

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH
RAJYA SABHA
UNSTARRED QUESTION NO. 1559
TO BE ANSWERED ON 12.02.2026

Roadmap For Emerging Technologies

1559. Smt. Sangeeta Yadav:

Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

- (a) whether Government has drawn a national roadmap for emerging technologies under DSIR;
- (b) whether this roadmap includes funding mechanisms, regulatory frameworks and industry-academia collaboration;
- (c) whether initiatives like Research, Development and Innovation (RDI) ecosystem and start up reforms support early-stage deep-tech research;
- (d) the manner in which risks arising from misuse of biological technologies are proposed to be mitigated; and
- (e) the role envisaged for emerging scientific technologies in achieving India's vision of becoming a global innovation hub by 2047?

ANSWER
MINISTER OF STATE (INDEPENDENT CHARGE) OF THE
MINISTRY OF SCIENCE AND TECHNOLOGY AND EARTH SCIENCES
(DR. JITENDRA SINGH)

- (a) The Council of Scientific and Industrial Research (CSIR), an autonomous organization with Department of Scientific and Industrial Research has prepared a vision document "Vision 2030" that provides details of the future roadmap for CSIR to maintain its scientific competitiveness and innovative edge necessary to meet and actualise the national goals of India. The document outlines the strategic approach for CSIR to focus on emerging technologies to solve the grand challenges of new-age science, industry and society.
- (b) CSIR vision document "Vision 2030" provides for focus areas on emerging technologies with short, medium and long-term goals, CSIR framework for Start-up Ecosystem and an overview of Implementation Plan.
- (c) DSIR is the nodal department for granting recognition & registration to In-house R&D centers of Industry engaged in innovative research & development related to the line of business of the firm. Recently, Department has relaxed its guidelines for startup companies working in the emerging deep technology sector of Electronics and Semiconductors, Telecom, Medtech, Advanced Robotics, Quantum Computing and Cybersecurity, Agritech, Space tech, AI/ IoT

and/or any other relevant area where future technologies are being developed at a faster pace. Earlier, the Department had relaxed its guidelines to support Start-ups working in the Biotechnology sector. The central sector scheme of the Department “Industrial Research & Development” also serves to support and promote early-stage deep-tech research in start-ups, Industry and academia fostering innovation and collaborative research.

- (d) DSIR adheres to and follows the extant guidelines on the subject, as implemented/suggested by the related organizations such as the Department of Biotechnology (DBT) and the Ministry of Environment, Forest and Climate Change (MoEFCC).
- (e) DSIR through its regulatory and funding schemes supports the industry, institutions, academia and start-ups working in sectors of emerging technologies like future mobility, healthcare, industrial automation, defence, agriculture etc for creation of laboratory infrastructure and facilities, securing project funding from various government agencies, collaborative research, IP & technology creation, training and talent. The aim of the schemes and policies of the Department is to achieve self-reliance in addressing national needs and also to align with global developments. Similarly, CSIR, through its advanced research in sector of emerging technologies viz; artificial intelligence, advanced materials, biotechnology, clean energy, quantum technologies, and digital manufacturing aims to translate cutting-edge research into affordable, scalable and industry-ready solutions. The organization through its industry partnerships, mission-mode research and technology transfer seeks to provide sustainable technological solutions, contributing to the India’s vision of becoming a global innovation hub by 2047.

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