



# SCIENCE AND TECHNOLOGY PULSE

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### **Editor's Note**

*Dear Readers,*

*Welcome to the Third edition of our Science and Technology Newsletter, March 2026.*

*This edition highlights India's continued push to strengthen healthcare, pharmaceutical manufacturing, agricultural innovation and emerging technologies through targeted policy measures and international collaborations. Initiatives such as India–Brazil cooperation on pharma regulation and traditional knowledge, the nationwide HPV vaccination campaign, and new pharmaceutical manufacturing investments reflect efforts to improve public health while enhancing domestic manufacturing capacity and regulatory coordination.*

*At the same time, advances in clean hydrogen technologies, AI-driven healthcare research, improved food safety compliance and farmer-led crop innovations demonstrate how science, policy and industry partnerships are accelerating innovation across sectors. Developments in environmental regulation and global space missions further underline the growing role of science and technology in addressing sustainability and scientific exploration.*

*I invite readers to explore the updates, sectoral developments and upcoming global conferences featured in this edition, and to reflect on how these shifts may influence investment priorities, industrial competitiveness and India's evolving contribution to global innovation agendas.*

*Warm regards,  
Abhilasha Nayal*



## India-Brazil Partnerships in Pharma Regulation and Traditional Knowledge

### *Business Impact:*

*This cooperation benefits the pharmaceutical, biotechnology and herbal medicine industries by improving regulatory coordination and protecting traditional formulations from misappropriation. It also supports intellectual property services, the nutraceutical and natural products industries.*

India and Brazil strengthened bilateral cooperation through two agreements exchanged in the presence of Prime Minister Narendra Modi and Brazilian President Luiz Inácio Lula da Silva during the President's state visit to India in February 2026. The first agreement promotes collaboration between India's Central Drugs Standard Control Organisation (CDSCO) and Brazil's Health Regulatory Agency (ANVISA) on pharmaceutical and medical product regulation, including regulatory practices, information exchange and capacity building. The second agreement allows Brazil's National Institute of Industrial Property (INPI) to access India's Traditional Knowledge Digital Library (TKDL), containing information on over 5.2 lakh traditional formulations from Ayurveda, Unani, Siddha and Sowa Rigpa. Since its creation in 2001 by CSIR and the Ministry of AYUSH, the TKDL has helped prevent over 375 incorrect patent claims worldwide.

### In this newsletter you can expect updates from:

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Government Initiatives

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Emerging Technologies

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Health and Medicine

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Environmental Science

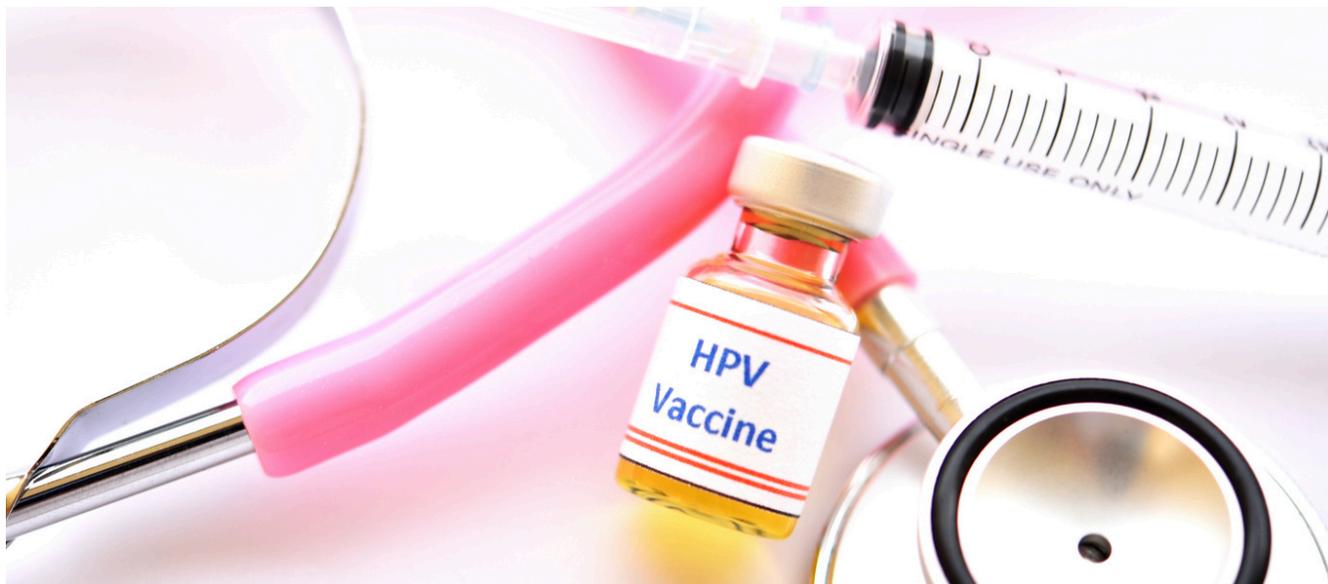
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Food and Agriculture

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Space Exploration

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## Nationwide HPV Vaccination Campaign for Adolescent Girls

**Business Impact:** The campaign will boost demand in the vaccine manufacturing and pharmaceutical industries while strengthening cold-chain logistics, digital health platforms and immunisation supply chains.

Prime Minister Narendra Modi launched a nationwide Human Papillomavirus (HPV) vaccination campaign from Ajmer, Rajasthan to prevent cervical cancer among adolescent girls. The programme targets girls aged 14 years, with around 1.2 crore beneficiaries annually, and provides a free single-dose HPV vaccine through public health facilities. Cervical cancer is the second most common cancer among women in India, with 1.2 lakh new cases and nearly 80,000 deaths annually according to WHO GLOBOCAN 2022. The vaccine Gardasil-4 protects against HPV types 6, 11, 16 and 18, which cause most cervical cancer cases. The campaign will run in mission mode for 90 days, with registration, monitoring and reporting managed through the U-WIN digital platform and vaccine logistics tracked through e-VIN to ensure safe and efficient nationwide coverage.



## New Pharma Manufacturing Facility in Jammu & Kashmir

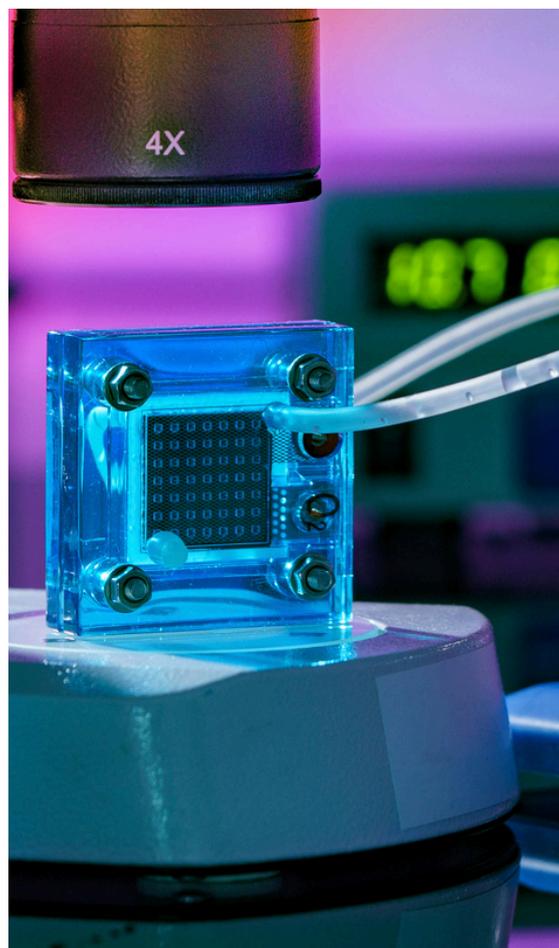
**Business Impact:** The development will support the pharmaceutical and bulk drug manufacturing industry by reducing reliance on imported antibiotic intermediates. It will also benefit chemical intermediates manufacturing, pharma supply chains and regional industrial infrastructure in India.

Union Minister Dr Jitendra Singh announced the establishment of a new pharmaceutical manufacturing facility in Kathua, Jammu & Kashmir, to be developed by Orchid Pharma under the government's Production Linked Incentive (PLI) scheme. The plant will produce Amino Cephalosporanic Acid (ACA), an important intermediate used in the manufacturing of cephalosporin antibiotics, which India currently imports largely from China. The project aims to strengthen domestic pharmaceutical manufacturing capacity, improve supply security for essential medicines and promote industrial development in the region. The facility is also expected to generate around 400 direct jobs, along with several indirect employment opportunities through associated supply chains and services.

## Nanosheets Developed for Efficient Hydrogen Production

**Business Impact:** The innovation supports the green hydrogen and renewable energy sectors and benefits advanced materials manufacturing and clean energy equipment industries.

Scientists from the Institute of Nano Science and Technology (INST), Mohali, an autonomous institute under the Department of Science and Technology, have developed quasi-2D alpha-tellurium ( $\alpha$ -Te) nanosheets that can improve clean hydrogen production. The nanosheets exhibit an emergent ferromagnetic state created by unpaired surface electron spins when bulk tellurium is converted into ultra-thin layers. This magnetic behaviour interacts with electric properties to produce a strong magnetoelectric effect, which helps accelerate the hydrogen evolution reaction (HER) in water electrolysis while lowering the voltage required, thereby reducing electricity consumption. The material was produced using liquid-phase exfoliation and strain-engineered lattice distortion techniques, allowing researchers to control the magnetic and catalytic behaviour. The study, published in *Advanced Materials*, shows that the nanosheets combine properties of spintronics, nanoelectronics and electrocatalysis, making them suitable for hydrogen-generating electrolyzers as well as flexible energy and sensing devices.



## Farmer-Developed Crop Varieties Commercialised in India

**Business Impact:** The initiative will benefit the agriculture, biotechnology, and seed industry by enabling the commercialisation of farmer-developed crop varieties.

The National Innovation Foundation (NIF-India) has facilitated the commercial transfer of five high-yield crop varieties developed by farmer innovators to Ginni Agro Products Ltd for large-scale seed production. These include three wheat varieties (Kudrat-8, Kudrat-9 and Annapurna) and two pigeon pea varieties (Kudrat-3 and Lalita). Kudrat-8 yields 65.41 quintals per hectare, while Kudrat-9 yields 67 quintals per hectare and contains 10–12% protein, 47.58 ppm iron and 23.77 ppm zinc. Kudrat-3 pigeon pea can produce two harvests annually with yields up to 36.17 quintals per hectare, while Lalita yields up to 30 quintals per hectare. These seeds will be marketed across Maharashtra, Gujarat, Rajasthan, Chhattisgarh and parts of Madhya Pradesh.



## India Simplifies Food Safety Licensing Framework

**Business Impact:** *These reforms benefit the food processing, food service and packaged food industries, while supporting micro food enterprises, street vendors and agri-food start-ups.*

The government has approved reforms to simplify food business compliance while maintaining safety standards. FSSAI licences will now have perpetual validity, removing the need for periodic renewals. From 1 April 2026, the turnover limit for basic registration has increased from ₹12 lakh to ₹1.5 crore, while state licences will apply up to ₹50 crore turnover. Vendors registered under the Street Vendors Act, 2014 will be automatically recognised under FSSAI, benefiting over 10 lakh street vendors. The reforms also introduce a risk-based inspection system using technology.



## Kerala Launches Nutraceutical Research Centre

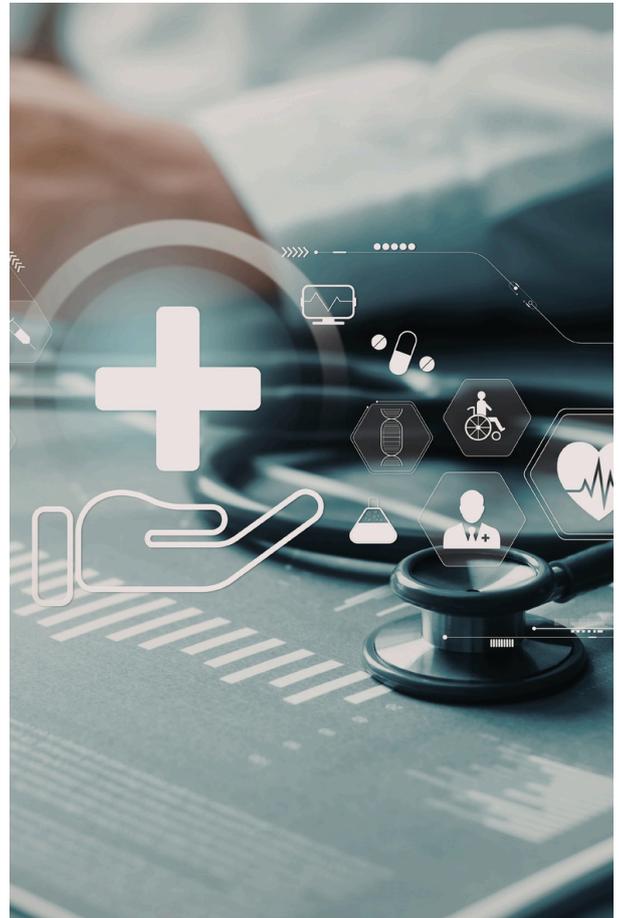
**Business Impact:** *The initiative can support the nutraceutical, biotechnology and functional food industries by enabling research and product development. It may also benefit dietary supplement manufacturers and health-tech start-ups through stronger industry-research collaboration.*

Kerala Chief Minister Pinarayi Vijayan inaugurated the Centre of Excellence in Nutraceuticals (CoEN) at Bio 360 Life Sciences Park in Thonnakkal, Thiruvananthapuram to promote research in preventive healthcare and the bioeconomy. The initiative is led by the Kerala State Council for Science, Technology and Environment (KSCSTE), with support from the Kerala Development and Innovation Strategic Council (K-DISC) and the Kerala State Industrial Development Corporation (KSIDC), and will be developed on five acres of land with ₹13.99 crore in funding over five years. The centre will focus on research and scientific validation of nutraceutical products derived from natural bioactive compounds, followed by technology transfer and industry partnerships for commercialisation.

## India Strengthens Drug and Medical Device Safety Monitoring

**Business Impact:** This strengthens the pharmaceutical and medical device sectors by improving safety surveillance and regulatory transparency, benefiting clinical research and pharmacovigilance services.

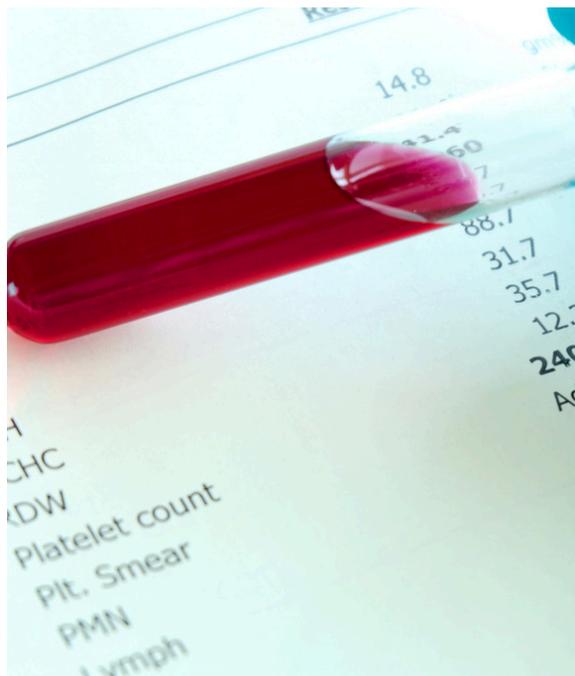
The Indian Pharmacopoeia Commission (IPC) under the Ministry of Health and Family Welfare, in collaboration with Andhra Pradesh MedTech Zone (AMTZ), organised a two-day national meeting on 27–28 February 2026 in Visakhapatnam to strengthen India’s pharmacovigilance and materiovigilance systems, which monitor the safety of medicines and medical devices. The event brought together regional centres under the Pharmacovigilance Programme of India (PvPI) and Materiovigilance Programme of India (MvPI) to improve coordination and reporting of adverse drug reactions and device-related incidents. During the meeting, the ADR PvPI 2.0 mobile application was launched to enable faster and more accessible reporting of adverse drug reactions, improving real-time monitoring and patient safety across the country.



## India–France Launch AI Centre for Healthcare Research

**Business Impact:** The initiative supports the health-tech, AI diagnostics and digital health industries, while creating opportunities for biotech and medical device companies.

India and France have jointly launched the Indo-French Centre for Artificial Intelligence in Health (IF-CAIH) at All India Institute of Medical Sciences in New Delhi. The centre was inaugurated by Union Health Minister Jagat Prakash Nadda and French President Emmanuel Macron to promote collaboration in AI-driven medical research, education and clinical innovation. The initiative is a joint partnership among AIIMS, Sorbonne University, and the Paris Brain Institute, with additional collaboration from the Indian Institute of Technology Delhi. The programme was launched during the RUSH 2026 (Rencontres Universitaires et Scientifiques de Haut Niveau) meetings held on 18–19 February 2026, which brought together scientists, clinicians and policymakers from both countries. Research will focus on digital health, brain research, antimicrobial resistance and AI-based healthcare solutions.



## India Proposes Updated Testing Norms for Blood Products

**Business Impact:** This benefits the biopharmaceutical and plasma-derived therapeutics industry by reducing testing costs and timelines while improving manufacturing efficiency.

The Ministry of Health and Family Welfare has issued a draft amendment to the Drugs Rules, 1945 and invited public comments to update testing norms for blood products in India. The proposal aims to align national regulations with internationally recognised pharmacopoeial standards such as the Indian Pharmacopoeia (IP), British Pharmacopoeia (BP), United States Pharmacopoeia (USP) and European Pharmacopoeia (EP). Under these standards, pooled human plasma used for fractionation must first be tested for Hepatitis B surface antigen (HBsAg), Hepatitis C virus RNA and antibodies to HIV, and only plasma that tests negative can be used to manufacture plasma-derived medicinal products. Currently, final products are tested again for the same viral markers, creating duplication. The amendment proposes removing this duplicate testing requirement to rationalise regulation while maintaining strict safety checks.



## Stricter Industrial Emission Norms in Delhi-NCR

**Business Impact:** The directive will drive demand in the industrial pollution control and environmental technology industries, including emission monitoring and filtration systems. It will also require manufacturing sectors such as textiles, metal processing and food processing to upgrade emission control infrastructure to comply with the new norms.

The Commission for Air Quality Management (CAQM) has issued Statutory Direction No. 98 introducing stricter particulate matter (PM) emission standards for industries in the Delhi-NCR region. The directive sets a uniform PM emission limit of 50 mg/Nm<sup>3</sup> for 17 categories of industries, including red-category industries, textile units, food processing units and metal industries using furnaces or boilers. The standard is based on recommendations from the Central Pollution Control Board and IIT Kanpur studies, which confirmed that the limit is technically feasible and necessary to reduce industrial pollution. The rules will apply to large and medium industries from 1 August 2026, and to other industries from 1 October 2026, with enforcement by state pollution control boards.



## NASA Twin Mission to Study Mars' Atmosphere

***Business Impact: The mission supports the space technology, satellite manufacturing and aerospace engineering industries, particularly companies involved in small spacecraft and space instrumentation.***

NASA has launched the ESCAPEDE (Escape and Plasma Acceleration and Dynamics Explorers) mission, consisting of two small spacecraft designed to study how solar wind strips away Mars' atmosphere. The mission was launched on 13 November 2025, with instruments activated on 25 February 2026, and the spacecraft are expected to reach Mars in September 2027 after travelling via a trajectory that loops around a point about one million miles from Earth (Lagrange Point-2) before heading toward the planet. The twin spacecraft will orbit Mars simultaneously to measure how solar wind interacts with its weak magnetic field and magnetosphere, helping scientists better understand the long-term loss of the planet's atmosphere. The mission is led by the University of California, Berkeley's Space Sciences Laboratory with partners including Rocket Lab, NASA Goddard Space Flight Center and Blue Origin under NASA's SIMPLEx programme.

## UPCOMING NATIONAL EVENTS 20 MARCH 2026- 20 APRIL 2026

23 March-2 April  
2026

**EVENT:** Preparatory Commission for the BBNJ Agreement (UN Ocean Biodiversity Treaty)

**LOCATION:** New York, USA

**FOCUS/ THEME:** Governance and implementation of the UN treaty on biodiversity beyond national jurisdiction

**INDUSTRY RELEVANCE:** Influences marine biotechnology, ocean data services, offshore energy and blue economy sectors by shaping regulatory frameworks .

24-27 March  
2026

**EVENT:** 64th Session of the Intergovernmental Panel on Climate Change (IPCC-64)

**LOCATION:** Bangkok, Thailand

**FOCUS/ THEME:** Global climate science assessment and policy guidance

**INDUSTRY RELEVANCE:** Guides climate-risk modelling, carbon markets, renewable energy investment and sustainability reporting frameworks used by energy, infrastructure and financial sectors.

26-29 March  
2026

**EVENT:** WTO Ministerial Conference 2026

**LOCATION:** Yaoundé, Cameroon

**FOCUS/ THEME:** Ministerial-level negotiations on global trade rules and economic cooperation.

**INDUSTRY RELEVANCE:** Impacts international trade frameworks affecting agri-exports, manufacturing and technology markets worldwide.

VeK is a policy advisory and research firm, distinguished by data-driven approach to analyse policy and regulatory developments in India and globally.

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