



\$10 Billion to 190 Billion Bioeconomy: India's Science Story touches New Heights in 12 Years says Dr Jitendra Singh

Space sector witnesses unprecedented growth, single digit to over 400 Space StartUps, \$8 billion space economy projected to reach 45 billion, says Minister

From 17 Weather Radars to 50, another 50 planned, forecasting transformed in 12 years

Success stories like Chandrayaan 3, Covid Vaccine establish India's Science & Technology Ecosystem as a Global Force Under PM Modi's Leadership: Union Minister Dr Jitendra Singh

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India's science, technology and innovation landscape has undergone an unprecedented transformation over the last twelve years, marked by a nearly twenty-fold expansion of the bioeconomy, a historic Moon landing near the lunar south pole, rapid growth of the space startup ecosystem, revolutionary improvements in weather forecasting and the emergence of indigenous technologies across strategic sectors, Union Minister of State (Independent Charge) for Science & Technology, Earth Sciences, and Minister of State in the Prime Minister's Office, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr Jitendra Singh, said today.

Addressing a press conference on "12 Years of Transformative Growth in Science, Technology and Innovation" at the SSB Auditorium, CSIR Headquarters, New Delhi, Dr Jitendra Singh said science and technology have moved from laboratories to the lives of ordinary citizens and have become a central pillar of India's development journey under the leadership of Prime Minister Narendra Modi. He said the growing public interest in scientific achievements itself reflects the transformation that has taken place during the last decade.

The press conference was attended by Dr N. Kalaiselvi, Director General, CSIR and Secretary, DSIR & Ministry of Earth Sciences; Dr Rajesh Gokhale, Secretary, Department of Biotechnology; senior officials from the Department of Science & Technology, Department of Biotechnology, CSIR and Ministry of Earth Sciences; and members of the media.

Dr Jitendra Singh said that today almost every major flagship programme of the Government is powered by technologies emerging from India's science and technology ecosystem, reflecting the success of an integrated, whole-of-government approach. He said the government's emphasis on innovation, global competitiveness, industry participation and private-sector engagement has accelerated scientific outcomes across sectors ranging from healthcare and agriculture to space, weather sciences, infrastructure and energy.

Highlighting India's biotechnology revolution, the Minister said the country's bioeconomy has grown from nearly 10 billion US dollars in 2014 to over 190 billion US dollars today, with a target of reaching 300 billion US dollars by 2030. He said India has emerged as a global biotechnology hub through indigenous innovations in healthcare, genomics, diagnostics and biopharmaceuticals, supported by progressive policies such as the BioE3 framework.

Dr Jitendra Singh said India has also strengthened its position in advanced healthcare technologies through breakthroughs in areas such as next-generation antibiotics, affordable CAR-T cell therapy, genomics and precision medicine. He noted that the country is increasingly developing solutions not only for domestic health challenges but also for diseases and disorders of global significance.

Referring to the transformation of CSIR, the Minister said scientific institutions are now more closely connected with industry, startups, farmers and local communities than ever before. He highlighted the success of programmes such as the Aroma Mission, which has created new livelihood opportunities and helped thousands of farmers, particularly in Himalayan regions, participate in high-value agriculture. He added that several CSIR-developed technologies are now being deployed at scale in sectors including infrastructure, clean energy, healthcare and manufacturing.

The Minister cited the example of steel slag road technology, which has converted industrial waste into a valuable national resource. He said roads built using the technology have demonstrated superior durability, lower maintenance costs and greater cost-effectiveness, leading to wider adoption across the country. Such examples, he said, demonstrate how science is contributing directly to economic growth and sustainable development.

On weather and climate services, Dr Jitendra Singh described the transformation of the India Meteorological Department as one of the most significant achievements of the last twelve years. He noted that India had only 17 weather radars in 2014, compared to nearly 50 operational radars today, with another 50 planned under Mission Mausam. He said the country has also expanded lightning detection systems, forecasting networks and rain-monitoring infrastructure on an unprecedented scale.

The Minister said weather forecasting coverage has expanded from around 300 cities to nearly 1,700 locations, while modern services such as Nowcast are providing highly localised short-term forecasts that are helping citizens, farmers and disaster-management agencies make informed decisions. He said these improvements have significantly enhanced India's disaster preparedness and resilience.

Highlighting the achievements of India's space sector, Dr Jitendra Singh said reforms introduced over the last few years have fundamentally changed the country's space ecosystem. He noted that the number of space startups has grown from single digits to several hundred, while the sector has emerged as a major driver of innovation and economic growth.

Referring to the success of Chandrayaan-3, the Minister said India demonstrated its scientific capability to the world by becoming the first nation to achieve a successful landing near the Moon's south pole. He said the opening of the space sector to private participation, coupled with institutional reforms and industry collaboration, has accelerated the pace of innovation and expanded opportunities for Indian entrepreneurs.

Dr Jitendra Singh said India is now moving ahead with ambitious future goals, including the establishment of the Bharatiya Antariksh Station by 2035 and an Indian landing on the Moon by 2040, while preparations continue for future human spaceflight missions.

The Minister also described the opening of the nuclear energy sector to private participation as one of the most significant policy reforms undertaken in recent years. He said the move has generated strong domestic and international interest and is expected to accelerate investment, innovation and capacity creation in the strategic energy sector.

During the presentations, Dr N. Kalaiselvi highlighted major achievements of the Ministry of Earth Sciences and CSIR, including the expansion of weather observation systems under Mission Mausam, progress under the Deep Ocean Mission, development of indigenous deep-sea technologies such as Matsya 6000 and Varaha, and the deployment of impactful technologies in agriculture, healthcare, infrastructure, energy and rural development.

Dr Rajesh Gokhale presented the achievements of the Departments of Biotechnology and Science & Technology, including the growth of India's biotechnology ecosystem, implementation of the BioE3 Policy, expansion of startup and innovation networks, advances in genomics and healthcare technologies, and landmark initiatives such as the Anusandhan National Research Foundation (ANRF), National Quantum Mission, Research Development and Innovation (RDI) Fund, National Supercomputing Mission and the National Geospatial Policy.

Dr Jitendra Singh said the achievements of the last twelve years demonstrate how science, technology and innovation have become key enablers of India's rise as a global knowledge-driven economy. He said India's scientific progress is not only strengthening strategic and technological capabilities but is also improving the lives of citizens and creating new opportunities for growth, employment and national development as the country advances towards the vision of Viksit Bharat 2047.



PHOTO: Union Minister Dr Jitendra Singh addressing the media on “12 Years' of Transformative Growth in Science, Technology and Innovation, at CSIR HQ, Rafi Marg, New Delhi on Monday.



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