

PARLIAMENT QUESTION: PROMOTION OF SCIENTIFIC TEMPERAMENT, RESEARCH AND INNOVATION IN THE COUNTRY

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The Government of India has outlined broad national goals for scientific innovation and technology development through various mission-mode programmes, institutional reforms, policy reforms and enhanced R&D investments. The focus areas include: the new and emerging technologies like quantum technologies, artificial intelligence, machine learning, cybersecurity, Internet of Things (IoT), robotics, medical devices and diagnostics, cyber-physical systems, electric mobility, critical minerals, geospatial technologies, carbon capture, utilization and storage (CCUS), biotechnology, biomanufacturing, synthetic biology, circular economy technologies, clean energy technologies, blue economy, space technologies, semiconductor, etc. These objectives are being pursued through key initiatives like: ₹1.0 lakh crore Research, Development and Innovation (RDI) Fund; Anusandhan National Research Foundation (ANRF); National Missions such as National Quantum Missions (budget outlay: Rs. 6,003.65 crore), National Mission on Interdisciplinary Cyber-Physical Systems (budget outlay Rs. 3,660 crore), India Semiconductor Mission (budget outlay Rs. 76,000 crore), etc.; enabling policy frameworks like the National Geospatial Policy 2022, Indian Space Policy 2023, BioE3 Policy 2024, etc.; Technology-led innovation programmes such as National Initiative for Developing and Harnessing Innovations (NIDHI), Biotechnology Industry Research Assistance Council (BIRAC) programmes, Innovations for Defence Excellence (iDEX), TIDE 2.0 (Technology Incubation and Development of Entrepreneurs), etc. All these measures aim to boost technology development, foster industry partnerships and enhance private sector participation in national R&D to overall strengthen R&D ecosystem of the country.

The Department of Science and Technology (DST) has been conducting National S&T Surveys to collect data on investment and human resource devoted to science and technology activities in the country. Based on survey data, the department brings out national research & development statistics. As per the “Research & Development Statistics, 2022-23” report, the investment in science and research in terms of Gross expenditure on Research & Development (GERD), which include both public and private R&D investment, has been consistently increasing over the years and more than doubled from Rs. 60,197 crore in 2010-11 to Rs.1,27,381 crore in 2020-21. India occupies 7th position in terms of GERD (in billion current PPP\$) ahead of the United Kingdom, Russia, Brazil, Italy, Canada, Spain, Australia, etc. The details of public investment in research and development are as under:

Year	2016-17	2017-18	2018-19	2019-20	2020-21
Public Investment in R&D (Rs. Crore)	63974.55	71969.15	82250.19	87813.47	80992.83
% share of GDP	0.4	0.5	0.4	0.4	0.4

The Government is implementing various schemes/programmes like National Council for Science and Technology Communication (NCSTC), INSPIRE-MANAK (Million Minds Augmenting National Aspiration and Knowledge), Council of Scientific and Industrial Research (CSIR)-Jigyasa 2.0; and Atal Tinkering Labs under Atal Innovation Mission to promote scientific temper, rational thinking and evidence-based reasoning among citizens. These programmes aim to popularise science, build scientific awareness and enable informed decision-making in society. They target students, teachers, researchers and the general public through activities such as science fairs, outreach campaigns, media communication, innovation projects and capacity building. Implementation is carried out through grants to institutions, State S&T Councils, NGOs and academic bodies for project-based activities. Some of the key initiatives undertaken under these schemes/programmes include: organisation of India International Science Festival (IISF) and National Children's Science Congress; Initiative in Research and Innovation (IRIS) in Science, Technology, Engineering & Mathematics (STEM) programme which scouts for the students to do research based projects; public outreach program like low-cost teaching aid workshops; Science, Technology, Engineering, Mathematics & Medicine (STEMM) demonstration activities; mobile science exhibitions; celebration of National Science Day and National Mathematics Day; industry visits of students; INSPIRE-MANAK for young students to attract them to study science and pursue research career; establishment of Atal Tinkering Labs in schools across the country; etc. In addition, DST has recently initiated two new programs titled 'Samvaad' to provide experiential learning of students enrolled in STEMM courses in higher education institutions and Science and Technology Communication Tools to encourage the development and implementation of innovative communication tools to disseminate scientific knowledge in engaging manner. Overall, a multipronged approach involving communication, education and community engagement is being followed to inculcate scientific temper across the country. The fund released/utilized under these programmes are as under:

(Rs. Crore)

Year	2020-21	2021-22	2022-23	2023-24	2024-25
NCSTC	38.68	52.60	86.54	52.63	35.67
INSPIRE-MANAK	51.55	56.10	51.50	53.72	58.29

This information was given by Union Minister of State (Independent Charge) for Science & Technology and Earth Sciences, and Minister of State in the Prime Minister's Office, Personnel, Public Grievances and Pensions, Atomic Energy and Space, Dr. Jitendra Singh, in a written reply in the Lok Sabha on Wednesday.

NKR/G

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