 per cent of research papers published in journals in 2012 were contributed by Indian researchers. This figure went up to 6.2 per cent in 2022, making India the world’s fourth largest country publishing research articles. However, we are lagging behind when compared to the U.S. (13.7 per cent) and China (26.9 per cent). And while quantity has increased, quality has declined. From 2017 to 2021, only 15 per cent of research in India received citations in the top-tier journals. China, which was behind us in this regard, has overtaken us very fast and is now the second largest country in the world after the United States. China is expected to surpass even the U.S. soon.

Despite this dismal state of affairs, several higher education institutions in India standing firm on the foundations laid in the last several decades have overcome challenges, creating opportunities for our students to pursue higher studies in the Western countries. Indians account for 29 per cent of foreign students in the U.S. institutions of higher education.

In these circumstances, the new government in the offing should ensure higher education for young students, expand research facilities, increase the necessary financial and scientific employment, and create an environment free from threats to free thinking.

Translated by V. Mariappan.