If you can't see this message, view it in your browser.

Science Diplomacy News Alert

Forum for Indian Science Diplomacy

www.fisd.in

16-31 AUGUST 2023 **ISSUE 116**

RIS Science Diplomacy News Alert is your fortnightly update on Indian and global developments in scientific research, technological advancements, and G-20, global challenges, science diplomacy, policy and governance. The archives of this news alert are available at https://fisd.in/en/alerts-archives. Please email your valuable feedback and comments to science.diplomacy@ris.org.in.

CONTENTS

Photovoltaic Leaf Produces Electricity, Thermal Energy, Water

RESOURCES AND EVENTS
Global Initiative on Digital Health Launched
WHO Global Summit on Traditional Medicine
UNEP Report on Chemicals in Plastics
UNEP Report on Alternatives to Highly Hazardous Pesticides

SCIENCE POLICY AND DIPLOMACY
MoU with Trinidad and Tobago on Sharing India Stack
India, Greece Collaboration Expanded
Iraq as First Associate Member of SESAME
US extends science and technology agreement with China

SCIENCE & TECHNOLOGY

GLOBAL

Novel Host-based Target Against Multiple Mosquito-transmitted Viruses Identified
New Cleveland Clinic research shows how mosquito-transmitted viruses – like Zika, West Nile, Yellow Fever and dengue viruses – hijack host cells to promote their own replication and infection. This has opened the door to developing new therapeutics for flaviviruses, a class of viruses for which either no or very limited treatments currently exist. The findings bring help in understanding and treating currently untreatable mosquito-transmitted pathogens, which are an ever-increasing threat to global human populations. It will also help in developing new, effective treatments to prevent future threats to human health. The study's findings suggest that creating drugs targeting the human KAT5γ enzyme might help target not only Zika, but also several other mosquito-transmitted flaviviruses.

Low-cost Technology for Targeted Long-read RNA Sequencing
A versatile and low-cost technology for targeted sequencing of full-length RNA molecules have been developed by researchers of Children's Hospital, Philadelphia. The technology, called TEQUILA-seq, is highly cost-effective and can be adapted for different research and clinical purposes. The technology can be adapted by users for different purposes, and researchers can choose which genes they want to sequence and make the reagents for target capture in their own labs. This has the potential to accelerate discovery of new diagnostic and therapeutic solutions for a wide range of diseases. TEQUILA-seq allows us to deeply sequence the full-length RNA molecules for any gene set across many biological samples. To illustrate its biomedical utility, the researchers applied TEQUILA-seq to profile full-length RNA molecules of 468 actionable cancer genes across 40 breast cancer cell lines. They discovered previously unknown transcript isoforms in extensively studied cancer genes that may shed light on how genes that protect the body from cancer are inactivated in individual tumors.

NTU Scientists Develop New Technique To Convert Kale Waste into Useful Products
Scientists from Nanyang Technological University, Singapore (NTU Singapore) have developed a new technique to convert kale waste for use in health and personal care products,

reducing food waste and emissions. They studied naturally derived natural deep eutectic solvents (NADES) - non-toxic liquids made up of plant-based compounds such as amino acid, sugar, and vegetable oil by-products. The newly developed process involves first blending the kale waste into a paste (or freeze-dried and ground into a powder form). The researchers then mixed the kale paste (or powder) with their specially formulated NADES solvent and stirred it mechanically at room temperature, before filtering the mixture to extract the beneficial compounds. The entire low energy process can be completed within 30 minutes. Since bioactive nutritional compounds are temperature-sensitive and degrade with heating, the NTU method helps to avoid degradation.

Eye Scans for Early Detection of Parkinson's Disease

A team from UCL, UK has identified markers of Parkinson's in retinal eye scans with the help of artificial intelligence (AI). Its analysis of the AlzEye dataset was repeated using the wider UK Biobank database (healthy volunteers). The use of these two large, powerful datasets has enabled the team to identify these subtle markers, even though Parkinson's disease has a relatively low prevalence (0.1-0.2 per cent of the population). Generation of the AlzEye dataset was enabled by INSIGHT, the world's largest database of retinal images and associated clinical data. High-resolution images of the retina are now a routine part of eye care, known as 'optical coherence tomography' (OCT). Parkinson disease is characterised by a reduction of dopamine, and differences in the INL (inner nuclear layer) of the retina. In less than a minute, an OCT scan produces a cross-section of the retina (the back of the eye) down to a thousandth of a millimetre. This study confirmed previous reports of a significantly thinner GCIPL (ganglion cell–inner plexiform layer), while for the first time finding a thinner INL. It further found that a reduced thickness of these layers was associated with increased risk of developing Parkinson's disease, beyond that conferred by other factors or comorbidities. In recent years, use of AI enables the discovery of hidden information about the whole body from these retinal images alone. Harnessing this new potential is what oculomics is about.

New epoxy resin resists flames and reduces waste

Researchers from the Swiss Federal Laboratories for Materials Science and Technology (EMPA) have developed an epoxy resin-based plastic that is fully recyclable, repairable and also flame retardant -- all while retaining the favorable thermomechanical properties of epoxy resins. The unique epoxy resin that the Empa researchers have developed is technically a thermoset -- but unlike other thermosets, it can be reshaped like a thermoplast. The key is the addition of a very special functional molecule from the class of phosphonate esters into the new resin matrix. The bond the molecule forms with the polymer chains of the epoxy resin is dynamic and can be broken under certain conditions. This loosens the crosslinking of the polymer chains so that they can be melted and reshaped. Such materials, also known as vitrimers are considered particularly promising. The work enables making a composite material, in which both the fibers and the plastic matrix can be completely separated and reused. They may be useful for carbon-fiber-reinforced plastics in particular, as they are commonly used in the construction of airplanes, trains, boats, cars, bicycles and more. Fiber-reinforced composites are not the only application for the new polymer. For example, it could be used to coat wooden floors, as a transparent, resistant layer that has good flame-retardant properties and where scratches and dents can be "healed" with a little pressure and heat.To pursue these and other applications of the material, the researchers are now

looking for industrial partners. The chances of commercial success are good. The modified epoxy polymer is also inexpensive and easy to manufacture.

INDIA

Chandrayaan 3 Makes Historic Soft Landing on the Moon

ISRO's Chandrayaan 3 made a successful soft landing of Chandrayaan3 on the surface of the Moon in the South Pole area at 1804 IST on 23 August, marking a historic event. This makes India the first country to do a soft landing on this part of the Moon. The Vikram landed in a hazard-free location with the help of its algorithm and instruments. While the cameras onboard the Vikram have beamed the pictures of the moon and confirmed the touchdown, the confirmation is available from other sensors as well. The instruments onboard Vikram and Pragyan rover will be used over the next 14 days to measure various properties of the lunar surface. After14 days night and extreme cold conditions will occur and when the day breaks again, solar power generation for Vikram and Pragayaan is expected to start again. Meanwhile, the orbiter is designed to withstand long periods of life.

Digital India Programme Expansion

The Union Cabinet, approved the expansion of the Digital India programme. The total outlay is ₹149 billion.This would enable the following: re-skilling and up-skilling of IT personnel, training in information security, more services through mobile platforms, more supercomputers, roll out of Bhashini - the AI-enabled multi-language translation tool, upgrading the National Knowledge Network (NKN), wider access to the Digital document verification facility under DigiLocker. Centres of Excellence in Artificial Intelligence on health, agriculture and sustainable cities, Cyber-awareness courses for 120 million college students, and New initiatives in the area of cyber security'.

Launch of Stealth Frigate Vindhyagiri

Vindhyagiri, the sixth Stealth Frigate of Project 17A being built at GRSE, was launched at Kolkata on 17 August. Project 17A Frigates are the follow-on class of the Project 17 (Shivalik Class) Frigates, with improved stealth features, advanced weapons & sensors and platform management systems. Seven Project 17A Frigates are under various stages of construction at MDL and GRSE. The design of Advanced Stealth Frigates also showcases the prowess of the Warship Design Bureau, in designing technologically advanced warships for the Indian Navy. With the launch, the Nation's indigenous expertise and engineering capabilities received a major boost, reducing India’s dependence on foreign suppliers, promoting self-reliance and fostering a robust defence industrial base. Over 75 per cent of the orders of Project 17A, have been placed on indigenous firms including MSMEs.

A Software Solution for Preventing Attacks on 5G networks

IITM Pravartak Technologies Foundation at IIT Madras, has developed a new indigenous software technology solution that can proactively detect and prevent zero-day vulnerability attacks in the 5G networks thereby reducing the network downtime. This can help smoothen countrywide communication as 5G networks become its lifeline in the near future. As the attack surface area is increasing, automating the whole testing process and continuous monitoring is the only sustainable solution.The new security testing offers a solution for 5G

core network functions and Radio Access Network (RAN) software. This technology solution can automatically identify zero-day vulnerabilities in the network in advance by using techniques such as fuzzing and test oracles. This solution has been manually tested in the 5G security lab of IITM Pravartak. Since it can help avoid the attacks in advance, it protects organisations against loss and saves the credibility of the brands. The team used ethical hacking for finding vulnerabilities in the system. They tested the functionality issue in the network, created various attack scenarios based on topology, feature interaction, and the number of nodes involved by following the defined 5G standards of 3GPP. The team is testing interoperability and security issues with multi-vendor products.

Novel Method to Improve Nanomechanical Testing Technology

Researchers from the International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI), Hyderabad, KLA Corp and Texas A & M University have developed a novel method to test nanomechanical properties of materials at very minute scales with high precision and accuracy The new methodology significantly improves the precision and accuracy of nanoindentation technique for testing of mechanical strength, but enables testing at much higher rates, thus facilitating high throughput. The novel approach involved a combination of extensive modeling and simulation to understand the material response during an indentation test and subsequent tailoring of the methodology to improve the precision and accuracy. The modeling results have also been validated by experiments under extreme conditions. The new methodology is expected to impact a broad spectrum of scientific research on measuring the strength of materials at small scales.

New Variety of Lotus and Aloe Vera

Union Minister of State for Science & Technology Dr Jitendra Singh today released a new variety of "Lotus" flower named 'NBRI Namoh 108' developed by the CSIR-National Botanical Research Institute (NBRI), Lucknow. The Namoh 108 lotus variety flowers from March to December and is rich in nutrients. This is the first lotus variety whose genome is completely sequenced for its characteristics. Dr Jitendra Singh also released apparel made from lotus fibre and perfume 'Frotus', extracted from lotus flowers and developed by the NBRI. He also released herbal colours for various applications, extracted by NBRI from flower offerings made at temples. These herbal colours can also be used for dying silk and cotton cloths. The Minister also released the new variety of Aloe vera named 'NBRI-Nihar', a clonal selection having approximately 2.5 times high gel yield in comparison to Aloe vera. As per the field observations, 'NBRI-Nihar' is found least affected against bacterial and fungal diseases. Two herbal products namely 'Herbal Cold Drops' for curing common cough and cold & Herbal Anti Dandruff Hair Oil, made by Marc Laboratories, were also launched by the Minister. The S&T Minister also released the NBRI-Goutout, a supplement for gout/gouty arthritis, and a nutri-bar for army personnel deployed in high-altitudes.

G-20 AND GLOBAL CHALLENGES

G20 Health Ministers Meeting in Gandhinagar

The G20 Health Ministers Meeting adopted an **Outcome Document**, which reaffirmed the commitment of G20 countries to continue strengthening the Global Health Architecture. G20 countries arrived at a consensus to build more resilient, equitable, sustainable and inclusive

health systems equipped to address ongoing global health challenges and future public health emergencies with equitable access to safe, effective, quality-assured and affordable vaccines, therapeutics, diagnostics, and other medical countermeasures, especially in Low and Middle-income Countries (LMICs) and Small Island Developing States (SIDS).The G20 countries recognized the need for improving our understanding of long-COVID, its consequences on individual, social and economic levels as well as on post-COVID-related health services; and noted the importance of surveillance and research into long-COVID. Under the overarching theme of India's G20 Presidency of 'One Earth, One Family, One Future', the G20 nations deliberated on the 3 Health Priorities: (1) Health Emergencies Prevention, Preparedness, and Response [PPR] (2) Strengthening Cooperation in the Pharmaceutical sector, and (3) Digital Health Innovation and Solutions. The G20 countries continue to be committed to strengthening the dialogue with the Finance track through the G20 Joint Finance-Health Task Force (JFHTF), and welcomed the conclusion of the First Call for Proposals of the Pandemic Fund. Expressing concern over rising cases of zoonotic diseases, the G20 member nations duly focused on integrating collaborative and inclusive One Health Approach as enunciated by the One Health High-Level Expert Panel and addressing the nexus between climate change and health.They also recognized the potential role of evidence-based Traditional and Complementary Medicine (T&CM) in health. They also recognized the potential for innovative technologies, including the use of internet of things, big data analytics, Artificial Intelligence and machine learning, to support people's health needs and achieve the goal of UHC. They note the importance of applying ethical principles and appropriate governance standards and principles to their development, adoption and use. Russia and China stated their distinct positions on Paragraph 22 of the Outcome Document.

G20 Digital Economy Ministerial Meeting

The G20 Digital Economy Ministerial Meet was held in Bengaluru on August 19, following the 4th meeting of the G20 Digital Economy Working Group (DEWG) held from August 16 – 18. The Ministerial Meeting expressed commitment to the priority areas of the working group. Thematic sessions and deliberations of the four DEWG meetings had focused on digital connectivity and security for a safe, resilient, and trusted digital economy. The Ministerial Meeting began with a special video message by Prime Minister, Narendra Modi who said that the launch of the Digital India initiative in 2015 had led to the unprecedented digital transformation that has taken place in India over the last 9 years. He underlined that India's digital transformation is powered by its unshakeable belief in innovation and its commitment to speedy implementation while also being motivated by the spirit of inclusion where no one is left behind. Reaffirming the priorities of the working group and enhancing DPI for a resilient future, the meeting adopted the ambitious & forward-looking Outcome Document and Chair's Summary which reiterates the priorities of the Working Group and strengthens commitments.

G20-Chief Science Advisers' Roundtable meeting

The second meeting of the G20-Chief Science Adviser's Roundtable (G20-CSAR), held under the Sherpa Track of the Indian G20 Presidency, successfully concluded 28 August in Gandhinagar, Gujarat. The summit culminated into mutual consensus for an Outcome Document and a Chair's Summary by all G20 countries and invitee countries. G20-CSAR is an attempt towards synergizing global science advice mechanism in an inclusive and action-oriented manner to enable evidence-informed policymaking, as well as strengthening

science advice at national and international levels. The key priorities areas that were discussed during the day-long deliberations were (a) leveraging opportunities in One Health, for better disease prevention, control, and pandemic preparedness; (b) synergizing global efforts to expand access to scholarly scientific knowledge; (c) ensuring equity, diversity, inclusion, and accessibility in Science and Technology Ecosystem, as well as known and unknown emerging priorities; (d) and creating an Inclusive, Continuous and Action-Oriented Global Science Advice Mechanism.The G20-CSAR initiative, newly launched under the Indian Presidency, aims to create a space for voluntary knowledge and resource sharing. The goal is to exchange best practices in the science advice process based upon inclusivity, heterogeneity, interdependency, transparency, plurality of expertise, and collective interest. The inaugural G20-CSAR meeting was held from 28th-30th March, 2023 in Ramnagar, Uttarakhand. Since then, four intersessional meetings, six side events and several bilateral meetings have been organised to arrive at the agreement on the Outcome Document and Chair's Summary.

IN BRIEF

MIT Researchers Fix Motion-corrupted MRI Scans

The method uses AI to computationally construct a motion-free image from motion-corrupted data without changing anything about the scanning procedure. The aim was to combine physics-based modeling and deep learning. The importance of this combined approach lies within ensuring consistency between the image output and the actual measurements of what is being depicted. The future work could explore more sophisticated types of head motion as well as motion in other body parts. For instance, fetal MRI suffers from rapid, unpredictable motion that cannot be modeled only by simple translations and rotations. These methods will be used in all kinds of clinical cases: children and older folks.

Tiny Magnetic Beads to Quickly Detect Pathogens

MIT engineers have identified a new optical signature in a widely used class of magnetic beads, which could be used to quickly detect contaminants in a variety of diagnostic tests. For example, the team showed the signature could be used to detect signs of the food contaminant Salmonella.The Dynabeads are microscopic magnetic beads that can be coated with antibodies that bind to target molecules, such as a specific pathogen. Dynabeads are typically used in experiments in which they are mixed into solutions to capture molecules of interest. The MIT team found a faster way to confirm the presence of Dynabead-bound pathogens, using optics, specifically, Raman spectroscopy. This optical technique identifies specific molecules based on their "Raman signature," or the unique way in which a molecule scatters light. The researchers found that Dynabeads have an unusually strong Raman signature that can be easily detected, much like a fluorescent tag. This signature, they found, can act as a "reporter." If detected, the signal can serve as a quick confirmation, within less than an hour, that a target pathogen is indeed present in a given sample. The team is currently working to develop a portable device for quickly detecting a range of bacterial pathogens. This approach could lead to expanded access to advanced diagnostics in resource-limited environments.

Efficient Polymer Film-based Large-area Perovskite Solar Module

Japanese electronics manufacturer Toshiba has achieved a power conversion of 16.6% for a 703cm2 polymer film-based perovskite solar module.The device is fabricated through a

one-step coating method that uses improved ink, film drying processes, and production equipment to form a uniform perovskite layer. The process is said to halve the steps for deposition of the MAPbI3 perovskite layer. The coating speed is said to reach six meters per minute on a 5×5 cm2 module, which the company defined as a rate that meets requirements for mass production.The flexible and lightweight panel could be suitable for locations where it is difficult to install conventional crystalline silicon modules, such as low-load-bearing roofs and office windows.The company plans to commercialize its perovskite technology in 2025.

Scalable Battery Storage Solution

The Australian arm of China-based Chelion Renewables Group has launched its Matrix CAIO battery system in Australia. The Matrix CAIO has a 95 per cent round trip efficiency and a flexible, modular design that allows customers to choose between a number of customisable options such as power conversion system (PCS) size, solar connectivity and backup for all ongrid or offgrid scenarios. The modular rack system can accommodate various power conversion options in the 90 -120 kW range. It features an intelligent energy management system, fireproofing and HVAC temperature regulation. The IP65-rated cabinet measures 1,450 mm x 2,000 mm x 1,100 mm and weighs 700 kg. It has been designed for easy deployment on an external slab to reduce installation costs. The CAIO offers scalability for various applications including peak shaving and load shifting for large commercial businesses, support for microgrids and community battery applications, contingency frequency control services, and supplying backup power. Australian installations of the Matrix CAIO have already commenced in New South Wales.

Photovoltaic Leaf Produces Electricity, Thermal Energy, Water

Researchers at the Imperial College London have developed a new photovoltaic leaf (PV-leaf) concept that is able to produce electricity, thermal energy, and water.The structure utilizes vascular hydrophilic fiber bundles that uniformly distribute water through the PV-leaf. Hydrogel cells are used to mimic the vascular bundles and sponge cells. The scientists measured the performance of the system under standard illumination conditions and compared it to a reference standalone PV cell cooled by natural air convection. They found that the PV-leaf reached a temperature of 43.2 C, while that of the reference cell reached 68.8 C. The PV-leaf achieved a power conversion efficiency of 15.0%, an open-circuit voltage of 0.63 V, and a fill factor of 0.77. The capital cost of the additional components required by the PV-leaf is approximately 1.1 $/m2, which represents around 2% of the cost of conventional solar panels. The team also claims that the device may be able to generate an additional 1.1 L/h/m2 of freshwater under a solar irradiance of 1000 W/m. They also believe that the system could also use seawater instead of freshwater.

RESOURCES & EVENTS

Global Initiative on Digital Health launched

Dr Mansukh Mandaviya,Union Health Minister launched the ‘Global Initiative on Digital Health (GIDH) – a WHO Managed Network.’for consolidating efforts and investments made in the digital health space and creating a comprehensive digital health ecosystem.He also highlighted the significant strides taken by India in implementing innovative digital health solutions at the national level. He also recalled that India led the Digital Health resolution at

71st World Health Assembly in 2018 in Geneva which spurred global action on this vital agenda. He further stated that India as a chair of Global Digital Health Partnership and Commonwealth Technical Working Group has highlighted the importance of digital health for health systems strengthening as a critical enabler of national policies. The Director General of WHO, Dr. Tedros Adhanom Ghebreyesus emphasized that the GIDH is an integrative step that fosters equity in healthcare by converging efforts and best practices. It will amplify our efforts with the incorporation of tools, such as AI while giving due importance to ethics, policy, and governance.The GIDH will ensure inclusivity, integration, and alignment of our goals by not leaving anyone behind, he further stated.The Global Initiative on Digital Health (GIDH) will consolidate the evidence and amplify recent and past gains in global digital health for health systems while strengthening mutual accountability to enhance the impact of future investments. The GIDH will be a WHO Managed Network ("Network of Networks") that will promote equitable access to digital health by addressing various challenges. The Global Strategy on Digital Health was endorsed by Member States in 2020 as a way to align actions and goals, while defining a roadmap towards digital health transformation. The GIDH will enable us to address over 70% of the proposed actions in the Global Strategy. Dr Mandaviya also launched the World Bank's Flagship Report on "Digital in Health – Unlocking Value for Everyone".

WHO Global Summit on Traditional Medicine

Union Minister of Ayush Shri Sarbananda Sonowal said that the ever first Global Summit on traditional medicine organised by World Health Organisation, and co-hosted by Ministry of Ayush, in Gandhinagar has proved to be historic in many ways. The main outcomes of the global summit will be soon released by World Health Organisation in the form of Gujarat declaration.The Gujarat Declaration will emphasise that the importance of Traditional Medicine is recognised for attainment of UHC and WHO's commitment to work toward it through evidence generation and policy support to member states. Initial findings of the latest Global Survey on Traditional Medicine by WHO were also discussed. 97 out of 157-member states of WHO have National Policies regarding Traditional Medicine. The outcomes of the summit will help in shaping the work scope of the Global Centre of Traditional Medicine, but will also reflect in the World Health Organisation's strategy document for 2025-2034 on Traditional Medicine. The summit was held on the sidelines of the G20 Health Ministers meet and thereby provided an opportunity to Health Ministers of various countries to have discourse on Traditional Medicine on the G20 platform.

UNEP Report on Chemicals in Plastics

Chemicals in plastics must be addressed as part of ongoing global action to combat plastic pollution, according to a new report published by the UN Environment Programme (UNEP). The report, Chemicals in Plastics: A Technical Report, aims to catalyze action to transition to safe and sustainable material cycles. It indicates such a transition needs to involve all stakeholders along the plastics value chain, including regulatory authorities, industries involved in plastic manufacturing and use, waste managers and recyclers, scientists from multiple disciplines, and consumers and the general population.Detailing potential areas for action, the report aims to support the negotiation process to develop an instrument on plastic pollution, and outlines publicly available scientific studies and initiatives focused on chemicals in plastics and the science-policy interface.The report identifies ten priority use sectors where

chemicals of concern have been found in plastic products, including toys and other children's products, packaging (including food contact materials), electrical and electronic equipment, synthetic textiles and related materials, furniture, building materials, medical devices, personal care and household products, and agricultural/aquaculture/fisheries plastics. The report recommends actions to help reduce chemical-related impacts of plastic pollution and the need for capacity-building .

UNEP Report on Alternatives to Highly Hazardous Pesticides

The UN Environment Programme (UNEP) has published guidelines for evaluating alternatives to highly hazardous pesticides (HHPs). The guidelines identify the roles different stakeholders play in the process of replacing HHPs, and suggest how they can support each another to maintain agricultural productivity while protecting human health and the environment. Pesticides that cause severe or irreversible harm to health or the environment may be treated as highly hazardous.Studies indicate that between 6-10% of registered pesticides were HHPs. The report indicates that efforts to ban the use of a small number of pesticides could remove some of the most severe health and environmental hazards. National pesticide regulators can decide whether an HHP should be banned in their country, and pesticide producers or traders may also decide to withdraw a product, when health and safety considerations, environmental concerns, and trade requirements determine their continued use would pose too great a risk. The guidelines list eight criteria that define whether a pesticide is an HHP. Some guidelines for evaluation of alternatives to HHPs and 8 case studies of some countries are contained in the report.

SCIENCE POLICY AND DIPLOMACY

MoU with Trinidad and Tobago on Sharing India Stack

India and Trinidad and Tobago have signed a Memorandum of Understanding (MoU) on sharing of India Stack, a collection of open APIs and digital public goods that aim to facilitate identity, data, and payment services on a large scale.Both sides agreed to cooperate in the areas of digital transformation by means of capacity building, training programmes, exchange of best practices, exchange of public officials and experts, development of pilot or demo solutions, etc. Since June 2023, India has already signed MoUs with Armenia, Sierra Leone, Suriname, and Antigua & Barbuda to share India Stack while many countries like Mauritius, Saudi Arabia have shown interest and are at an advanced stage of finalizing cooperation on IndiaStack. A similar MoU was signed with Papua New Guinea also last month, showcasing the growing interest and acceptance of the initiative on a global scale. The Universal Payment Interface (UPI) which is also a part of India Stack, has been accepted in France, UAE, Singapore and Sri Lanka.

India, Greece Collaboration Expanded

India and Greece agreed on 25 August to elevate bilateral ties to a strategic level and double bilateral trade by 2030. Prime Minister Narendra Modi and Greek Prime Minister, Kyriakos Mitsotakis had high-level talks and emphasised the importance of expanding and enhancing bilateral ties in areas such as defence, shipping, science and technology, cyberspace, education, culture, tourism and agriculture. They took note of the signing of the Memorandum of Understanding on Agriculture collaboration, which included the formation of a

Hellenic-Indian Joint Sub-committee on Agriculture to facilitate sectoral collaboration for mutual benefit.They decided to elevate Greek-Indian bilateral ties to the level of "Strategic Partnership" and strengthen people-to-people ties between the two countries. Both sides would work to double bilateral trade by 2030. Bilateral merchandise trade amounted at over USD 2 billion in 2022-23.

Iraq as First Associate Member of SESAME

Following approval by the governments of all of member states of SESAME (the Synchrotron-light for Experimental Science and Applications in the Middle East laboratory, based in Allan, Jordan), Iraq will accede to Associate Membership of the laboratory, paving the way to full Membership in the future. SESAME is an intergovernmental organisation established on the CERN model under the auspices of UNESCO. It opened its doors to users in 2017, offering third-generation X-ray beamlines for a range of disciplines, aiming to be the first international Middle-Eastern research institution enabling scientists to collaborate peacefully for the generation of knowledge.SESAME has eight full Members (Cyprus, Egypt, Iran, Israel, Jordan, Pakistan, Palestine and Türkiye) and 17 Observers, including CERN, and has just welcomed Iraq as its first Associate Member.

US extends science and technology agreement with China

The US has extended a historic science and technology agreement (STA) of 1979 with China by six months, but now needs to renegotiate the deal to mollify concerns that it aids Beijing's technological and military rise and fails to ensure a reciprocal research relationship.The US made a last-minute decision tdespite pressure from Republicans who want it scrapped.The agreement has been renewed every five years apart from a brief lapse after the 1989. But recently, tensions have grown over Chinese tacit support for Russia's invasion of Ukraine. China is now challenging US scientific and technological dominance in multiple fields, with US and allies attempting to choke off access to leading edge semiconductors, for example, in response. Some concern has arisen over China sharing its scientific knowledge with the US. In April this year, China closed some academic databases in its CNKI scientific paper portal to foreign scholars, citing national security. China is apparently keen to renew, with state media trumpeting the benefits of research collaboration with the US, and the Chinese ambassador in Washington meeting US science organisations in the run up to the agreement's expiry. Over 1,000 US scientists also signed a letter in favour of renewal.The agreement itself is a relatively brief document, with 11 articles ticking off very broad terms of engagement on reciprocity, entry and exit of scientists, publication of results and a joint commission to oversee cooperation, for example. Since it was signed, the two sides have added a more comprehensive annex on intellectual property, addressing one of the US's chief complaints about cooperation with China.

We welcome your comments and valuable suggestions. Please write to us for receiving publications, updates and notices regarding seminars, conferences etc. Contact us at science.diplomacy@ris.org.in

NOTE TO OUR READERS AND STAKEHOLDERS:

RIS Science Diplomacy Programme (fisd.in) is glad to present a new version of Science Diplomacy News Alerts, following India's assumption of the Presidency of the G20. A new section G20 and global challenges has been added. We request your cooperation to review the Alerts and improve its content. For this purpose, please complete the form a https://forms.gle/o4d869FxaM9t3KNw7, and submit it. Your support and cooperation is appreciated.