



Science Diplomacy Alert

A Fortnightly newsletter on S&T, Science Policy and Diplomacy

Focus

Artificial Intelligence, Innovation, and Inclusion: Multilateral Technology Cooperation within the SCO Framework



The SCO discussion on scientific cooperation was focused on energy, infrastructure, the digital economy, science and technology innovation, and artificial intelligence. India joined other SCO members to deepen cooperation in Artificial Intelligence (AI), underscoring its strategic role in shaping societies and economies. S. K. Varshney writes.

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SCIENCE POLICY & DIPLOMACY

International S&T Cooperation



U.S.–UK Sign ‘Technology Prosperity Deal’ MOU for Deepened S&T Collaboration

The purpose of this Memorandum of Understanding is to enable collaboration towards joint opportunities of mutual interest in strategic science and technology disciplines, including artificial intelligence (AI), civil nuclear, fusion, and quantum technologies.

Vietnam and the U.S. Strengthen Science and Technology Cooperation

Vietnam's Ministry of Science and Technology and the U.S. Embassy in Hanoi agreed to enhance collaboration in emerging technologies such as nuclear energy, satellite internet, and disaster response.

IIT Kanpur Signs MoU with Vietnam National University

IIT Kanpur and Vietnam National University have agreed to collaborate on research and academics in areas such as AI for medical diagnostics, infrastructure defect detection, smart city solutions, materials science, and drone technology.

8th Busan Global Partnership Forum for Enhanced Development Cooperation

The Forum convened ministers, development agencies, civil society, and academia from over 100 countries to deepen partnerships on development effectiveness. It focused on strengthening cooperation, improving the quality and impact of development finance, and aligning efforts toward achieving the Sustainable Development Goals.

Emerging Tech & Governance



AI Centre Inaugurated in Dehradun to Boost Research and Skill Development

The Centre of Excellence for AI inaugurated at Graphic Era University, featuring Uttarakhand's first NVIDIA DGX B200-powered HPC facility aims to support research, innovation, and startups across sectors like healthcare and smart cities.

India's First 240-Volt Electric Motorcycle Platform

This brings the advanced benefits of high-voltage technology, already proven in the electric car segment, to electric two-wheelers. By operating on a 240-volt DC architecture, the motorcycle is designed to enable faster charging, improved efficiency, and seamless compatibility with India's expanding public charging infrastructure.

IISc Engineers Use Machine Learning & Amorphous Materials for High-Energy Batteries

A research team at IISc applied machine learning to model amorphous vanadium pentoxide cathodes for magnesium batteries, showing that ion movement can improve by $\sim 10^5$ times over crystalline materials.

MBZUAI and MIT Schwarzman College of Computing Launch AI Research Collaboration

The partnership aims to advance artificial intelligence in three key areas: scientific discovery, human thriving, and planetary health. The collaboration seeks to foster responsible and inclusive AI development, aligning with the UAE's vision to become a global hub for AI innovation.

Events & Meetings



Science Summit Concludes in New York with Focus on Sustainability

The summit hosted over 1,000 speakers across 200 sessions, drawing participation from scientists, policymakers, and civil society. Discussions centered on the theme "Science within Planetary Boundaries," aligned with the UN Sustainable Development Goals.

India-Slovenia S&T Festival Held in Ljubljana

The Embassy of India in collaboration with Slovenian Science Foundation and Ministry of Foreign and European Affairs celebrated the First ever Indian-Slovenian Science Festival on 25-26 September 2025 in Ljubljana. Indian speakers presented India's S&T ecosystem, multilateral science cooperation, innovation initiatives and India's Science Diplomacy.

UNESCO MOST Forum Held

The UNESCO Management of Social Transformations (MOST) Forum 2025 was held in Pretoria, South Africa. This forum convened ministers, policymakers, scholars, and civil society leaders to discuss how social and human sciences can address global crises and inform inclusive, science-based policies. Key Themes and Sessions included the Ministerial Panel on AI for Social Impact and Public Policy and the Expert Panel on Climate Science and Social Policy.

INDIAN SCIENCE NEWS

IISc Develops Siphon-Powered Desalination System

Built using low-cost materials like aluminum and fabric, the system can run entirely on solar power or waste heat, making it ideal for off-grid villages, disaster-hit areas, and coastal regions. Remarkably, it can handle water with salt concentrations up to 20 per cent without clogging, making it effective for brine treatment as well.

Nanomaterial to Stimulate Brain Cells Without External Devices

Institute of Nano Science and Technology has created graphitic carbon nitride (g-C₃N₄), a nanomaterial that stimulates neurons by generating tiny electric fields in response to brain signals. This offers potential treatments for neurodegenerative diseases like Parkinson's and Alzheimer's without the need for surgical implants.

Crystallization Mechanism of Chiral Perovskite Films for Advanced

Optoelectronics Unveiled

This discovery enables the fabrication of phase-pure, oriented films essential for next-generation devices like circularly polarized light detectors, spintronic elements, and photonic synapses. The team's findings pave the way for advancements in quantum optoelectronics, advanced sensors, and spin-based computing.

India Demonstrates Transition in Rydberg Atoms Key to Future Quantum Devices

The Raman Research Institute has observed that rubidium atoms, when excited beyond the 100th energy level, transition from isolated entities to a collective state, exhibiting interaction-driven distortions in their response to light. Understanding this transition is crucial for developing advanced quantum computers, sensors, and communication devices.

ADVANCES IN S&T

Nanocellulose-Based Foam for Water Purification, Smart Packaging and Green Electronics

The problem: Conventional foams and porous materials are widely used in industries ranging from packaging to water purification and telecommunications. However, these materials pose significant environmental challenges due to their dependence on non-renewable resources, poor recyclability, and high carbon footprint.



The Method: Researchers have turned to nanocellulose, a renewable material derived from wood pulp, to develop sustainable foam alternatives. Cellulose nanofibers are formed into hydrogels and then dried to produce aerogels—ultralight, porous materials. These beads can absorb up to 280 times their own weight in oils and organic solvents, offering a powerful solution for environmental cleanup and water purification. They can also be easily retrieved using magnets, allowing for reuse and reducing waste.

Future Prospects: Nanocellulose-based foam materials have applications in water treatment, smart packaging, environmental sensing, and next-generation wireless communication technologies. Their biodegradability, renewable origins, and multifunctional properties make them ideal candidates for industries seeking to reduce environmental impact while maintaining technical performance. However, significant work remains to bring these materials into widespread use. Challenges include scaling up production processes, maintaining material consistency, reducing costs, and ensuring compatibility with existing manufacturing systems.

AI System to Accelerate Clinical Research



The Problem: Manual segmentation of medical images is a time-consuming and labor-intensive process, often hindering the efficiency of clinical research and the development of new treatments.

The Method: MIT researchers developed an AI-based tool, MultiverSeg, that enables rapid annotation of areas of interest in medical images. By allowing researchers to interactively mark regions of interest, the system learns from these inputs and can segment new images accurately with minimal user interaction.

Future Prospects: This tool has the potential to accelerate studies of new treatment methods, reduce the cost of clinical trials, and improve the efficiency of clinical applications such as radiation treatment planning. Future developments aim to extend its capabilities to 3D biomedical images and further integrate it into real-world clinical settings.

INSIGHTS & RESOURCES

The Regional Human Development Report 2025, titled “Under Pressure: Recalibrating the Future of Development in Latin America and the Caribbean”, was launched by the United Nations Development Programme (UNDP) on 18 September 2025. The report examines the growing vulnerabilities faced by the region, including economic instability, social fragmentation, and climate change, which have collectively slowed human development progress. Key messages include:

- Since the mid-2010s, the region's Human Development Index (HDI) has lost momentum, with more than half of the population still lacking the means to withstand adverse events without suffering long-lasting impacts on their well-being.
- Approximately 31 per cent of the population lives in a "gray zone" of socioeconomic vulnerability—not in poverty but not protected either. All it takes is one crisis—health-related, climatic, or technological—for them to fall back.
- Rapidly evolving technologies are transforming labor markets and governance but expanding unevenly, thereby deepening existing inequalities.
- Deepening social fragmentation, reflected in rising mistrust between people and institutions, hampers consensus and coordinated responses to shared challenges.
- An increasingly changing climate, with the number of extreme weather events more than doubling—compounding threats such as fires and droughts.
- Urges governments, civil society, the private sector, and citizens to reimagine development through the lens of resilience, emphasizing the need for inclusive, equitable, and sustainable policies.
- Offers interactive digital tools and data to support policymakers and stakeholders in fostering sustainable and equitable development across Latin America and the Caribbean.

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