

PARLIAMENT QUESTION: INNOVATION ECOSYSTEM

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The Government has undertaken various policy, institutional and financial measures to strengthen the innovation ecosystem across the country by supporting research and development, innovation, incubation, prototype development, intellectual property creation, technology translation, entrepreneurship development and startup growth.

In order to strengthen the Research & Development ecosystem in the country, the Anusandhan National Research Foundation (ANRF) has been established under the Department of Science and Technology with a mandate to enhance participation from the private sector and promote interdisciplinary research aligned with national priorities. ANRF provides high-level strategic direction for research, innovation and entrepreneurship across natural and mathematical sciences, engineering and technology, earth sciences, health, agriculture, and the scientific and technological interfaces of humanities and social sciences. Its overarching objective is to seed, grow and promote research and development and foster a culture of research and innovation across universities, colleges, research institutions and R&D laboratories throughout the country. Other major initiatives of ANRF include MAHA (Mission for Advancement in High-Impact Areas) programmes in electric vehicles, advanced materials, medical technologies, artificial intelligence for science & engineering, critical raw materials, drones, water and societal innovations. In addition, to promote STI in universities, the PAIR (Partnerships for Accelerated Innovation and Research) programme has been implemented for strengthening research & innovation capacity through hub-and-spoke networks, fellowships, Centres of Excellence, etc.

The government has also established the Research, Development and Innovation (RDI) Fund with a corpus of ₹1 lakh crore over six years to catalyse private-sector investment in sunrise and strategic sectors. Several technology sectors of strategic importance have been identified under the RDI scheme such as energy security, climate action, deep-tech, quantum technologies, artificial intelligence, biotechnology, digital agriculture, digital economy, etc.

In order to support the entire innovation lifecycle from idea generation, research & prototype development to commercialization and scale-up, major initiatives have been launched by the government. These include, the National Initiative for Developing and Harnessing Innovations (NIDHI) of the Department of Science and Technology; Startup India initiative of the Department for Promotion of Industry and Internal Trade (DPIIT); Atal Innovation Mission of NITI Aayog; programmes of the Biotechnology Industry Research Assistance Council (BIRAC) of the Department of Biotechnology (DBT); Technology Incubation and Development of Entrepreneurs (TIDE) and related initiatives of the Ministry of Electronics and Information Technology, etc.

‘Vigyan Dhara’ scheme of the Department of Science and Technology has been operationalised to strengthen the Science, Technology, and Innovation (STI) ecosystem in the country, and to enhance the S&T infrastructure by fostering well-equipped R&D labs in academic institutions through programs like FIST (Fund for Improvement of S&T Infrastructure in Universities and Higher Educational Institutions);

PURSE (Promotion of University Research and Scientific Excellence); SAIF (Sophisticated Analytical Instrument Facilities) and SATHI (Sophisticated Analytical & Technical Help Institutes (SATHI). These Centres provide shared access to cutting-edge infrastructure for research, startups, technology development and fosters innovation ecosystem.

Innovation in Science Pursuit for Inspired Research (INSPIRE) Programme of the department of science and technology has systematically nurtured scientific talent at different stages of the academic and research pipeline through its four major components viz INSPIRE MANAK (Million Minds Augmenting National Aspiration and Knowledge); INSPIRE Scholarship for Higher Education (SHE); INSPIRE Fellowship and INSPIRE Faculty Fellowship. The Government has also undertaken a series of targeted interventions to significantly expand the outreach and inclusivity of INSPIRE Programme, with a special focus on rural, remote and aspirational districts across the country. The Women in Science and Engineering–Knowledge Involvement in Research Advancement through Nurturing (WISE-KIRAN) Programme of the Department of Science and Technology (DST) has made significant progress in promoting the participation and retention of women in science, technology and innovation (STI).

Further, under the State Science and Technology Programme, Centre-State collaboration is promoted through grant-in-aid support to the State S&T Councils for strengthening State and Union Territory level science, technology and innovation ecosystems.

The Government also supports innovation in emerging and strategic areas through the National Mission on Interdisciplinary Cyber-Physical Systems, technology-development programmes, industry–academia collaborations, innovation challenges, intellectual-property facilitation and access to research and testing infrastructure. Special emphasis is placed on promoting women entrepreneurs, students, innovators from Tier-II and Tier-III cities and institutions located in underserved regions.

Launch of the National Quantum Mission (NQM) is another major strategic initiative aiming to seed, nurture and scale up scientific and industrial R&D and create a vibrant & innovative ecosystem in quantum technologies. Under the Quantum Mission, four Thematic Hubs (T-Hubs) have been established in the field of quantum computing, quantum communication, quantum sensing, and quantum materials & devices.

Department of Biotechnology has launched the ‘Biotechnology Research Innovation and Entrepreneurship Development (Bio-RIDE)’ scheme with new components namely Biomanufacturing and Biofoundry. Bio-RIDE scheme is designed to foster innovation, promote bio-entrepreneurship, and strengthen India’s position as a global leader in biotechnology and biomanufacturing. Moreover, ‘Biotechnology for Economy, Environment and Employment (BioE3)’ policy has been rolled out for fostering high-performance biomanufacturing.

Council of Scientific and Industrial Research (CSIR) has aligned its mission-mode R&D programmes with national priorities across strategic sectors, agriculture and biotechnology, chemicals, infrastructure, environment, energy, healthcare, and advanced materials. Additionally, CSIR has established a world-class Innovation Complex (CSIR-IC) at Mumbai to bridge the translational gaps of the technologies and products.

The government has strengthened the space innovation ecosystem through the Indian Space Policy 2023, liberalised FDI norms and IN-SPACe led facilitation and authorisation. Initiatives, including venture capital and technology-adoption funds, seed support, access to Indian Space Research Organisation (ISRO) infrastructure, technology transfer, affordable testing facilities and in-orbit validation through the PSLV Orbital Experimental Module (POEM) platform have encouraged private sector participation. These reforms have enabled the rapid growth of space sector startups, increased private investments and supported indigenous launches, satellites, and payload capabilities, thereby expanding India’s participation in the global space economy.

The Ministry of New and Renewable Energy (MNRE) is implementing the Renewable Energy Research and Technology Development (RE-RTD) Programme through various research institutions and industry to strengthen the innovation ecosystem in the renewable energy sector.

The Government has taken several steps to increase Research and Development (R&D) expenditure as a share of Gross Domestic Product (GDP) and to enhance private sector participation in research and innovation. As per “Research & Development Statistics 2025-26” report of the Department of Science and Technology (DST), the gross expenditure on research and development (GERD) in the country has increased from Rs. 132,567.01 Crore (0.66 % of GDP) in 2019-20 to Rs. 244,767.81Crore (0.84 % of GDP) in 2023-24.

These measures have contributed significantly to the expansion of the country’s innovation and startup ecosystem. India has more than 2.40 lakh DPIIT-recognised startups, with over half of the recognized startups emerging from Tier-II and Tier-III cities. India is presently ranked third globally in scientific publications and sixth globally in patent filings. The country’s improved innovation capacity is also reflected in its rise in the Global Innovation Index (GII) from 81st position in 2015 to 38th position in 2025. These achievements are result of various initiatives of the government to strengthen innovation ecosystem in the country.

This information was given by the Minister of State (Ind. Charge) Science & Technology; Earth Sciences and Minister of State PMO; Personnel, Public Grievances and Pensions; Department of Atomic Energy and Space Dr. Jitendra Singh in a written reply in Rajya Sabha today.

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