

## NRF must be nimble and flexible to propel science

By [Tarun Khanna](#)

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Continued government support for research is crucial. NRF should focus on democratising research and embrace flexibility to ensure high-quality outcomes.

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Research is the key to our planet's future and India can hold this key. To succeed in the knowledge economy, India's national research enterprise needs unshackling and resources for expansion. The announcement of the National Research Foundation (NRF) Bill 2023 is timely. The budget of ₹50,000 crores over five years is modest and should be seen as a start. Core issues need to be addressed in the bill to ensure that NRF is impactful. India's ranking in the Global Innovation Index has risen to 40 in 2022 from 81 in 2015, and the ranking by number of publications has gone from 7th to 3rd between 2010 and 2020, but the share of US patenting, an indicator of quality of publications, is small, and falling further behind China. Combining the highest quality in research with the scale that India needs is the only insurance for the future; here, NRF has its task cut out.

Continued and increased government support for research is critical.(Pixabay)

Continued and increased government support for research is critical. A significant share of society-shaping innovations developed in the West rose from government-funded research. The internet, GPS, and more recently, mRNA vaccines, would not have happened without decades of US government-funded research. The outcomes of public funding of fundamental research are used by entrepreneurs and industry to develop technology and applications. One-third of the most significant patents in the US are built on this bedrock of government-funded knowledge.

India cannot merely be the buyer of innovations from the West. We have the ability and responsibility to be amongst the frontline in science and technology. While the increase in government support for research through NRF is welcome, much more is needed. One way this can be achieved is to allow line-ministries, such as in textiles, steel, women and child, environment, forest and climate [OPEN APP](#) and others with currently dispersed and often sub-critical investments, to have their research steered and managed by NRF. Many science ministries also need to conduct the bulk of their research outside their own large laboratories, in the state and central universities. Central institutes should partner with NRF so that at least 25% of their budgetary allocation is spent through it. Both big missions and small science will then involve our universities and open our national laboratories to become high-end field stations for bright students and for our industry.

NRF aims to attract 72% of its funds from sources such as the industry and philanthropies. To succeed, NRF must make this attractive. Tax incentives, now substantially diluted, can be brought back to make the NRF channel attractive. Both co-funding and funding through investment in NRF should be made feasible. It is unlikely that private and philanthropic organisations would contribute funding for research if government financial rules are applied to all such external funds. It will be

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Singapore, Israel and Switzerland are examples from which to learn. These procedural challenges should be addressed ex-ante.

It is not just the way money is spent, but also, where it goes. The government's estimates show that close to 80% of research and development (R&D;) institutions in India are in private or state government sectors, but attract less than 20% of the total R&D; extramural funding. This implies that a large majority of Indian STEM students have little or no exposure to research. NRF's competitive grants should be oriented towards democratising research so that more faculty and students at a broader set of institutions have the opportunity to engage in the endeavour of building the future.

NRF provides a transformative opportunity to redefine and complement the current ecosystem while expanding the scale and scope of scientific research in the country. It is rightly chaired by the Prime Minister, indicative of its pan-India sweep and importance. But it needs to embrace a culture of flexibility and nimbleness, rather than one of bureaucratic risk-avoidance. Designed correctly, it could become a mechanism for both the government and the private sector to ensure research of the highest quality. Designed with excess rigidity, it could fall victim to the malaise of high aspiration and low delivery.

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