

Science Diplomacy Alert

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

Global Biofuel Alliance: Potential, Priorities and Prospects

Focus



One year since its institution at the G20 New Delhi Summit, 2023, the Global Biofuel Alliance has now established a Secretariat in India. Anupama Vijayakumar writes on how the alliance can foster S&T collaboration and science diplomacy. [Continued on Page 3.](#)

SCIENCE POLICY & DIPLOMACY

International S&T Cooperation



[USAID Launches Marine Biodiversity Protection Initiative for the Caribbean](#)

The five-year programme will focus on working with local communities and the private sector to address challenges to marine biodiversity conservation in 13 Caribbean countries.

[CERN Revokes Access to Russian Scientists](#)

CERN's decision has been prompted by Russia's engagement in Ukraine. This marks "a major break for the organisation" and would cause over 500 scientists affiliated to Russian institutions to lose access to the facility.

[European Commission Boosts Support for Deforestation Regulation](#)

Through additional guidance documents and a stronger international cooperation framework, the commission looks to support global stakeholders, member-states and third countries to enhance their preparedness.

Emerging Tech & Governance



[AI Regulation: EU sets up Expert Panel to Study Compliance Frameworks](#)

The panel shall oversee the activities of working groups focusing on four areas: transparency and copyright, risk identification and assessment, technical risk mitigation and internal risk management for general-purpose AI.

[DPI Summit Statement Highlights Inclusivity, Localisation and Knowledge-sharing](#)

The statement entails various areas for action that need to be prioritised for harnessing the full potential of Digital Public Infrastructure to achieve

[Global Biofuel Alliance Gains Legal Status](#)

As per the recently signed Host Country Agreement, the entity initiated at G20 New Delhi Summit, 2023 will now establish a Secretariat in India.

[AI for Healthcare: Microsoft Announces New Tools](#)

In addition to an AI-driven nursing workflow solution, the new tools will be introduced in existing platforms including the Azure Cloud service and Copilot, Microsoft's generative AI chatbot.

Events & Meetings



7th Annual Hydrogen Workshop Organised in Chennai

The workshop brought multiple stakeholders together to discuss the challenges and prospects to the commercialisation of hydrogen-based energy.

UN Office for Outer Space Affairs Holds Space Law Event in Morocco

The event sought to inform Moroccan government officials on “the strategic benefits and significance of establishing a national space law framework”.

Hamburg Sustainability Conference Discusses International Cooperation for Energy Transition

Held in Germany, the discussions at the event focused on sharing responsibility and technologies for green transition and highlighted the financial challenges faced by Least Developed Countries.

ITER Director-General Holds Working Meeting in Russia

The meeting assessed the joint implementation of the construction of the ITER reactor and took stock of the progress with respect to Russia’s contributions related to procuring and manufacturing certain components.

INDIAN SCIENCE NEWS

GoI notifies Ecomark Rules

The rules seek to increase demand and supply of environment-friendly products in line with the Lifestyle for Sustainability and Environment (LiFE) Mission. Products accredited under the Ecomark scheme have to ensure minimum negative impacts on the environment.

Cabinet Approves India’s Participation in the International Energy Efficiency Hub

Joining this global platform allows India to share its knowledge while learning from international best practices, while leveraging opportunities for science diplomacy through cooperation.

India, France to Jointly Set Up Aeronautics Cluster

The two countries announced their intention to set up an aeronautics cluster focused on civil aviation and an Indo-French campus for “professional training in aeronautics and space”.

Cusat Researchers Awarded Patent for Cancer Immunotherapy

The team had developed a novel formulation based on aluminium-incorporated polymer nanoparticles which can improve the efficiency of cancer vaccines.

Deep Sea Mining Trials Conducted in the Andaman Sea

During the trials, the Varaha-3, a specialised seabed mining machine operated efficiently to collect polymetallic nodules rich in metals including Cobalt and Nickel.

India, USA Announce Cooperation on Critical Battery Supply Chains

The MoU inked by the two countries focuses on “strengthening supply chains in India and US for lithium, cobalt and other critical minerals” used in electric vehicles and clean technologies.

ICMR-NIV Develops India’s First Rapid MPox Test Kit

The test utilises the Loop Mediated Isothermal Amplification technology which purportedly allows for “100 per cent sensitivity and specificity”. The kit priced between 350-400 rupees can provide results in about an hour.

IIT Indore Researchers Develop Affordable Cancer Detection Device

The device uses photoacoustic technology to detect cancer during early stages at about one-tenth the price of current diagnostic methods.

Hindustan Zinc Signs MoU With IIT Madras

The collaboration aims “to develop a groundbreaking 1 kWh electrically rechargeable zinc-air battery prototype”. It seeks to explore whether zinc-air batteries can emerge to become an affordable alternative to lithium-ion batteries.

Global Biofuel Alliance: Championing Biofuel Diplomacy for a Net Zero Future

Anupama Vijaykumar,
Consultant, RIS

Biofuels are increasingly being perceived as a viable option to break the world's dependence on fossil fuels and facilitate a transition to clean energy. As the world is gearing up to achieve net zero carbon emissions over the next few decades, biofuels are set to revolutionise the global energy markets. In this context, the global policy discourse surrounding biofuels has gained significant momentum. This discourse on one hand has largely explored the potential for biofuels to act as an ideal "bridge fuel" which can help achieve decarbonization goals in the short to medium term. The pros and cons of biofuel adoption the environment, economy and sustainable development have also been highlighted within this discourse.

It is in this background that India initiated the [Global Biofuel Alliance \(GBA\)](#) at the G20 New Delhi Summit 2023. Starting out as an informal coalition, the GBA has now attained a legal status with the recent signing of the [Host Country Agreement](#) with India. The Agreement essentially allows India to host a GBA Secretariat which shall serve as a nodal point to guide efforts to facilitate and encourage research, development and deployment of biofuels at a global scale.

Consisting of G20 nations and G20 invitee countries during its institution, the GBA has arguably evolved to become a global pioneer for biofuel governance. The [expansion in membership](#) that the entity has witnessed during a one-year time period stands as testament to this fact. Eight more countries and

several international organisations have joined the alliance during this short stint. While backed by biofuel heavyweights including the United States of America, Brazil, Indonesia, India and Bangladesh, the GBA has proven to be particularly attractive to the countries of the Global South. Along with Mauritius, a G20 invitee country, Burundi, Paraguay, Tanzania, Uganda, Philippines, Sri Lanka and Guyana have already joined the GBA.

In several ways, the GBA appears to have drawn from the International Solar Alliance (ISA), an India-led alliance of "sunshine countries" located in between the Tropics of Cancer and Capricorn. Having established a Secretariat at Gurugram, Haryana in 2016, the ISA went on to open its [framework agreement](#) for signing on 15 November 2016 on the sidelines of COP-22 in Marrakech, Morocco. The alliance would later go on to streamline its work programme under nine heads, each of which focuses on deploying solar energy technologies in various sectors including agriculture and mobility. As a forum for knowledge sharing and information dissemination, the ISA has also sought to lay emphasis on capacity building and programmatic support for Least Developed and Small Island Developing Countries. Such engagements have been initiated with at least eight countries namely: Benin, Guinea, Malawi, Congo, Mali, Togo, Uganda, and Niger. Meanwhile, the ISA collaboration has also translated into efforts such as the Green Grids Initiative, which seeks to achieve the integration of different common grids into a single regional grid.

On similar lines, India has been working with the GBA partners to outline priority areas for action, particularly from the point of view of setting standards and instituting certifications to boost the global adoption of biofuels. On the sidelines of a G20 event held in May 2024, the GBA has reportedly identified [three immediate goals](#): assessment of country landscapes, drafting policy frameworks and conducting biofuel workshops.

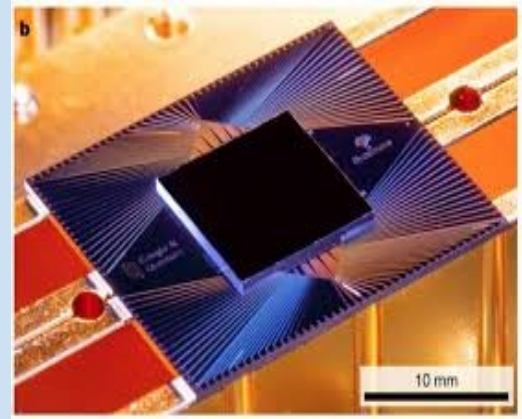
Being a multistakeholder entity in nature, the alliance can also foster collaborative research and development and seek to present a common position on biofuels at UN forums or initiate new collaborative ventures such as the GGI. The GBA also offers ample room for biofuel diplomacy to emerge as a distinct dimension of science diplomacy. In addition to holding ample potential for collaborative research and development, the GBA also offers opportunities for science diplomacy in the context of South-South Cooperation. For all of this, important insights may be drawn from the ISA experience. However, an immediate step towards encouraging the global uptake of biofuels has to do with building global consensus standards that pertain to aspects including quality and sustainability. India has taken a right step carrying forward the GBA's torch while pioneering novel paradigms within the practice of science diplomacy.

Google's Sycamore Quantum Chip Can Outdo Supercomputers

The Experiment: Google researchers employed a method called Random Circuit Sampling to verify the performance of supercomputing qubits which are embedded in quantum processors.

The Finding: In the “weak noise phase”, where qubits transition between a first and second phase, the chip was noted to perform better than classical computers in specific calculations.

Future Prospects: While significant room for improvement remains with respect to error correction technologies, Google researchers term the development “a waypoint on the journey to get to real-world applications, or beyond classical commercial applications.”

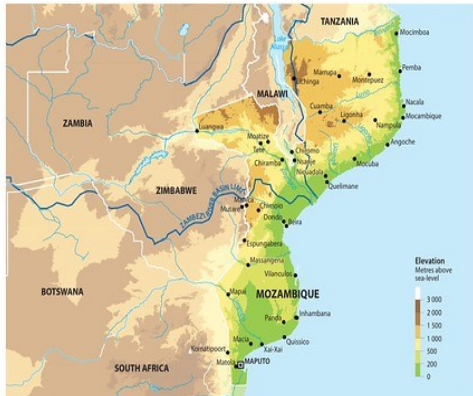


AI Used to Identify Marine Biodiversity Hotspots in Mozambique Coast

The challenge: Mozambique has an extensive 2450 km coastline which makes it highly challenging to identify priority areas for biodiversity conservation through fieldwork. Data scarcity had previously prevented such efforts.

The model: The predictive analytics algorithm employed by the researchers at the Wildlife Conservation Society in East Africa analysed satellite data, water quality and ocean sediments to identify environmental conditions that can support high diversity of marine species.

Implications: The development shows huge promise with respect to fast and precise identification of biodiversity hotspots. Predictions can further be refined at smaller and locally relevant scales.



INSIGHTS & RESOURCES

Nobel Prizes Recognise Pioneering Advances at the Convergence of AI and Synthetic Biology

The Royal Academy of Swedish Sciences announced the Nobel prizes for the year 2024 during this fortnight.

- The [Nobel prize in Medicine](#) was awarded to American researchers, Victor Ambros (University of Massachusetts, USA) and Gary Ruvkun (Harvard Medical School) for “the discovery of microRNA and its role in regulating gene expression”. The discovery has significantly helped understand how cells grow and has already opened the doors for therapeutic applications in areas including vaccines.
- The [Nobel prize in Chemistry](#) was awarded to three researchers for pioneering studies that have helped decode the structure of proteins thereby paving the way for manipulating and creating new ones. The prize was awarded to two UK researchers affiliated to Google DeepMind, Demis Hassabis and John M Jumper for “*protein structure prediction*” and to American scientist, *David Baker* for “*for computational protein design*”.
- The [Nobel prize in Physics](#) was awarded to American scientist John Hopfield and UK scientist Geoffrey Hinton, who is informally referred to as “the godfather of AI”. The prize recognises their contributions to the advances in machine learning which has actualised the ongoing AI revolution.

WMO Releases State of Water Resources Report

The World Meteorological Organization has published its third [report](#) on the state of global water resources. The report draws on meteorological and hydrological data to inform policy decisions relevant for water resource and disaster management. In a first, it has also incorporated data on new lakes, glaciers and soil moisture.

- Being the hottest year on record, the year 2023 saw “unprecedented heat” having diverse weather impacts such as heavy rains and flooding affecting water resources around the globe.
- River discharge at the global level was “mostly below normal”, with North, Central and South America witnessing drought conditions.
- Reservoir inflows were also found to be mostly below normal, with above-normal levels prevailing in exceptional cases such as the Amazon.
- The groundwater levels in countries including South Africa and India were found to be above normal, while significant depletion has been noted in Europe and North America.
- The report reveals a higher incidence of hydrological events to have occurred in Africa including extreme flooding in Libya and the Horn of Africa. This is estimated to have resulted in major loss of life and property.

Cyber Threats to AI Models: OpenAI Publishes New Report

The [report](#) follows the threat assessment the company had published in May 2024. It includes a comprehensive assessment on the various types of cyber threats and influence operations which seek to utilise the company’s AI models for harmful purposes.

- Since the beginning of 2024, OpenAI has disrupted At least 20 operations attempted by threat actors around the world. Such operations pertain to activities including debugging malware and generating social media content.
- Threat actors often employ models such as ChatGPT during the intermediate phase of influence operations. This allows AI companies to complement insights from upstream providers such as internet companies and downstream platforms such as social media to prevent threats and respond effectively.
- While malicious elements have attempted to experiment with the company’s model, it has not resulted in “meaningful breakthroughs in their ability to create substantially new malware or build viral audiences”. Hence, existing vulnerabilities have not been severely worsened.
- OpenAI reports to have disrupted influence operations intended to influence elections in “Rwanda, United States, European Union and India (to a lesser extent)”.

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