



# SCIENCE AND TECHNOLOGY PULSE

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### **Editor's Note**

*Dear Readers,*

*Welcome to the Second edition, Vol. 3 of our Newsletter, 'Science and Technology' Pulse.*

*This edition highlights a strong policy and innovation push across healthcare, clean energy, biotechnology and space. The Union Budget 2026-27 strengthens health systems, regulatory frameworks and domestic manufacturing, while initiatives such as BioPharma Shakti, the India-Netherlands Hydrogen Fellowship and expanded clinical research mandates signal a clear move toward translational, industry-ready science. Reforms in drug pricing, regulatory oversight, and international trade agreements further enhance India's competitiveness in the pharmaceutical and MedTech sectors.*

*Advances in genomics, AI-enabled healthcare, renewable energy storage, CO<sub>2</sub> conversion technologies, and indigenous satellite platforms demonstrate how research excellence aligns with strategic industrial priorities. Enhanced traceability in agri-input logistics and global collaborations in sustainability and agriculture also reinforce India's commitment to quality, resilience and export growth.*

*With major forums such as BioAsia and the World Sustainable Development Summit bringing together global stakeholders, the momentum toward collaborative growth and technology deployment is evident.*

*I invite readers to explore the updates, sectoral developments and upcoming Indian and 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*



## Union Budget 2026-27 Strengthens Healthcare and Bio-Pharma Ecosystem

### **Business Impact:**

*The higher allocation will accelerate growth in the pharmaceutical, biotechnology, medical devices and health-tech industries, encouraging domestic manufacturing and R&D investments.*

The Union Budget 2026-27 has earmarked ₹1,05,530.42 crore for the Ministry of Health and Family Welfare, marking a significant increase over the previous year to strengthen India’s health systems, disease prevention, medical education and emergency care. This enhanced funding includes support for the National Health Mission, expanded insurance cover under PM-JAY, upgraded trauma and critical care facilities, and increased capacity in medical colleges and training programmes. The budget also underpins strategic initiatives such as the BioPharma Shakti programme with a dedicated ₹10,000 crore over five years to build India’s biologics and biosimilars manufacturing base, while bolstering regulatory systems for drugs and medical devices. A focus on preventive health, digital health infrastructure, research and diagnostics reflects a push to make healthcare more accessible, quality-driven and innovation-enabled across the country.

### **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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## Budget 2026-27 Eases Drug Costs, Strengthens Regulatory Framework

**Business Impact:** Benefits pharmaceutical, biotech and speciality drug manufacturers by lowering cost pressures and improving regulatory efficiency. Enhanced CDSCO capacity will support faster approvals, stronger export credibility and increased investment in high-value therapies such as oncology and biologics.

The Union Budget 2026-27 has announced customs duty relief on 17 essential medicines, mainly used in cancer treatment, rare diseases and other critical therapies, to make advanced treatments more affordable and accessible. Alongside this, the government has proposed strengthening the Central Drugs Standard Control Organisation (CDSCO) to enhance regulatory oversight, ensure higher quality standards and streamline approval processes. The move is aligned with efforts to reduce regulatory burden, promote ease of doing business and support pharmaceutical research and development in India.



Source: Google

## India–Netherlands Launch Hydrogen Fellowship to Boost Clean Energy Research

**Business Impact:** This collaboration will benefit India's clean energy, green hydrogen and renewable technology sectors by nurturing skilled researchers and facilitating international knowledge transfer. It can also catalyse partnerships and investment opportunities in hydrogen value chains, energy systems integration and low-carbon industrial applications, enhancing competitiveness in emerging global energy markets.

The Department of Science & Technology (DST) has launched the India-Netherlands Hydrogen Fellowship Programme and facilitated the signing of an MoU between the University of Groningen and 19 Indian Institutes of Technology (IITs) to expand academic cooperation in green energy and hydrogen research. The fellowship, open to eligible Indian doctoral, postdoctoral, and faculty researchers, aims to build capacity in hydrogen technologies by providing exposure to advanced ecosystems in the Netherlands, with a focus on system integration, safety, techno-economic analysis, and life-cycle assessment. The initiative reflects shared commitment to advancing hydrogen innovation aligned with India's National Green Hydrogen Mission, Energy Independence 2047 and Net-Zero 2070 goals, and strengthens human capital for deployment-oriented clean energy development.

## India-EU FTA Opens USD 572 Billion Pharma & MedTech Market

**Business Impact:** The agreement provides pharmaceutical, biotechnology, medical device manufacturing and chemical industries with expanded export opportunities and improved tariff competitiveness in Europe.

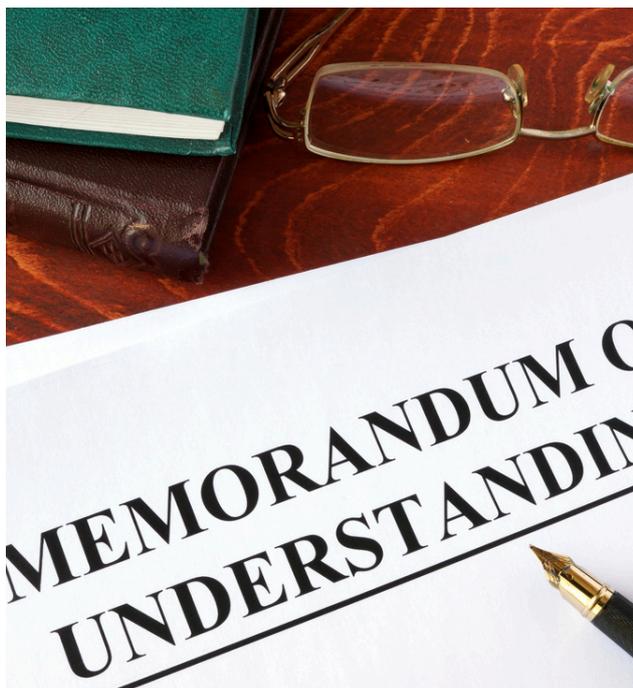
India and the European Union have concluded negotiations for a comprehensive Free Trade Agreement (FTA), strengthening ties between the world's fourth- and second-largest economies. The agreement grants Indian companies access to the EU's USD 572.3 billion pharmaceuticals and medical devices market, offering preferential market access and liberalised tariffs, particularly for 'Made in India' medical devices. The FTA is expected to accelerate growth in high-value pharma and MedTech segments, while also boosting related sectors such as chemicals, fertilisers, cosmetics, soaps and detergents. It is projected to support capacity expansion, MSME cluster development and export-led growth across major industrial hubs, including Gujarat, Maharashtra, Karnataka and Andhra Pradesh. Coastal export centres are likely to benefit significantly, reinforcing India's position as a dependable global healthcare manufacturing partner.



## INSA and CSIR-NIScPR Partner to Strengthen Science Communication and Policy Research

**Business Impact:** Stronger evidence-based policy frameworks will provide industries with clearer regulatory direction and reduce uncertainty around long-term R&D investments. Sectors such as deep tech, biotechnology, clean energy, and digital services stand to benefit from more predictable innovation policies and improved alignment between industry and government.

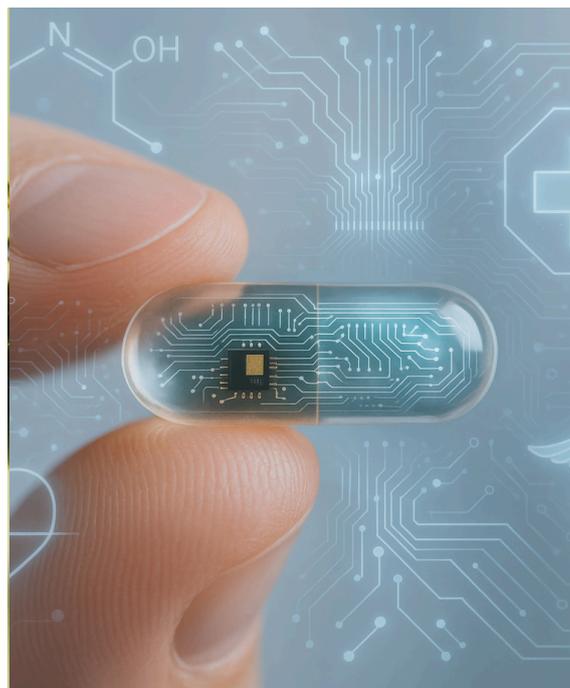
The Indian National Science Academy (INSA) and the National Institute of Science Communication and Policy Research (CSIR-NIScPR) signed a Memorandum of Understanding (MoU) in New Delhi on 10 February 2026 to collaborate on science communication and evidence-based science, technology and innovation (STI) policy research. The partnership will support joint activities, including policy research studies, joint publications, pilot projects, capacity-building initiatives, outreach programmes, and stakeholder consultations, to inform decision-making and promote a future-ready innovation ecosystem. The agreement also aims to foster engagement with government institutions, international organisations, think tanks, researchers and young scholars to enhance India's evidence-based STI policy landscape.



## IPC Signs MoUs to Strengthen Drug Safety and Quality Standards

*Business Impact: The initiative benefits the pharmaceutical, healthcare, regulatory consulting, and clinical services industries by strengthening compliance frameworks, enhancing drug safety monitoring and raising quality benchmarks.*

The Indian Pharmacopoeia Commission (IPC), under the Ministry of Health and Family Welfare, has signed three MoUs with the Goa State Pharmacy Council (GSPC), the Quality Council of India (QCI), and HLL Infra Tech Services Limited (HITES) to enhance medicine safety, quality assurance and capacity building. The IPC–GSPC partnership will strengthen pharmacovigilance in Goa by promoting the National Formulary of India, improving adverse drug reaction (ADR) reporting under the Pharmacovigilance Programme of India (PvPI), and conducting pharmacist training programmes. The IPC–QCI collaboration will focus on promoting healthcare quality, raising public awareness, and jointly building capacity aligned with national safety standards. The agreements aim to support ADR Monitoring Centres, improve documentation practices and reinforce uniform drug quality standards across healthcare facilities in India.



## MIT Smart Pill Signals When Medication Is Taken

*Business Impact: This innovation could spur growth in the health-tech, medical device and digital health monitoring sectors by creating demand for connected ingestible sensors and external receivers.*

Researchers at the Massachusetts Institute of Technology (MIT) have developed an experimental “smart pill” that can wirelessly confirm from inside the stomach when a medicine has been swallowed by sending a short radio-frequency signal shortly after ingestion. The capsule contains a biodegradable antenna alongside the drug, which activates when the outer coating dissolves in stomach fluids, allowing the antenna and tiny RF chip to transmit a confirmation signal to an external receiver within minutes of swallowing. Most of the pill’s components are safely broken down in the body, and the RF chip passes naturally through the digestive tract. Tests in animal models have demonstrated successful signal transmission over short distances. The technology, published in Nature Communications, is designed to improve medication adherence, particularly for treatments where missed doses can have serious health consequences, and is expected to enter further preclinical and human testing.

## Digital Logistics Pact to Curb Fake Seeds, Fertilisers and Pesticides

**Business Impact:** The initiative benefits the seed, fertiliser, pesticide, agri-logistics and laboratory testing industries by improving compliance clarity and strengthening supply-chain credibility.

The Ministry of Agriculture and Farmers Welfare signed a Memorandum of Understanding with the Department of Posts on 7 January 2026 to establish a standardised, faceless and fully traceable logistics system for transporting and testing samples of seeds, fertilisers and pesticides. The initiative introduces a secure, time-bound and tamper-proof mechanism with end-to-end digital tracking from sample collection to laboratory analysis. It covers the fixation of quality-control targets at the state level, digital dispatch of samples, laboratory testing, report generation, and initiation of legal action, where required under relevant Acts. The framework enhances transparency, accountability and efficiency in enforcement while preventing the circulation of sub-standard or spurious agri-inputs. The move is aimed at safeguarding crop productivity and ensuring farmers receive quality inputs in a timely manner.



## IIT Madras Launches Bharat Cancer Genome Atlas to Advance Cancer Research

**Business Impact:** The initiative will benefit biotechnology firms, genomic testing companies, diagnostics laboratories and precision medicine start-ups by creating demand for sequencing technologies, bioinformatics platforms and AI-driven analytics tools.

The newly launched Bharat Cancer Genome Atlas (BCGA) aims to build a comprehensive genomic database of cancer mutations specific to India's diverse population, enabling more accurate and personalised treatment strategies. Developed by IIT Madras in collaboration with cancer researchers and clinicians, the initiative maps tumour genetics across cancer types to understand disease patterns unique to Indian patients. By integrating large-scale genomic sequencing with data analytics, the platform seeks to improve early detection, risk prediction and therapy selection. The project is expected to support translational research and strengthen India's precision oncology capabilities, reducing reliance on Western genomic datasets that may not fully represent Indian genetic diversity. This initiative aligns with the broader push towards AI-driven and data-backed healthcare innovation in the country.



## National Drive to Eliminate Lymphatic Filariasis

**Business Impact:** *The campaign will benefit the pharmaceutical industry through large-scale medicine procurement and distribution. It will also support the public health supply chain, diagnostics and healthcare services sector, especially in endemic and rural regions.*

The Union Health Minister, Shri Jagat Prakash Nadda, has launched the Annual Nationwide Mass Drug Administration (MDA) Campaign to eliminate lymphatic filariasis (LF), a mosquito-borne disease that can cause long-term disability. India aims to eliminate LF by 2027, ahead of the global 2030 target. The campaign will cover 719 blocks in 124 districts across 12 endemic states, focusing on mass drug distribution, vector control, community awareness and morbidity management, including treatment for over 6.20 lakh lymphoedema and 1.21 lakh hydrocele cases reported in affected areas. The initiative seeks to interrupt disease transmission and strengthen last-mile healthcare delivery.



## ICMR Directs India-Focused Clinical Trials

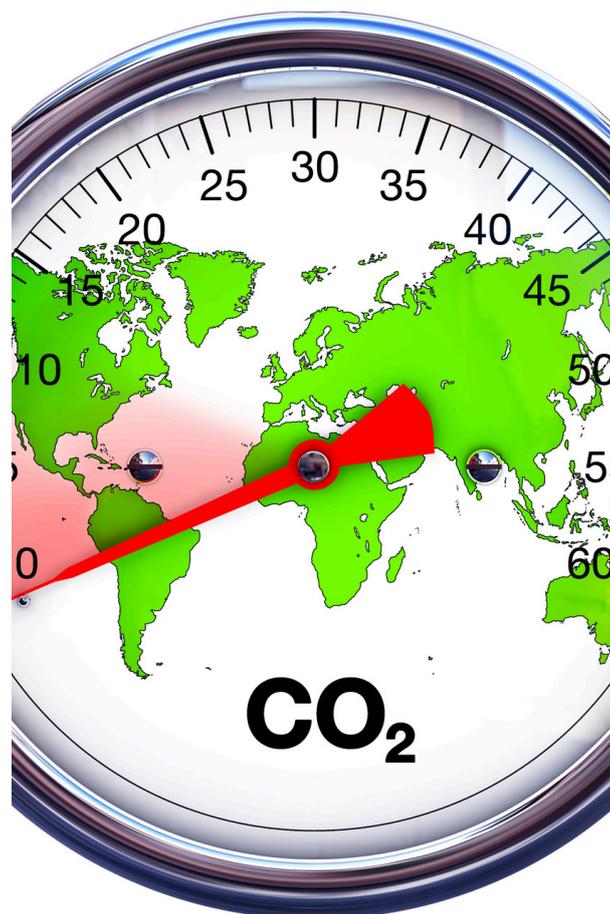
**Business Impact:** *This mandate will drive demand within the pharmaceutical research and development industry by boosting investment in trials tailored to Indian demographics. It will also support growth in clinical research organisations, biotechnology firms and health data analytics by expanding opportunities for locally relevant drug development and evidence-based treatments.*

The Indian Council of Medical Research (ICMR) has issued a new mandate requiring clinical trials in India to be designed around Indian body types, lifestyle patterns and real-world health data rather than relying on Western trial results, recognising that genetic, dietary and environmental differences affect disease and treatment response. The policy encourages multicentre trials across at least five hospitals with government funding up to INR 8 crore per study to generate evidence that is clinically effective, affordable and aligned with Indian metabolic profiles, especially for conditions like diabetes, heart disease and obesity, which together make up a significant share of the national disease burden. It aims to improve treatment accuracy, ensure better accessibility within public health systems and reduce out-of-pocket costs for patients. The shift is expected to enhance the relevance of therapies and prescribing patterns for India's diverse population.

## New Catalyst Converts CO<sub>2</sub> into Fuel Ingredient

**Business Impact:** This discovery could benefit the clean energy and chemicals industry by providing a cost-effective pathway to produce hydrogen carriers and reduce carbon emissions from industrial processes. It may also stimulate growth in green chemical manufacturing, fuel cell technology and sustainable materials sectors by lowering costs and improving access to environmentally friendly feedstocks.

Researchers at Yale University and the University of Missouri have developed a manganese-based catalyst that can efficiently convert carbon dioxide (CO<sub>2</sub>) into formate, a compound that can serve as a source of hydrogen for fuel cells, using a low-cost and abundant metal. The key improvement came from redesigning the catalyst's structure so it lasts much longer than previous non-precious metal versions and performs better than many expensive precious-metal alternatives. Formate is already produced at scale for uses such as preservatives and leather tanning, but this new method could shift production away from fossil fuels and help reduce greenhouse gas levels while generating a useful chemical feedstock. The findings suggest the catalyst design could also enhance other chemical reactions beyond CO<sub>2</sub> conversion.



## Solar-Powered Self-Charging Energy Storage Device

**Business Impact:** This technology could transform the renewable energy and energy storage industries by enabling more compact, cost-efficient solar power systems for off-grid electrification, portable electronics and IoT applications.

Indian scientists have created a new sunlight-powered energy storage device that both captures and stores solar energy in one integrated unit, eliminating the need for separate solar panels and batteries. The innovation, developed at the Centre for Nano and Soft Matter Sciences under the Department of Science and Technology, uses nickel-cobalt oxide (NiCo<sub>2</sub>O<sub>4</sub>) nanowires on nickel foam to form a three-dimensional network that absorbs sunlight and stores electrical charge efficiently. Tests show the device boosts capacitance by over 50 % under light, delivers a stable 1.2 V output, retains 88 % capacitance after 1,000 cycles, and works under different light conditions, including indoors and intense sunlight. The design reduces energy conversion loss and has demonstrated long-term stability, showing potential in remote areas without grid access while cutting reliance on conventional batteries and fossil fuels.





## India Boosts Indigenous Satellite Platforms

*Business Impact: The initiative will support the aerospace and satellite manufacturing industry by expanding private sector participation in platform development. It will also benefit telecom, Earth observation and space data service companies by improving access to locally built satellite infrastructure and lowering system integration costs.*

The Indian National Space Promotion and Authorisation Centre (IN-SPACe) has selected three private firms Astrome Technologies, Azista Industries and Dhruva Space to develop indigenous small satellite bus platforms under its Satellite Bus as a Service (SBaaS) programme. Each company will receive INR 5 crore in grant funding to design and demonstrate modular, scalable satellite buses that provide essential systems such as power, communication and onboard control. The selection followed a competitive evaluation of 15 proposals, with agreements signed in February 2026. IN-SPACe will provide milestone-linked support, technical guidance and access to testing and launch facilities to strengthen domestic satellite manufacturing capabilities and reduce import dependence.

## UPCOMING NATIONAL EVENTS 17 FEB 2026- 20 MARCH 2026

17-18 Feb 2026

**EVENT:** BioAsia 2026

**LOCATION:** Hyderabad, India

**FOCUS/ THEME:** Life sciences, healthcare innovation, AI & biomanufacturing

**INDUSTRY RELEVANCE:** Connects biotech, pharma, AI health and diagnostics firms with policymakers and global investors; strengthens R&D collaboration and commercialisation of next-gen therapies.

25-27 Feb 2026

**EVENT:** World Sustainable Development Summit (WSDS 2026)

**LOCATION:** New Delhi, India

**FOCUS/ THEME:** Sustainable development, climate action, environmental innovation.

**INDUSTRY RELEVANCE:** Provides a global platform for environmental tech, climate-tech firms and clean energy innovators to engage with government policy, funding agencies and international partners on sustainability solutions.

26-28 Feb 2026

**EVENT:** 13th International Congress of Society for Ethnopharmacology & Translational Research in Ethnopharmacology

**LOCATION:** Mohali, India

**FOCUS/ THEME:** Traditional medicine meets modern healthcare translation.

**INDUSTRY RELEVANCE:** Fosters development of evidence-based herbal and traditional medicine R&D, benefiting biotech, nutraceutical, Ayurvedic pharma, and policy alignment for global acceptance.

18-20 Mar 2026

**EVENT:** 13th International Conference on Agriculture, Horticulture, Forestry & Allied Sciences (ICAHFAS-2026)

**LOCATION:** Shimla

**FOCUS/ THEME:** Sustainable agriculture, forestry, ecosystem resilience.

**INDUSTRY RELEVANCE:** Enables agri-tech, forestry, climate-resilient crop and ecosystem services industries to collaborate with government research bodies, boosting sustainable and export-oriented innovation.

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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