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| Journalist: | Shemin Joy | Page No: | 7 |

PM-DevINE scheme to fund social projects in Northeast

SHEMIN JOY
NEW DELHI, DHNS

A Rs 1,500-crore PM-DevINE (Prime Minister's Development Initiative for Northeast Region) scheme was announced in the Budget on Monday to fund infrastructure and social development projects in the Northeast.

Of the Rs 1,500 crore, the government has identified eight projects for which Rs 963 crore has been earmarked. Efforts to identify projects for the remaining amount will be done soon.

Finance Minister Nirmala Sitharaman said the new scheme would be implemented through the North Eastern Council (NEC).

"It will fund infrastructure, in the spirit of PM GatiShakti, and social development projects based on felt needs of the Northeast. This will enable livelihood activities for youth

and women, filling the gaps in various sectors," she said in her budget speech.



"It will not be a substitute for existing central or state schemes. While the central ministries may also pose their candidate projects, priority will be given to those posed by the states. An initial allocation of Rs 1,500 crore will be made," she said.

For the construction of a by-pass in Mizoram capital Aizawl, Rs 500 crore has been allocated while Rs 129 crore has been earmarked for the establishment of dedicated services for the management of Paediatric and Adult Hematolymphoid Cancers in Guwahati.

The NECTAR Livelihood Improvement Project will get Rs 67 crore, while the promotion for scientific organic agriculture will get Rs 45 crore. The pilot project for the construction of Bamboo Link Road in various districts of Mizoram will get Rs 100 crore.



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| Journalist: | Richa Sharma | Page No: | 5 |

R&D budget of crucial institutions downsized

SCIENCE

RICHA SHARMA @ New Delhi

THERE was a slash in funding for the country's premier research and development institutions and laboratories that drove innovation, low-cost indigenous solutions, including genome sequencing, DNA and nasal vaccine, during the Covid-19 pandemic. Budget for the country's three scientific institutions was cut down by ₹576 crore for the next fiscal year.

Department of Biotechnology, Department of Scientific and Industrial Research and Department of Science & Technology are three key institutions under the ministry of science and technology. The Budget allocated ₹14,217 crore for 2022-23. It was ₹14,793 crore during FY 2021-22.

The biggest cut of ₹921 crore was taken by the Department of Biotechnology (DBT) that has been conducting trials on DNA vaccine and nasal vaccine for Covid-19. The Indian SARS-CoV-2 Genomics Consortium, a consortium of top scientific institutions sequencing genomes, also comes under DBT. The budget for Biotech Research & Development, which comes under DBT, was slashed from ₹1,660 crore to ₹1,315 crore. Also, under the other scientific research sub-head in the DBT, the budget allocation has been cut by ₹928 crore, while the budget for industrial and entrepreneurship development was downsized by ₹595 crore.

Calling it a 'futuristic budget with scientific vision and start-up incentives', Dr Jitendra Singh, Union Minister of State (Independent charge) Science & Technology, said: "Under the leadership of Prime Minister Narendra Modi, India looks forward to a crucial decade ahead, which will primarily be determined by two factors — economy and science, technology and innovation."

The budget of the Department of Science and Technology (DST) saw a minuscule jump of ₹67 crore. The allocation under Research and Development in DST saw an increase of ₹11 crore, while allocation for innovation, technology development and deployment has been reduced from ₹951 crore in FY 2021-22 to ₹812 crore in FY 2022-23.

About ₹100 crore cut was taken by DST's Science and Engineering Research Board (SERB), which runs several schemes and supports research in frontier areas of science and engineering. The Board also gives special attention to young scientists below the age of 35 to undertake independent research in new areas. It also offers fellowships to scientists and engineers for their outstanding performances and Ramanujan fellowship to brilliant scientists from across the world to take up research positions in India.

The Budget allocation for the Department of Scientific and Industrial Research, which has a chain of national laboratories under it, saw an increase of ₹412 crore.



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| Journalist: | Bureau | Page No: | 5 |

Hyd scientists develop self-disinfecting mask

DC CORRESPONDENT
HYDERABAD, FEB. 4

A team of scientists at the International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI) in the city has developed a self-disinfecting 'copper-based nanoparticle-coated antiviral face mask' to fight against the Covid-19.

The biodegradable and washable mask, which is also highly breathable, exhibits high performance against Covid and other

viral and bacterial infections.

The team at ARCI, in collaboration with an industry partner, Resil Chemicals, a Bengaluru based company, developed it under the department of science and technology-sponsored Nano-Mission project, while the Centre for Cellular & Molecular Biology (CSIR-CCMB) tested the efficacy of the fabric against SARS-CoV-2 for disinfection properties and reported a disinfection of 99.9 per cent.



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| Journalist: | Aj Vinayak | Page No: | 1 |

NEW-AGE FACE MASKS

The self-disinfecting biodegradable masks developed by ARCI have exhibited an efficacy of more than 99.9% against bacteria [p12](#)





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| Published Date: | 10 Feb 2022 | Publication: | The Times of India [Bangalore] |
| Journalist: | TNN | Page No: | 10 |

Astronomers develop AI-based tools to help find habitable planets

TIMES NEWS NETWORK

Bengaluru: Astronomers from the Indian Institute of Astrophysics (IIA) in Bengaluru along with those from BITS Pilani, Goa campus have devised a new approach — an anomaly detection method — by which they can identify potentially habitable planets with a high probability. They have used an Artificial Intelligence (AI)-based algorithm for this.

Pointing to how humans, since time immemorial, have been looking at the cosmos and believing other inhabited worlds are out there, the scientists said current estimates are that the number of planets in our Galaxy alone run into billions, possibly a number greater than the number of stars itself.

IIA is an autonomous institute under the Department of Science and Technology (DST). And, as per DST, the question that naturally arose was “whether there are other life-harboring planets and if there is a way to predict which exoplanet can potentially harbour life?” In the present work, IIA and BITS Pilani astronomers have de-



Artistic impression of an Exoplanet

vised this new approach based on the postulate that Earth is an anomaly, with the possibility of existence of few other anomalies among thousands of data points. The study is published in the journal, Monthly Notices of the Royal Astronomical Society (MNRAS). According to the study, there are 60 potentially habitable planets out of about 5,000 confirmed, and nearly 8,000 candidate planets proposed. The assessment is based on their close similarity to Earth, the DST said, adding that these planets can be viewed as candidates for anomalous instances in a huge pool of ‘non-habitable’ exoplanets.

IIA’s Margarita Safonova and BITS Pilani’s Snehanshu Saha argue that “Earth being the only habitable planet among thousands of planets is defined as an anomaly. We

explored whether similar ‘anomaly’ candidates can be found using novel anomaly detection methods.”

The IIA team explains that the fulcrum of the idea that postulates (potentially) habitable exoplanets as anomalies pivots around the well-known anomaly detection problem in predictive maintenance of industrial systems. “...Anomaly detection technique suitable for industrial systems applies equally well for habitable planet detection since in both cases, the anomaly detector is dealing with “imbalanced” data, where the anomalies (number of habitable exoplanets or anomalous behaviour of industrial components) are outliers. These are far less in number compared to the normal data,” the astronomers explain. It is a tedious job to scan thousands of planets manually and to identify planets potentially similar to Earth. Researchers have thus developed a novel AI-based algorithm to detect anomalies and extended it to an unsupervised clustering algorithm to use it to identify the probably habitable exoplanets from the exoplanet datasets.



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| Journalist: | Bureau | Page No: | 4 |

B'luru to get national centre for carbon capture, utilisation

TIMES NEWS NETWORK

Bengaluru: A lab at Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) in Jakkur, north Bengaluru, will soon set up a National Centre of Excellence on Carbon Capture and Utilisation (NCCCU). This first-of-its-kind centre will be one of the two such centres being supported by the department of science and technology (DST).

The other centre will come up at IIT-Bombay (IIT-B), which has announced "the establishment of a National Centre of Excellence in Carbon Capture and Utilisation (NCoE-CCU) with

the department's support".

Sources said the national centre coming up at JNCASR will perform world-class research, provide training and consultancy in areas of carbon-dioxide (CO₂) capture and utilisation and translate this research excellence into solutions with global economic and social impact.

"The vision is to be a centre of excellence and world leader in niche research areas of CO₂ capture and utilisation through high socio-economic impact research, high impact publications and national and international links, and to nurture young aspirants through outre-

ach programmes," a source said. Prof Sebastian C Peter, faculty, JNCASR, who will head the centre as its principal investigator, said more details will be announced in coming days. He, however, confirmed the establishment of the centre. Sources said in the first phase, DST will provide around Rs 7 crore to Rs 10 crore for both centres. "Each centre is likely to get around Rs 5 crore," one source said.

A DST official tweeted: "DST supports India's first-ever two Centres of Excellence in the area of Carbon Capture and Utilisation, NCoE-CCU at IIT Bombay and NCCCU at JNCASR, Bengaluru."



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| Journalist: | Bureau | Page No: | 12 |



Karakoram region glaciers stable, rest melting fast

Waning chunks of ice affect the water budget downstream & increase chances of flash flood

ENVIRONMENT

NEW DELHI: Glaciers in the Karakoram region are in a stable condition, but those feeding the Ganga and the Brahmaputra river basins are melting at a faster rate, the Earth Sciences Ministry has said.

In reply to a written question in the Lok Sabha, the ministry said the mean retreat rate of the Hindukush Himalayan glaciers was 14.9-15.1 metres per annum, which varied from 12.7-13.2 metres per annum in the Indus, 15.5-14.4 metres per annum in the Ganga and 20.2-19.7 metres per annum in the Brahmaputra river basins.

However, glaciers in the Karakoram region have shown comparatively minor length change, indicating the stable condition," the ministry said, citing studies carried out by various institutions associated with the ministry.

The ministry, through its au-

tonomous institute National Centre for Polar and Ocean Research (NCPOR), has been monitoring six glaciers in the Chandra basin (2,437 square kilometre area) in western Himalaya since 2013.

The Geological Survey of India has taken up a project on melting of glaciers in the Beas Basin, South Chenab basin and the Chandra Basin in Himachal Pradesh, and the Shyok and Nubra basin in Ladakh during Field Season 2021-22.

It said the Wadia Institute of Himalayan Geology (WIHG) was monitoring a few glaciers in Uttarakhand which reveal that the Dokriani Glacier in the Bhagirathi basin was retreating at 15-20 metre/annum (mpa) since 1995, whereas Chorabari Glacier in the Mandakini basin was retreating at 9-11 mpa during 2003-2017. WIHG was also monitoring Durung-Drung and Pensilungpa glaciers in Suru basin, Ladakh.



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| Journalist: | select Reporter | Page No: | 2 |

योग का मस्तिष्क पर प्रभाव जानेगा जामिया

नई दिल्ली | प्रमुख संवाददाता

पहल

जामिया मिल्लिया इस्लामिया पहली बार मोरारजी देसाई राष्ट्रीय योग संस्थान (एमडीएनआईवाई) के सहयोग से योग से होने वाले मानसिक स्वास्थ्य लाभ पर शोध करेगा। शोध में मोहम्मद तुल्स और न्यूरोनल एक्टिविटी रिकॉर्डिंग का उपयोग किया जाएगा। इस शोध के लिए केंद्र सरकार के विज्ञान और प्रौद्योगिकी विभाग (डीएसटी) ने जामिया को 50 लाख रुपये का अनुदान दिया है।

जामिया के मस्तिष्क विज्ञान के निदेशक प्रो. मोहम्मद जुल्फेकार ने कहा कि इस शोध कार्य से छात्रों को बड़े पैमाने पर लाभ होगा। क्योंकि, कोरोना ने उनके मानसिक स्वास्थ्य पर बहुत असर डाला है। इसलिए डीएसटी की सहायता उन छात्रों को पहचानने में मदद करेगी, जिन्हें हस्तक्षेप की तत्काल आवश्यकता हो सकती है। एमसीएआरएस के उप निदेशक डॉ

- मोरारजी देसाई योग संस्थान सहित अन्य विभाग शामिल होंगे
- डीएसटी ने जामिया को 50 लाख रुपये का अनुदान दिया है

एएसएन काजिम ने कहा कि शोध कार्य से एक व्यापक मानसिक स्वास्थ्य डेटा बेस का विकास होगा। उन्होंने कहा कि जामिया को पहल पूरे देश में अन्य विश्वविद्यालयों और कलेजों के लिए मॉडल के रूप में काम करेगी, क्योंकि जल्द ही वे ऑफलाइन कक्षाएं शुरू करने की तैयारी कर रहे हैं।

प्रस्तावित शोध में जांचकर्ता, विश्वविद्यालय के छात्रों में मस्तिष्क इमेजिंग, मस्तिष्क गतिविधि, जीव रासायनिक व न्यूरो-फिजियोलॉजिकल मापदंडों को परखेंगे। इन जटिलताओं से निपटने के लिए उपचार भी प्रदान करेंगे। तीन साल के अध्ययन के लिए विश्वविद्यालय के छात्रों और कर्मियों को नामांकित किया जाएगा।



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| Journalist: | Bureau | Page No: | 2 |

योग व ध्यान के लिए जामिया को फंडिंग

नई दिल्ली (एसएनबी)। जामिया मिल्लिया इस्लामिया को योग और ध्यान से मानसिक स्वास्थ्य लाभ के जांच के लिए विज्ञान और प्रौद्योगिकी विभाग (डीएसटी) से फंडिंग प्राप्त हुई है।

यह शोध मोरारजी देसाई राष्ट्रीय योग संस्थान के सहयोग से किया जाएगा, जिसमें मोहम्मद तुल्स और न्यूरोनल एक्टिविटी रिकॉर्डिंग का उपयोग करके योग द्वारा मस्तिष्क स्वास्थ्य लाभ की जांच की जाएगी। प्रस्तावित शोध में जांचकर्ता, विश्वविद्यालय के छात्रों में मस्तिष्क इमेजिंग, मस्तिष्क गतिविधि, जीव रासायनिक और न्यूरो-फिजियोलॉजिकल मापदंडों को परखेंगे, जो तनाव, चिंता या अवसाद के प्रति अतिसंवेदनशील हो सकते हैं, इन जटिलताओं से निपटने के लिए ट्रेटमेंट भी प्रदान करेंगे। तीन साल के अध्ययन के दौरान इसमें भाग लेने के लिए विश्वविद्यालय के छात्रों और कर्मचारियों को नामांकित किया जाएगा। योग और अन्य मनोवैज्ञानिक ट्रेटमेंट जामिया और एमडीएनआईवाई दोनों में किए जाएंगे।



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| Journalist: | PTI | Page No: | 9 |

विज्ञान एवं प्रौद्योगिकी मंत्रालय को 14,217 करोड़

■ नई दिल्ली (भाषा)।

विज्ञान एवं प्रौद्योगिकी मंत्रालय के लिए बजट में 14,217 करोड़ रुपये आवंटित किए गए हैं जो इससे पहले के वर्ष के मुकाबले 3.9 प्रतिशत अधिक है। मंत्रालय के तीन विभाग- विज्ञान एवं प्रौद्योगिकी विभाग, जैव प्रौद्योगिकी विभाग तथा वैज्ञानिक एवं औद्योगिकी अनुसंधान विभाग है। विज्ञान एवं प्रौद्योगिकी विभाग के लिए 6000 करोड़ रुपये, जैव प्रौद्योगिकी विभाग के लिए 2,581 करोड़ रुपये तथा वैज्ञानिक एवं औद्योगिक अनुसंधान विभाग के लिए 5,636 करोड़ रुपये का आवंटन किया गया है। इन तीनों ही विभागों ने

देश में कोरोना महामारी का मुकाबला करने में अहम भूमिका निभाई थी।

विज्ञान एवं प्रौद्योगिकी विभाग के तहत केंद्र सरकार की योजनाओं के लिए 2894 करोड़ रुपये का प्रावधान किया है जो 2021-22 में आवंटित 2,915 करोड़ रुपये से कम है। साथ ही जैव प्रौद्योगिकी विभाग के अंतर्गत केंद्र सरकार की योजनाओं के लिए 1680 करोड़ रुपये का आवंटन किया गया है जो 2021-22 में 2620 करोड़ रुपये से कम है। वैज्ञानिक एवं औद्योगिक अनुसंधान विभाग के तहत केंद्र सरकार की योजनाओं के तहत 39 करोड़ रुपये का प्रावधान किया गया है जो पिछली बार आवंटित 35 करोड़ से अधिक है।



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| Published Date: | 3 Feb 2022 | Publication: | The Pioneer [New Delhi] |
| Journalist: | Bureau | Page No: | 4 |

Saffron fragrance all set to waft up to North East

PNS ■ NEW DELHI

Saffron fragrance is all set to sail through North East. With a pilot project of saffron cultivation yielding successful results in Yangyang village of South Sikkim, the North East Centre for Technology Application & Reach (NECTAR), an autonomous body under the DST, is in the midst of bringing more sites under the ambit of high revenue aromatic crop having therapeutic value too. Soon similar projects will be rolled out at various locations in Arunachal Pradesh and Meghalaya.

In fact, five sites have already been identified for saffron in Meghalaya—Barapani, Cherrapunji, Mawmsmai, Shillong, and Lalingtop. In Arunachal Pradesh, there is a good growth of organic saffron with flowers, experiments have shown.

The total cost of the entire project is Rs. 17.68 lakhs for Arunachal Pradesh and Meghalaya, said Union Minister of S&T Dr Jitendra Singh in a written reply in Lok Sabha on Wednesday. Of these, around Rs six lakhs has been earmarked for Barapani in Meghalaya.

India cultivates about 6 to 7 tonnes of saffron annually, but in order to meet the 100 tonne demand, saffron is imported. A kilo of saffron grown here costs

anywhere between Rs 1.5 to Rs 2 lakh. Scientists at NECTAR feel that there is a huge demand for saffron in the domestic market. "The farmers can take up saffron cultivation to meet the domestic demand as well as export the spice as well," they said.

According to the Trade Promotion Council of India, prior to 2020, India was the fourth-largest importer of Iranian saffron and had imported saffron worth USD 18.30 million from Iran.

Saffron—a unique agricultural product and a cash crop is well known for its therapeutic value, aroma and taste value, and multipurpose usages. The best quality is grown in the Kashmir valley and in Kishtwar in Jammu region. Saffron is cultivated mainly in Pulwama, Srinagar and Budgam. Pampore, a township in Pulwama district with around 3,200 hectares of land under cultivation, produces the most saffron in the Valley.

Though the National Saffron Mission (NSM) was launched in 2010-11 with an aim to boost the income of the saffron growers, it was applicable only for the cultivation of saffron in Jammu and Kashmir. However, in 2020, the Modi Government decided to revive the mission and expand the cultivation of saffron to the north eastern part of the country.



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| Journalist: | TNN | Page No: | 9 |

IISc commissions supercomputer, Param Pravega, as part of nat'l mission

TIMES NEWS NETWORK

Bengaluru: The Indian Institute of Science (IISc) on Thursday said it has installed and commissioned Param Pravega, one of the most powerful supercomputers in the country, and the largest in an Indian academic institution as part of the National Supercomputing Mission (NSM).

"The system, which is expected to power diverse research and educational pursuits, has a total supercomputing capacity of 3.3 petaflops (1 petaflop equals a quadrillion or 1,015 operations per second). It has been designed by the Centre for Development of Advanced Computing (C-DAC). A majority of the components used to build this system have been manufactured and assembled within the country, along with an indigenous software stack developed by C-DAC, in line with the Make in India initiative," a statement issued by IISc read.

Steered jointly by the department of science and technology (DST) and the ministry of electronics and information technology (MeitY), NSM is implemented by C-DAC and IISc. The Mission has supported the deployment of 10 supercomputer systems so far at IISc, IITs, IISER Pune, JNCASR, NABI-Mohali and C-DAC, with a cumulative computing power of 17 petaflops.

IISc added that about 31 lakh computational jobs



A majority of the components used to build this system have been manufactured and assembled within the country

have successfully been carried out by around 2,600 researchers across the country to date. These systems, it said, have greatly helped faculty members and students carry out major R&D activities, including developing platforms for genomics and drug discovery, studying urban environmental issues, establishing flood warning and prediction systems, and optimising telecom networks. "The Param Pravega system at IISc is a mix of heterogeneous nodes, with Intel Xeon Cascade Lake processors for the CPU nodes and NVIDIA Tesla V100 cards on the GPU nodes. The hardware consists of an ATOS BullSequana XH2000 series system, with a comprehensive peak compute power of 3.3 petaflops," IISc added.

The software stack on top of the hardware is provided and supported by C-DAC. The machine hosts an array of program development tools, utili-

ties, and libraries for developing and executing High Performance Computing (HPC) applications," IISc added.

The institute already has a cutting-edge supercomputing facility established several years ago. In 2015, it procured and installed SaharaT, which was at that time the fastest supercomputer in the country.

"Faculty members and students have been using this facility to carry out research in various impactful and socially-relevant areas. These include research on Covid-19 and other infectious diseases, such as modelling viral entry and binding, studying interactions of proteins in bacterial and viral diseases, and designing new molecules with antibacterial and antiviral properties," the statement read.

Researchers, IISc said, have also used the facility to simulate turbulent flows for green energy technologies.



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| Journalist: | Aj Vinayak | Page No: | 12 |

The 'nano' face behind the self-disinfecting biodegradable masks

Coated fabric developed by ARCI shows more than 99.9% efficacy against bacteria

AJ VINAYAK

Mangalore, February 4

Disposal of used facemasks is a major area of concern across the globe as not many dispose of them properly. The fact that many of these facemasks are non-biodegradable further adds to concerns.

Now, scientists at International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), a research and development centre under the Department of Science and Technology (DST) and the Centre for Cellular and Molecular Biology (CSIR-CCMB), in association with

Bengaluru-based Resil Chemicals, have developed a self-disinfecting biodegradable facemask.

This 'Copper-based Nano-particle-coated Antiviral Face Mask' has been developed under the DST-sponsored nano-mission project to fight against the Covid pandemic.

Copper-based

In an e-mail reply to *Businessline*, Tata Narasinga Rao, Scientist from ARCI, said the team of scientists has been working on this DST-sponsored project for more than a year.

ARCI developed copper-based nanoparticles of



This mask was developed under a DST-sponsored nano-mission

around 20 nanometres by a 'Flame Spray Pyrolysis' (FSP) processing facility. FSP process involves conversion of solution precursors into nano-powders by high temperature pyrolytic decomposition.

Stable nano-particle suspension were obtained by optimising the solid loading and pH. A uniform layer of this nano-coating on the cotton fabric with good adhesion was achieved using a suitable binder. The coated fabric exhibited an efficacy

of more than 99.9 per cent against bacteria. CSIR-CCMB tested the efficacy of this fabric against SARS-CoV-2 and reported 99.9 per cent disinfection, as evident from the standard results.

Commercial production

Stating that they got the masks made through the company partner using ARCI technology, Rao said the masks are ready for user trials for a while.

Prototype masks having different designs such as single layer or triple layers with nano-particle coated fabric as outer layer have been demonstrated. A single layer mask is especially useful as a protective antiviral outer mask over a regular mask.

According to Press Information Bureau, the Bengaluru-based Resil Chemicals is now producing such double layer masks on large scale.

On the commercial aspects and affordability of the masks made out of this technology, Rao said, "The commercial production depends on who will take our technology and produce. The cost of mask will depend on the scale of production. But it will be affordable."

Venugopal D, a Mangaluru-based consultant physician and diabetologist, told *Businessline* that this mask is of great use for healthcare professionals and the general public in protecting against corona and other viral infections, and reducing the transmission among the

communities. "I only wish this product is affordable to the common man," he added.

Rao said that the technology has been tested on some bacteria and Covid-19 and H1N1 virus, adding, "It should work for a range of virus variants but I can not confirm as we have not tested for variants other than those I mentioned."



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| Journalist: | Bureau | Page No: | 19 |

मास्क ऐसा जो वायरस का खुद करेगा सफाया

■ विस, नई दिल्ली : भारतीय साइंटिस्ट्स ने एक ऐसा मास्क तैयार किया है जो वायरस और बैक्टीरिया को शरीर में प्रवेश करने से रोकने के साथ खुद ही इनका सफाया भी कर सकता है। इस तरह यह कोरोना के साथ ही किसी भी तरह के वायरस और बैक्टीरिया से बचाव कर सकता है। इस मास्क को आसानी से धोया और दोबारा इस्तेमाल किया जा सकता है। इसकी एक और खासियत यह है कि यह खुद ही नष्ट भी हो जाता है, यानी कि पर्यावरण को नुकसान नहीं पहुंचाता।

इस मास्क का विकास साइंस एंड टेक्नॉलॉजी विभाग के संस्थान- इंटरनेशनल एडवेंसड रिसर्च सेंटर फॉर पाइडर मेटलर्जी



एंड न्यू मटीरियल्स ने वेगलूर की एक निजी कंपनी के साथ मिलकर किया है। इस मास्क पर खास तकनीक से कॉपर वेल्ड सूक्ष्म कणों की परत है और कपड़े के तौर पर कोटन लगा है। इसे बनाने वाले साइंटिस्ट्स का कहना है कि यह वायरस लोड बहुत ज्यादा होने पर कारगर होगा।



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| Journalist: | Bureau | Page No: | 12 |

आइआइएससी: सबसे तीव्र सुपर कंप्यूटर 'परम प्रवेग' स्थापित

1 सेकेंड में लाखों अरब ऑपरेशंस को देगा अंजाम

पत्रिका न्यूज नेटवर्क
patrika.com

बेंगलूर, भारतीय विज्ञान संस्थान (आइआइएससी) में देश के सबसे शक्तिशाली सुपर कंप्यूटर 'परम प्रवेग' की स्थापना की गई है। इसकी सुपर कंप्यूटिंग क्षमता 3.3 पीटाफ्लोपिस यानी 10 लाख अरब ऑपरेशंस प्रति सेकेंड है। इससे देश भर में हो रहे विविध अनुसंधान और शैक्षिक गतिविधियों को मदद मिलेगी। राष्ट्रीय सुपर कंप्यूटर मिशन (एनएसएम) के तहत स्थापित सुपर कंप्यूटर की डिजाइनिंग और विकास सेंटर फॉर वेडलसमेट ऑफ एडवेंसड



कंप्यूटिंग ने किया है। इसके अधिकांश उपकरणों-प्रणालियों का निर्माण और विकास देश में ही स्वदेशी तकनीक से किया गया है।

नए आविष्कारों में अहम भूमिका...

एनएसएम के तहत अब तक 10 सुपर कंप्यूटर निर्मित किए हैं। इनकी स्थापना आइआइएससी के अलावा आइआइए, आइआइएसईआर पुणे, जेएनएसईएसआर आदि संस्थानों में की गई है। इनकी कुल कंप्यूटिंग क्षमता 17 पीटाफ्लोपिस की चुकी है। जीनोमिक्स व ड्रग डिस्कवरी के लिए प्लेटफॉर्म विकसित करने, शहरी पर्यावरणीय मुद्दों के अध्ययन, बाढ़ चेतावनी, बुराचार नेटवर्क को बेहतर बनाने में इनकी अहम भूमिका है।



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| Journalist: | Bureau | Page No: | 4 |

Coastal region communities face extreme wind-wave threats too

PNS ■ NEW DELHI

The coastal communities that are vulnerable to sea-level rise due to climate change also have to worry about wave activity.

The extreme wind-wave pattern directly correlates with the location of intense wind activity, a recent study by Indian scientists has indicated.

These regions over the Bay of Bengal, the South China Sea and the South Indian Ocean can experience higher wave activity in the future, posing a severe threat to coastal communities in the region.

These communities are already most vulnerable to the impact of climate change and other environmental drivers due to their exposure to severe inundation and its frequency associated with extreme water levels in the nearshore regions apart from facing increasing instances of cyclones.

The impact resulting from coastal inundation can significantly affect the shoreline configuration, damage infrastructure, saltwater intrusion into groundwater, destroy crops, and affect the human population with various socio-economic consequences. Scientists worldwide are trying to estimate the magnitude of this impact, a release from the Union Ministry of Science & Technology said.

The present study performed a detailed investigation on future extreme wind-wave

projections and their relationship with wind speed, sea level pressure, and sea surface temperature for the mid-and end-century under two different greenhouse gas emission scenarios projected by the Intergovernmental Panel on Climate Change (IPCC) called RCP4.5 and RCP8.5 (possible climatic conditions depending on varying levels of global temperatures rise then).

An analysis of the projections has indicated maximum extreme wind and wave activity over the South Indian Ocean region during June-July-August and September-October-November. Areas over the central Bay of Bengal show intense wind activity from the end-century projections, signifying the likelihood of more extreme events. Extreme wave heights intensify by about 1 m over the South Indian Ocean during the June-July-August months.

An increase of 0.4 m in maximum significant wave heights are projected over regions in the North Indian Ocean, the northwest Arabian Sea, northeast Bay of Bengal, and the South China Sea.

A team of scientists, Abhira Krishnan and Prasad K Bhaskaran from the Department of Ocean Engineering & Naval Architecture, IIT Kharagpur, jointly with Prashant Kumar, Department of Applied Sciences, National Institute of Technology, Delhi, with sup-

port from the Department of Science & Technology, Government of India under the Climate Change Programme (CCP), carried out this study, which was published in the journal 'Climate Dynamics', Springer recently.

Findings from the study show that the projected change in wave heights are maximum for the South China Sea in RCP4.5, whereas the total rise is about 23 per cent in RCP8.5 by the end of the end-century. Also, the projected change in winds and waves over the western tropical Indian Ocean is consistent with changes in sea-level pressure variations and warm ocean temperatures. A significant increment in sea surface temperature is projected over the Arabian Sea during December-January-February and June-July-August months ranging between 1.5 and 2.0 degrees Celsius that, is 0.5 degrees Celsius greater than the Bay of Bengal. Projections show that regions over the Gulf of Oman and the Persian Gulf can experience higher warming rates exceeding 2 degrees Celsius under RCP8.5 by the end of the century.

The new findings from this study are expected to augment more advanced research on extreme wind-wave activity for the North Indian Ocean region and provide the scope for a detailed investigation on the possible linkages and teleconnection with climate indices in a changing climate.



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| Published Date: | 7 Feb 2022 | Publication: | The Pioneer [New Delhi] |
| Journalist: | Bureau | Page No: | 5 |

IHBAS Director bags award for efforts in Sc & Tech

PNS ■ NEW DELHI

Dr RK Dhamija, newly appointed director of Delhi-based Institute of Human Behaviour and Allied Sciences (IHBAS), the country's well-known mental health and neurosciences research institute, has bagged the national award for outstanding efforts in science and technology communication in the electronic medium for 2021.

Dr Dhamija will be conferred with the prestigious award consisting of Rs two lakhs, a memento and a citation during an award distribution event to be organized as part of National Science Day (NSD) Celebration on February 28 here.

The award is presented every year to an individual for outstanding contribution in the field of science and technology communication and promoting scientific temper, which has created a significant impact in the country during the last five years by the National Council for Science and Technology Communication (NCSTC),



Department of Science and Technology, Union Ministry of Science and Technology.

Prior to joining IHBAS, Dhamija was heading the Neurology Department at Lady Hardinge Medical College in New Delhi. An advisor for Royal College of Physicians (London) and Chair of Movement Disorders at World Federation of Neurorehabilitation and health talks host, Dr Dhamija has a string of publications and prestigious awards to his credit with 33rd S Radhakrishnan Memorial National Medical Teacher Award in 2017, Dr B C Bansal, Uma Bansal Oration in 2019 being a few of them. He is WHO expert in Parkinson's Disease Rehabilitation.



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| Journalist: | Bureau | Page No: | 2 |

IGU don't get ₹30L for project

Rewari: The Department of Science and Technology, New Delhi, has approved a project over 'expansion of universe' submitted by Prof Suresh Kumar, department of mathematics, Indira Gandhi University (IGU) here. VC Prof SK Gakhar said Prof Kumar would get a grant of Rs 30 lakh for the research work and 20% of this amount would be given to the university. — TNS



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| Journalist: | Biju Dharmapalan, Kapil K Tripathi | Page No: | 7 |

Support grassroots student innovations

Local needs generate curiosity among students. That needs to be sustained by Government efforts to result in scientific innovation

Science progresses not through our research institutions alone but through the success of innovations made by a layman without having any scientific knowledge. The best innovations come from our rural folk who live with nature. It is the need and necessity that generate curiosity in the minds of humans. This curiosity in turn, triggers his response to tide over adverse situations. Our scientists who sit within the four walls of research institutions rarely follow nature's clues to identify a scientific problem. They usually depend on published research papers to locate a problem.

Most of them rarely accept anything that is not published in scientific journals or think out of the box. There will not be any precedence to do work in that area in such instances. That means there will not be any reference material to start the work. Science survives only through innovation; for that, our scientists should come out of the lab and see the problems that affect society. They have to work to find a solution for that.

Students, especially school children, have good observation power, and they continually formulate questions in their minds. Often, they ask these questions, often treated as absurd questions, to their teachers. There are only very few teachers in our education system who entertain such many questions from students. In these questions that awaken the pursuit of innovation among the students. To promote such innovations from our curious minds, the Department of Science & Technology (DST), Government of India has started the 'Innovation in Science Pursuit for Inspired Research' (INSPIRE) Awards — MANAK (Million Minds Augmenting National Aspirations and Knowledge).

DST is executing this award through National Innovation Foundation — India (NIFI), an autonomous body of DST, which aims to motivate students of class-6 to 10. This award scheme aims to target one million original ideas/innovations needed in science and societal applications to foster a culture of creativity and innovative thinking among school children. Under this scheme, schools can nominate the five best original ideas/innovations of students. The top 1,00,000 ideas received that can address societal needs through Science & Technology are shortlisted by NIFI. The shortlisted students will get INSPIRE Award of INR 1,00,000.

It is always an inspiration to go through the paths taken by our young innovators. How do they pursue the work despite difficulties? What are the challenges they faced? How their parents and teachers support them? All these can be better on the next-generation innovators.

These questions that creep into the mind of our young innovators are answered through the programme Vigyanaveer. It is a popular science programme (telecast on



IT'S HEARTENING TO NOTICE THAT OUR YOUNG MINDS HAVE TOUCHED UPON EVERY ISSUE AN ORDINARY CITIZEN OF OUR COUNTRY ENCOUNTERS IN THEIR DAILY LIFE. THE VAST AREA OF THEIR RESEARCH SHOWS THAT INDIA INDEED HAS BIG BRAINS FOR THE FUTURE. THEIR ONLY SATISFACTION IS THAT THEY HAVE DEVELOPED SOMETHING FOR SOCIETY, FOR THE NATION

(Dharmapalan is a science writer. Tripathi is an scientist at Vigyan Prasar, Govt of India, New Delhi. The views expressed are personal.)



India Science Channel, managed by Vigyan Prasar, DST. This science series is specially designed to propagate and popularise the innovations of students who won the prestigious INSPIRE Award MANAK. In each series, one award-winning innovation and its innovator are showcased.

Amazingly, most of our young innovators have identified problems from their day-to-day experience. One of the episodes of Vigyanaveer highlights K. Shiravani, a student of Ishnagar village in Telangana, who understood the risk faced by farmers during farming and made a life-saving device for them, increasing electrical energy generation in an area of concern. Riddhi Tiwari, a student of the Sagor district of Madhya Pradesh, has developed a unique model that can increase the electricity generating capacity of standard solar power panels.

Similarly, Itendra, a student living in a village in Rajasthan, developed an automatic swing. This swing takes care of children when their parents do fieldwork and protects children from any unknown danger.

Another student, M. Abhishek, from Telangana, made a machine that can be used to fill grains in socks in less time and without much effort. This unique innovation saves the farmers' time and reduces the labour involved in loading the grain. Vandana Kumari, a student of Mahabubnagar, village of Hah, Uttar Pradesh, made a unique device to solve her father's troubles in plucking fruits from trees full of thorns.

Microscope holds a vital role in understanding fundamental biological concepts in science education. Even though children from city-

bred schools are fortunate to have the hands-on experience, many schools in rural regions of the country don't have many laboratory facilities. When Ananya Singh realised that many students don't have a facility like a microscope for their studies, she developed a low-cost microscope from waste plastic bottles. She named this as 'Plastoscope', which is low cost and can be easily carried in a school bag.

Managing a house is a tedious task for our homemakers. For helping his mother, Shalendra from Ludhiana, Rajasthan, has developed an automatic device to help her mother clean the house.

Similarly, Dharmendra Yadav, a student living in the Seoni district of Madhya Pradesh, created a unique movable socket after seeing the difficulties of his grandmother. Vibha, a student from Karnataka, developed a fantastic innovation that will reduce fuel consumption in the kitchen and reduce the cooking time. Navrobt Thakur, a student of Hoshangabad, Madhya Pradesh, designed a unique machine to ease her mother's trouble in the kitchen. This machine can do many tasks in the kitchen together and it does not even require electricity to run.

Manual scavenging is an inhuman attitude prevailing in our society. Many oppressed members of our community are cleaning the public toilets without any safety measures. Sachana Kaladka, a student from a tribal-dominated area of Chhindwara in Madhya Pradesh named Gummada Khannaris, took the problem of manual toilet cleaning as her inspiration and made a machine that can clean the toilet without touching hands. Similarly, Ayush, a student from Bangalore, discovered a unique way to prevent accidents due to open machines.

Many people are living with disabilities. To support such Vigyanaveer students have developed innovative technologies. K. Sreeja, a student of Godavarihills, Telangana, has made such a unique car and stick that can bring a new ray of hope to the lives of blind people. Mamuklin, living in the Gonda district of Uttar Pradesh, has developed a leg-controlled computer mouse that will make disabled people work with a computer. Similarly, Madhav Lavakure, a Delhi student, understands the pain of deaf people and invented smart glasses. With the help of Transcribe Glass, deaf people can easily understand what a person is saying in front of them.

Safety issues of women and older people are always a matter of concern. Siddhi Pandey, a student living in Dharmari, Chhattisgarh, has created a device to solve the problem of abduction. This device will surprise the maniacs who harass women and bring them to the ground by giving them an electric shock. Parv Kapoor, a student living in Baniwala, Uttar Pradesh, saw his grandfather's troubles and significantly made a digital security alarm watch to help the elderly.

It is heartening to notice that our young minds have touched upon every issue an ordinary citizen of our country encounters in their daily life. The vast area of their research shows that indeed has big brains for the future. Their only satisfaction is that they have developed something for the society, something for the nation. This is evident from their smiling faces. The instincts create curiosity in these young people and we need to carry forward these basic scientific instincts to build a self-reliant country.



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| Journalist: | Bureau | Page No: | 1 |

GLACIERS IN KARAKORAM REGION STABLE, OTHERS MELTING FASTER: GOVT



OUR CORRESPONDENT

NEW DELHI: Glaciers in the Karakoram region are in a stable condition, but those feeding the Ganga and the Brahmaputra river basins are melting at a faster rate, the Earth Sciences Ministry has said.

In reply to a written question in the Lok Sabha, the ministry said the mean retreat rate of the Hindukush Himalayan glaciers was 14.9-15.1 metres per annum, which varied from 12.7-13.2 metres per annum in the Indus, 15.5-14.4 metres per annum in the Ganga and 20.2-19.7 metres per annum in the Brahmaputra river basins.

"However, glaciers in the Karakoram region have shown comparatively minor length change (-1.37-22.8 m/a), indicating the stable condition," the ministry said, citing studies carried out by various institutions associated with the ministry.

The ministry, through its autonomous institute National Centre for Polar and Ocean Research (NCPOR), has been monitoring six glaciers in the Chandra basin (2,437 square kilometre area) in western Himalaya since 2013.

The Geological Survey of India has taken up a project on melting of glaciers in the Beas Basin, South Chenab basin and the Chandra Basin in Himachal Pradesh, and the Sbyok and Nubra basin in Ladakh during Field Season 2021-22.

Turn to P4



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| Journalist: | Bureau | Page No: | 4 |

Glaciers in

It said the Wadia Institute of Himalayan Geology (WIHG) was monitoring a few glaciers in Uttarakhand which reveal that the Dokriani Glacier in the Bhagirathi basin was retreating at 15-20 metre/annum (mpa) since 1995, whereas Chorabari Glacier in the Mandakini basin was retreating at 9-11 mpa during 2003-2017.

WIHG was also monitoring Durung-Drung and Pensilungpa glaciers in Suru basin, Ladakh, which are retreating at 12 mpa and approximately 5.6 mpa, respectively, the ministry said.

Melting glaciers have a significant impact on water resources of Himalayan rivers due to change in glacier basin hydrology, downstream water budget, impact on hydropower plants due to variation in discharge, flash flood and sedimentation, it said.

They also increase the risk related to glacier hazards due to enhanced number and volume of glacier lakes, accelerated flash flood and Glacial Lake Outburst Floods (GLOFs), impact on agro practices in high Himalayan region, the ministry said.



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| Journalist: | Bureau | Page No: | 10 |

'Sustained investment in science helped India fight pandemic'

Govt. to organise week-long festival to celebrate science

SPECIAL CORRESPONDENT
NEW DELHI

Ahead of a week-long celebration of India's achievements in science and technology since Independence, top officials of Ministries linked to science and technology said the country was able to conduct COVID-19

tests and make vaccines efficiently because of investments "in the right places" going back decades.

"India was one of the few countries under colonial rule that invested in science and technology almost simultaneously with getting independent. The various revolutions such as the Green, White and Blue Revolutions show that we have invested extensively in science and technology," said Rajesh

Gokhale, Secretary, Department of Biotechnology (DBT).

"The very fact that we have the diagnostic labs, the manpower and the training to be able to conduct crores of RT-PCR tests and genome sequencing... the capacity building has been excellent over the years and India has done fabulously," he said.

The Vigyan Sarvatra Pujye festival, as it is called, begins on February 22 and ends on

February 28 to coincide with the National Science Day, commemorating Dr. C.V. Raman's discovery of the Raman effect.

"The festival will be conducted at 75 locations and host 75 expositions, 75 lectures, 75 films, 75 radio talks, 75 science literary activities, and more through a hybrid mode," according to a press statement.

Secretary of the Department of Science and Tech-

nology S. Chandrashekhar said, "It's because we made the right investments at the right time, we've been able to handle the pandemic much better than many countries. The generic drug industry and the vaccine industry are examples of this. DST/DBT was the first one to encourage Dr. [Krishna] Ella [head of Bharat Biotech] to start a vaccine company when he returned from the U.S. We lagged a little on in-

novation but we are catching up and now we are focussing on quantum computers and technologies that will take us to the next stage of development.

Principal Scientific Adviser K. VijayRaghavan said, "It's remarkable how science has adjusted to the requirement of speed. Going forward, scientists have learnt that it's important to be prepared and have the tools ready."



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The Vigyan Sarvatra Pujya festival, as it is called, begins on February 22 and ends on

February 28 to coincide with the National Science Day, commemorating Dr. C.V. Raman's discovery of the Raman effect.

"The festival will be conducted at 75 locations and host 75 expositions, 75 lectures, 75 films, 75 radio talks, 75 science literary activities, and more through a hybrid mode," according to a press statement.

Secretary of the Department of Science and Tech-

nology S. Chandrashekhara said, "It's because we made the right investments at the right time, we've been able to handle the pandemic much better than many countries. The generic drug industry and the vaccine industry are examples of this. DST/DBT was the first one to encourage Dr. [Krishna] Ella [head of Bharat Biotech] to start a vaccine company when he returned from the U.S. We lagged a little on in-

novation but we are catching up and now we are focussing on quantum computers and technologies that will take us to the next stage of development.

Principal Scientific Adviser K. VijayRaghavan said, "It's remarkable how science has adjusted to the requirement of speed. Going forward, scientists have learnt that it's important to be prepared and have the tools ready."



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75 जगहों पर होंगी विज्ञान प्रदर्शनी

■ **विस्, नई दिल्ली** : देश की नई पीढ़ी में विज्ञान के लिए रुझान पैदा करने और आजादी के 75 सालों के दौरान विज्ञान के क्षेत्र में हुई तरक्की का उल्लेख मनाते के लिए आज से एक हफ्ते तक पूरे देश में कई आयोजन किए जाएंगे। इस आयोजन को 'विज्ञान सर्वत्र पूज्यते' नाम दिया गया है। देशभर में कुल 75 विज्ञान प्रदर्शनियों का आयोजन होगा। 75 विज्ञान आधारित व्याख्यान, 75 विज्ञान फिल्मों की स्क्रीनिंग, 75 रेडियो वार्ता होंगी।



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भारत 5 और सुपर कंप्यूटर करेगा स्थापित

नई दिल्ली। विज्ञान और प्रौद्योगिकी मंत्रालय ने कहा है कि राष्ट्रीय सुपर कंप्यूटिंग मिशन में देश



के 10 प्रमुख संस्थानों में सुपरकंप्यूटिंग इन्फ्रास्ट्रक्चर पहले से ही स्थापित है जबकि 5 की स्थापना का कार्य अंतिम चरण में है। भारतीय विज्ञान संस्थान (आईआईएसएसी) बेंगलुरु ने सबसे शक्तिशाली 'परम प्रवेगा' को स्थापित किया है।



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प्रोफेसर नीना गुप्ता रामानुजन पुरस्कार से सम्मानित

नई दिल्ली: कोलकाता स्थित भारतीय सांख्यिकी संस्थान की गणितज्ञ प्रोफेसर नीना गुप्ता को मंगलवार को रामानुजन पुरस्कार से सम्मानित किया गया। उन्हें एफिन बीजगणितीय ज्यामिति और विनिमेय बीजगणित में उनके उत्कृष्ट कार्य के लिए 2021 का पुरस्कार मिला है। विज्ञान एवं प्रौद्योगिकी विभाग द्वारा अंतरराष्ट्रीय सैद्धांतिक भौतिकी केंद्र और अंतरराष्ट्रीय गणितीय संघ के सहयोग से वित्त पोषित यह पुरस्कार विकासशील देश के अनुसंधानकर्ता को प्रतिवर्ष दिया जाता है। (प्रेट)



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सिंगापुरभारत का विज्ञान व प्रौद्योगिकी क्षेत्र में करार सिंगापुर (भाषा)।

सिंगापुर और भारत ने विज्ञान, प्रौद्योगिकी तथा नवाचार के क्षेत्र में सहयोग के लिए एक सहमति पत्र (एमओयू) पर हस्ताक्षर किए।

भारत-सिंगापुर प्रौद्योगिकी शिखर सम्मेलन 2022 के उद्घाटन सत्र के दौरान बुधवार को दोनों देशों के बीच एमओयू पर हस्ताक्षर किए गए। इस सम्मेलन का आयोजन सिंगापुर के व्यापार तथा उद्योग मंत्रालय (एमटीआई), भारत के विज्ञान तथा प्रौद्योगिकी विभाग और भारतीय उद्योग परिषद (सीआईआई) ने संयुक्त रूप से वीडियो कॉन्फ्रेंस के जरिए किया था।

एमओयू पर एमटीआई के स्थायी सचिव (विकास) ली चुआन टेक और डीएसटी सचिव एस चंद्रशेखर ने हस्ताक्षर किए।