Issue 162 | 16-31 July 2025

Forum for Indian Science Diplomacy

Science Diplomacy Alert

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

Focus

Strengthening Science Governance: Towards Innovation, Collaboration, and Sustainability

In order to remain market competitive globally, industry needs to re-orient/ redesign their products based on latest research. Few industries have started in-house R&D, but it is rather miniscule. Time has come to bridge this trust deficit and look for new hi-tech indigenous products. This will help address various sustainable goals, rise in various rankings and also improve national economies of the countries. S K Varshney writes. **Read More>**

SCIENCE POLICY & DIPLOMACY

International S&T Cooperation

Sri Lanka Partners with International Solar Alliance to Advance Solar Energy

International Solar Alliance (ISA) and the Government of Sri Lanka signed a Country Partnership Framework (CPF) to accelerate solar deployment, financing and institutional capacity-building in the country, as part of the Seventh Regional Committee Meeting for Asia and the Pacific.

NRF and ISTIC-UNESCO Sign MoU to Advance South–South STI Partnerships

The NRF and ISTIC-UNESCO have signed a landmark MoU to advance cooperation in science, technology, and innovation to strengthen South–South collaboration through joint research, capacity building, and knowledge exchange.

India and Maldives Sign MoU to Boost Bilateral Cooperation

The partnership aims to promote sustainable tuna and deep-sea fisheries, strengthen aquaculture and sustainable resource management, foster fisheries-based eco-tourism, and support innovation and scientific research across both countries.

Namibia Becomes Member of CDRI and Global Biofuels Alliance

Namibia is set to participate in India's Unified Payments Interface (UPI), along with its membership in the Coalition for Disaster Resilient Infrastructure (CDRI) and the Global Biofuel Alliance (GBA).

India Sends Measles-Rubella Vaccine Doses to Bolivia

The vaccine delivery follows recent discussions between Indian Prime Minister Narendra Modi and Bolivian President Luis Alberto Arce Catacora on the sidelines of the BRICS Summit, highlighting strengthened bilateral ties.

India Launches NASA-ISRO Synthetic Aperture Radar

Designed to map Earth's land and ice surfaces with centimeter-level precision, it will scan the entire planet every 12 days—even through clouds, darkness, and vegetation—to support climate monitoring, disaster response, and infrastructure assessment.

Emerging Tech & Governance

AI & ML powered Corrosion Assessment Method

IISc and Qatar researchers have developed an advanced imaging method using AI and machine learning to assess metal corrosion accurately and automatically, eliminating the need for manual analysis. This innovation offers a faster, scalable solution for industrial maintenance and safety.

FDA Unveils 'Elsa' Generative AI for Internal Regulatory Operations

Elsa, an artificial intelligence tool is intended to dramatically speed up drug and medical device approvals. It can be useful for generating meeting notes and summaries, or email and communique templates.

Gold Nanoclusters Mimic Atomic-like Spin Behavior for Scalable Quantum Technology

Researchers at Pennsylvania State University and Colorado State demonstrates tiny gold clusters can replicate the electron spin properties typically found in single trapped atoms, offering a promising path toward scalable quantum computing and sensing platforms

India Launches Call for Quantum Startups under National Quantum Mission

I-HUB Quantum Technology Foundation under the National Quantum Mission (NQM) launched a call for proposals from quantum-focused startups in quantum computing, quantum communication, quantum sensing & metrology, and quantum materials & devices.

Events & Meetings

UN's High-Level Political Forum 2025 Held

During 14–23 July, the 2025 HLPF under ECOSOC reviewed global efforts on key Sustainable Development Goals, including health, gender equality, and ocean protection. Thirty-seven countries presented Voluntary National Reviews, with calls for accelerated action ahead of the 2030 deadline.

INDIAN SCIENCE NEWS

TDB-DST Signs Agreement with Egee Pallet Pvt. Ltd. for Waste-to-Packaging Innovation

By integrating wood and plastic waste as raw materials, the project aims to address a dual objective—advancing sustainable logistics infrastructure while promoting circular economy principles.

Sustainable Leap in Hydrogen Peroxide Production

Researchers have developed a sunlight-driven Mo-DHTA COF catalyst that produces hydrogen peroxide directly from water. This stable, eco-friendly material offers scalable applications in disinfection, environmental cleanup, and green manufacturing.

IISc's Agri-waste Hydrogen Breakthrough Signals a New Era in Clean Fuel

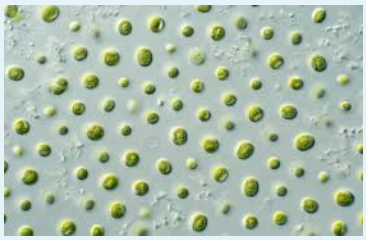
Researchers at the Indian Institute of Science have developed a technology that converts agricultural waste into 99 per cent pure green hydrogen, offering a scalable, carbon-negative alternative to fossil fuels.

Nano-Sensor Developed for Rapid Detection of Deadly Infections

Highly sensitive, low-cost electrochemical biosensor capable of detecting endotoxins—key indicators of sepsis—in under 10 minutes offers potential for early bedside diagnosis, enhancing patient outcomes by enabling timely therapeutic intervention.

ADVANCES IN S&T

Nanotechnology Boosts Microalgae Biofuel Production



The problem: Traditional biofuel production from microalgae faces challenges in achieving high lipid yields, which are essential for efficient biofuel conversion.

The Method: Researchers at The University of Texas at El Paso introduced controlled doses of zinc oxide (ZnO) nanoparticles to the microalga Chlorella vulgaris. This approach induced oxidative stress, resulting in a significant increase in lipid content—from 14 per cent to as much as 48 per cent of the algal biomass—without causing substantial harm to the cells.

Future Prospects: The team developed the Biofuel Suitability Score (BSS), a scalable framework to evaluate and optimize biofuel production conditions. Future research aims to demonstrate the viability of this method at a larger scale and explore its application to other microalgal species, including those that thrive in wastewater and saltwater environments.

Cell-Free Liposome Technology Could Revolutionise Pandemic Preparedness

The Problem: Traditional vaccine development methods are time-consuming, often taking weeks or months to produce candidates, which can delay responses to emerging infectious diseases like the Nipah virus.

The Method: Researchers from Cornell and Northwestern universities developed a rapid, cell-free platform that assembles nanoparticle vaccines by producing and folding full-length viral membrane proteins directly into synthetic lipid bubbles called liposomes. This approach enables vaccine candidate creation within hours, bypassing the need for live cells and reducing production time significantly.

Future Prospects: This platform offers a versatile and scalable method for rapid vaccine development, with potential applications extending beyond the Nipah virus to other emerging viral threats and even therapeutic vaccines for cancer. Its simplicity and speed make it particularly promising for global vaccine access, especially in regions with limited refrigeration and infrastructure.

INSIGHTS & RESOURCES

GESDA Releases New Report Anticipatory Science Diplomacy: A Framework for Global Action

Anticipatory Science Diplomacy is a proactive, forward-looking approach that integrates scientific foresight into global policymaking. Rooted in four core pillars—science anticipation, honest brokering, global action, and capacity building—it seeks to shape the trajectory of emerging technologies before they become disruptive. This framework marks a strategic evolution from reactive diplomacy toward shaping innovation trajectories—ensuring science benefits humanity responsibly. The key highlights include:

- **Science anticipation:** Systematic scanning of emerging breakthroughs (5-, 10-, 25-year horizons) to identify game-changers like AI, quantum, neurotech, synthetic biology.
- **Honest brokering:** Early convening of diverse stakeholders—scientists, diplomats, industry, civil society—for aligned understanding and joint responsibility.

- **Global action:** Piloting multilateral frameworks, such as the Open Quantum Institute at CERN, to prototype anticipatory governance tools.

Switzerland leveraged this framework in its UN Security Council mandate, integrating science into peace and security discussions—culminating in a presidential statement acknowledging science diplomacy.

UNOSSC Launches Global Report on South-South and Triangular Cooperation 2025

The Global Report on South-South and Triangular Cooperation 2025: *Bridging Horizons and Continents – Forging Transformative Pathways in South-South and Triangular Cooperation,* by the United Nations Office for South-South Cooperation (UNOSSC) is the third edition in a series that has become an essential resource for understanding the evolving dynamics of cooperation among countries of the Global South. The key messages include:

- The rise of the Global South is reshaping global power dynamics, elevating the relevance and potential of South-South cooperation.
- Triangular cooperation is a strategic bridge, amplifying South-South cooperation through complementary partnerships.
- In a world facing a deepening polycrisis, the need for solidarity, resilience and collective self-reliance through South-South and triangular cooperation has never been greater.
- South-South and triangular cooperation is entering a bold new era, one that calls for strategic repositioning and transformative thinking.
- South-South and triangular cooperation is a vital channel for the Global South to strengthen its collective voice and shape regional and global governance.
- South-South and triangular cooperation offers unique pathways to accelerate the implementation of the 2030 Agenda for Sustainable Development, anchored in shared experiences and adaptive, locally grounded solutions.
- To leave no one behind, South-South and triangular cooperation must champion inclusivity, equity and genuine multi-stakeholder engagement.
- Digital transformation is a game-changer for South-South and triangular cooperation, amplifying its reach, efficiency and inclusivity in unprecedented ways.
- While South-South and triangular cooperation continues to evolve and expand, structural and operational challenges still limit its full transformative impact.
- Unlocking the full power of South-South and triangular cooperation requires integrated platforms for knowledge exchange, financing and shared innovation.
- The future of South-South and triangular cooperation is one of mainstreamed, dynamic and high-impact collaboration, driven by bold ambition and sustained commitment.

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