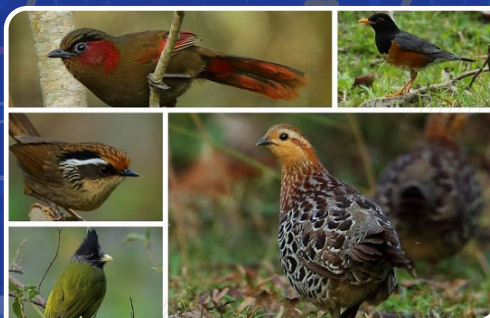


INDIA SCIENCE WIRE IN INDIAN MEDIA

NOVEMBER 2022 / Vol.6 / No. 11



Highlights of India Science Wire (ISW) Stories



India Science Wire - highlighting Indian science in Indian media

The coverage of science and technology particularly relating to research done in Indian research institutions, is generally very poor in Indian media. There are several reasons for this situation, one of them being the lack of credible and relevant science content. In order to bridge this gap, Vigyan Prasar launched a unique initiative - India Science Wire (ISW) – in January 2017.

The news service is dedicated to developments in Indian research laboratories, universities and academic institutions. Almost all news stories released by this service are based on research papers by Indian scientists published in leading Indian and foreign journals. All news stories and features are written and edited by a team of professional science journalists with decades of experience in science journalism.

News stories based on happenings in Indian research labs are released to media houses on a daily basis. These stories are also uploaded on ISW website and are simultaneously promoted through social media – Twitter and Facebook. At present, the service is available in English and Hindi.

Reach out ISW Editor with story ideas, comments and suggestions at indiasciencewire@gmail.com

ISW website: <http://vigyanprasar.gov.in/isw/isw.htm>

ISW stories released and published in November 2022

S. No.	Story title	Date of release	Name of the writer
1.	New material may hold promise for more efficient lithium-ion batteries	01 November	Umashankar Mishra
2.	Researchers discover antiviral molecules to treat COVID-19 infections	02 November	Umashankar Mishra
3.	SERB National Post-Doctoral Fellowship (N-PDF) awarded to 301 young researchers	02 November	Sumita Mukherjee
4.	IIT-M researchers develop cost-effective agri-produce transportation system	03 November	Sumita Mukherjee
5.	Researchers develop reusable, paper-based lycopene sensors	04 November	Sumita Mukherjee
6.	Study unveils protein synthesis in red blood cells	07 November	Sumita Mukherjee
7.	IIT Madras and Ashok Leyland to jointly develop hybrid electric vehicles	07 November	Sumita Mukherjee
8.	'Soil carbon sequestration can help fight climate change'	09 November	Sumita Mukherjee
9.	नौसेना की सोनार प्रणा लयों के लए नई परीक्षण और मूल्यांकन सु वधा	09 November	Umashankar Mishra
10.	जम्मू कश्मीर में-कृ ष प्रौद्यो गकी स्टार्टअप के लए अपार संभावनाएंडों जितेंद्र सिंह :	10 November	Umashankar Mishra
11.	"Bio-economy to play a key role in economic prosperity of the nation"-Dr Jitendra Singh	10 November	Sumita Mukherjee
12.	फरीदाबाद स्थित राष्ट्रीय लाइफ साइंस डेटा केंद्र देश को सम र्पत	11 November	Umashankar Mishra
13.	National conclave to empower tribal community through S&T innovation	11 November	Umashankar Mishra
14.	India joins Mangrove Alliance for Climate	11 November	Sumita Mukherjee

S. No.	Story title	Date of release	Name of the writer
15.	First 3D printer for implant-grade silicone	11 November	Kirty Sharma
16.	Falcon Capital of the World' records 178 bird species	14 November	Umashankar Mishra
17.	Workshop on Earthquake Risk Management	14 November	Sumita Mukherjee
18.	'समुद्र के बढ़ते जलस्तर और बारिश से संकट में मैनग्रोव आवास'	15 November	Umashankar Mishra
19.	Mission 'LiFE' for combating climate change	16 November	Aditi Dev
20.	eDNA-based assay to detect invasive catfish in waterbodies	17 November	Sumita Mukherjee
21.	हवा से से पेयजल उत्पादन की अक्षय ऊर्जा आधारित तकनीक	17 November	Umashankar Mishra
22.	Vigyan Prasar conducts health communication workshop for ICMR scientists	18 November	Sumita Mukherjee
23.	Indigenous 3D bio-printer to print human tissues	18 November	Umashankar Mishra
24.	India's first privately built rocket launched successfully	18 November	Umashankar Mishra
25.	Bengaluru science & technology cluster launched	18 November	Sumita Mukherjee
26.	सौर पैनल के बेहतर रखरखाव के लिए सेल्फक्लीनिंग - कोटिंग प्रौद्योगिकी	21 November	Umashankar Mishra
27.	इमारतों की भूकंपीयभेद्यता आकलन की नयी - पद्धति	25 November	Umashankar Mishra
28.	New method to assess seismic vulnerabilities of buildings	25 November	Umashankar Mishra
29.	New Catalytic materials to produce high purity hydrogen	28 November	Umashankar Mishra

S. No.	Story title	Date of release	Name of the writer
30.	भूवैज्ञानिकों ने चहिनित कये हीरायुक्त - कम्बरलाइट्स के नये संभावत क्षेत्र	28 November	Santosh Pandey
31.	समुद्री अनुसंधान और ब्लूइकोनॉमी को सशक्त - करेगा ओशनसैट	28 November	Umashankar Mishra
32.	डीप टेक और-ग्रासरूट इनोवेशन फेस्टिवल में दिखी नवोन्मेषी भारत की झलक	29 November	Umashankar Mishra
33.	Workshop on disaster and climate- resilient pathways	29 November	Umashankar Mishra
34.	New method to harness energy from household LED lamps	30 November	Umashankar Mishra

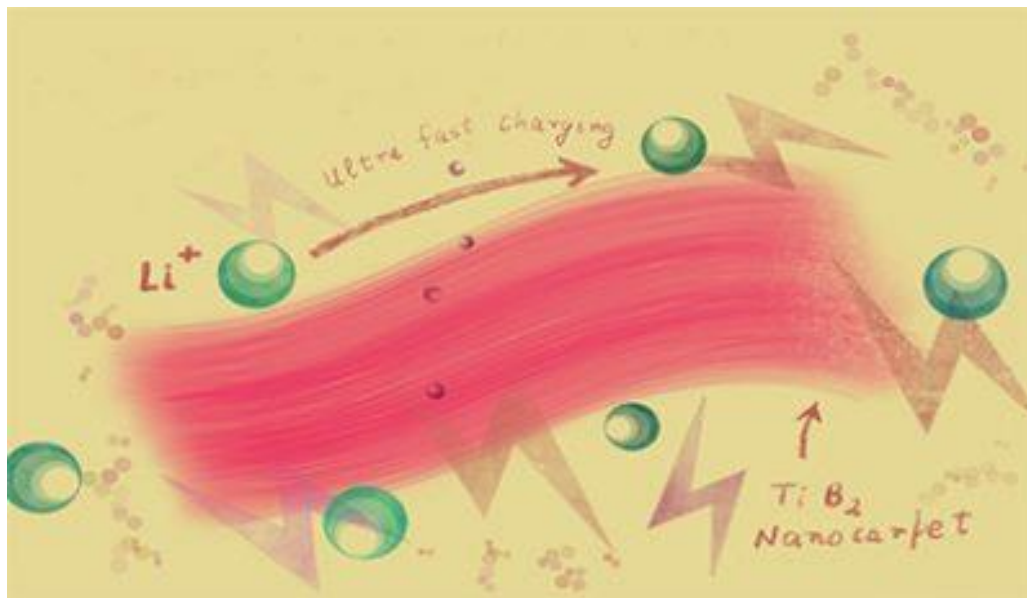
A New Anode Material for More Efficient Lithium-Ion Batteries

LIBs with Graphite anode, extremely energy dense, can power an electric vehicle for hundreds of kilometers on a single charge.



Nitisha Dubey November 1, 2022

Indian researchers have discovered a new anode material, which could be helpful in ensuring the life and fast charging of lithium-ion batteries (LIBs). This discovery could help charge battery-based devices and electric vehicles (EVs) at ultra-fast speeds.



A graphic representing the work on new Anode material for ultra-fast charging of Li-Ion Batteries

The study was carried out by researchers from the Indian Institute of Technology (IIT) Gandhinagar in collaboration with the Japan Advanced Institute of Science and Technology (JAIST).

The new two-dimensional (2D) anode material is developed using Nano sheets derived from titanium diboride (TiB_2), which resemble a stack of sandwiches, where metal molecules exist between layers of boron. This innovation has potential for translation from lab to real-life application, researchers said.

LIBs have the anode material as the negative electrode, which is attached to the cathode material in the Li-ion battery cell. The anode materials in a [lithium-ion](#) cell act as the host, enabling lithium-ion intercalation/de-intercalation during the battery's charge or discharge cycle.

LIBs with Graphite anode, extremely energy dense, can power an electric vehicle for hundreds of kilometers on a single charge. However, it has its challenges on the safety front as they are prone to fire hazards. Lithium Titanate anodes are safer and more preferred alternatives, and they also facilitate fast charging. But, they have a lower energy density, so they would need more frequent recharging.

Anode material is the negative electrode in lithium-ion batteries and is paired with cathode material in a lithium-ion battery cell. The anode materials in lithium-ion cells act as the host where they reversibly allow lithium-ion intercalation/de-intercalation during charge or discharge cycles.

Li-Ion batteries enabled by nanosheets based anode material have an edge as they offer ultra-fast charging time (full charge within minutes), long life cycle (10,000 cycles at high charge currents), and nanosheets used to prepare the anode have a

high density of pores. While the planar nature and chemistry of nanosheets provide a high surface area for catching hold of Li-ions, the pores enable better diffusion of ions.

The research team led by Prof. Kabeer Jasuja (from IITGN) and Prof. Noriyoshi Matsumi (JAIST) found that when Titanium Diboride (TiB_2)-based Hierarchical [Nanosheets](#) (THNS) were used to prepare the anode, it exhibited a discharge capacity of 174 mA h/g (a unit that measures the energy capacity of a battery) that can be obtained at a current rate of 1 A/g within 10 minutes. The intertwined carpet-like structure facilitates an efficient migration of charges in and out of nanosheets easily, which resolves a Lithium-Ion diffusion-related challenge. They also found that this anode had an ultra-fast charging capacity with a considerable discharge capacity at high-capacity retention (up to 80% even after 10,000 cycles of operation), which means that batteries made with this material would give almost the same high performance even after more than 10,000 cycles of charging. Moreover, there was no degradation or corrosion of THNS due to redox reactions, the porosity is also retained very well, and it demonstrates structural stability with less volumetric expansion (less than 40%) over thousands of charge-discharge cycles.

Akash Varma, an MTech student, the first author of the study, says, “It is the presence of titanium and boron atoms arranged in a carpet-like interweaved porous structure within the nanosheets that are helping in an efficient charge transport and storage.” He spent one year at IITGN and another year at JAIST as a part of his double master’s degree - a unique collaborative programme between JAIST and IITGN.

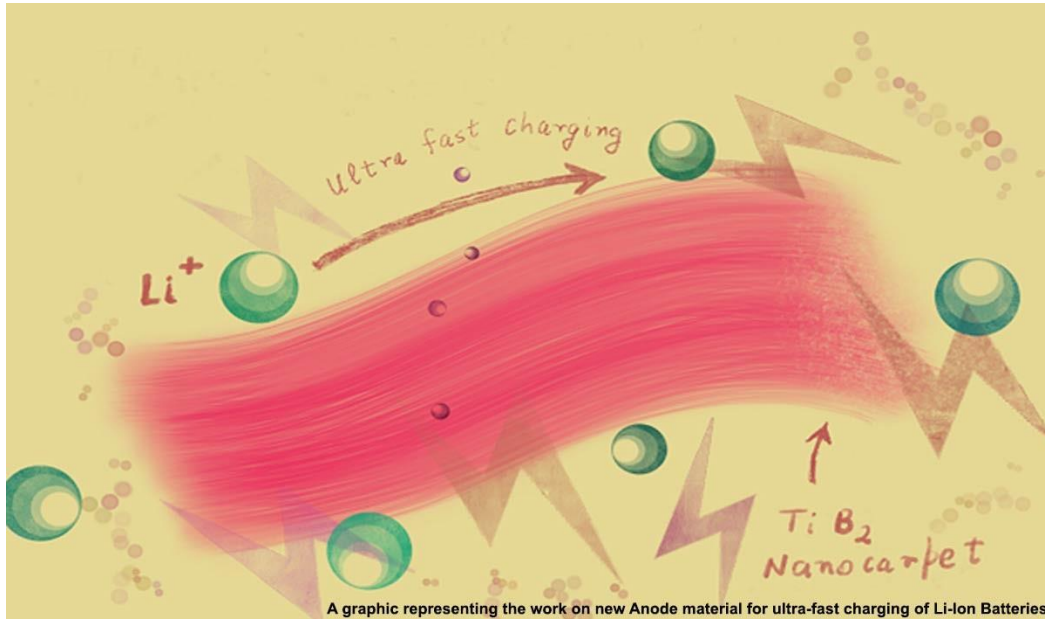
Prof Kabeer Jasuja, Dr Dinesh O Shah Chair Associate Professor of Chemical Engineering, IITGN, says, “What makes this work especially useful is the fact that the method to synthesise TiB_2 nanosheets is inherently scalable. It only requires mixing the TiB_2 particles in an aqueous solution of dilute hydrogen peroxide and allowing it to recrystallise. For any nanomaterial to translate into a tangible technology, scalability is the limiting factor. Our method to synthesise these TiB_2 nanosheets only requires stirring and no sophisticated equipment, making it highly adoptable.”

Source: (India Science Wire)





नये शोध से बढ़ेगी ल थयमआयन बैटरी की लाइफ और -
होगी फास्ट चार्जिंग



[इंडिया साइंस वायर](#) | Nov 02, 2022 6:53PM

ग्रेफाइट एनोड के साथ एलआईबी, अत्यधिक ऊर्जा घनत्व वाले, एक इलेक्ट्रिक वाहन को एक बार चार्ज करने पर सैकड़ों किलोमीटर तक चला सकते हैं। हालांकि, सुरक्षा के मोर्चे पर इसकी चुनौतियां हैं क्योंकि वे आग के खतरों से ग्रस्त हैं।

भारतीय शोधकर्ताओं ने एक नई एनोड सामग्री की खोज की है, जो ल थयम आयन बैटरी-की लाइफ और फास्ट चार्जिंग सुनिश्चित करने में मददगार हो सकती है। यह खोज (एलआईबी) फास्ट गति से चार्ज करने में -को अल्ट्रा (ईवी) आधारित उपकरणों और इलेक्ट्रिक वाहनों-बैटरी मदद कर सकती है।



यह अध्ययन भारतीय प्रौद्योगिकी संस्थान (IIT) गांधीनगर के शोधकर्ताओं ने जापान एडवांस्ड इंस्टीट्यूट ऑफ साइंस एंड टेक्नोलॉजी (JAIST) के सहयोग से किया था। नई द्रव) आयामी-2डी () एनोड सामग्री को टाइटेनियम डाइबोराइड (TiB₂) से प्राप्त नैनो शीट का उपयोग करके विकसित किया गया है, जो सैंड वच के ढेर जैसा दिखता है, जहां धातु के अणु बोरॉन की परतों के बीच मौजूद होते हैं। शोधकर्ताओं ने कहा कि इस नवाचार में प्रयोगशाला से वास्तविक जीवन में अनुवाद की क्षमता है।

एलआईबी में नकारात्मक इलेक्ट्रोड के रूप में एनोड सामग्री होती है, जो लीआयन बैटरी सेल में - कैथोड सामग्री से जुड़ी होती है। लथियमआयन सेल में एनोड सामग्री मेजबान के रूप में कार्य करती है, बैटरी के चार्ज या डिस्चार्ज चक्र के दौरान लथियम-डी / आयन इंटरकलेशन-इंटरकलेशन को संक्षम करती है।

ग्रेफाइट एनोड के साथ एलआईबी, अत्यधिक ऊर्जा घनत्व वाले, एक इलेक्ट्रिक वाहन को एक बार चार्ज करने पर सैकड़ों किलोमीटर तक चला सकते हैं। हालांकि, सुरक्षा के मोर्चे पर इसकी चुनौतियां हैं क्योंकि वे आग के खतरों से ग्रस्त हैं। लथियम टाइटेनेट एनोड सुरक्षित और अधिक पसंदीदा विकल्प हैं, और वे फास्ट चार्जिंग की सुविधा भी देते हैं। लेकिन, उनके पास कम ऊर्जा घनत्व है, इसलिए उन्हें अधिक बार रिचार्ज करने की आवश्यकता होगी।

एनोड सामग्री लथियमआयन बैटरी सेल -आयन बैटरी में नकारात्मक इलेक्ट्रोड है और लथियम-आयन को शकाओं में एनोड सामग्री मेजबान -में कैथोड सामग्री के साथ जोड़ा जाता है। लथियम के रूप में कार्य करती है, जहां वे चार्ज या डिस्चार्ज चक्र के दौरान लथियमआयन - इंटरकलेशन की अनुमति देते हैं।-डी इंटरकलेशन

नैनोशीट आधारित एनोड सामग्री द्वारा संक्षम लीआयन बैटरियों में एक बढ़त होती है क्योंकि वे - (मनटों के भीतर पूर्ण चार्ज) फास्ट चार्जिंग समय-अल्ट्रा, लंबे जीवन चक्र उच्च चार्ज धाराओं) पर 10,000 चक्र, और एनोड तैयार करने के लिए उपयोग किए जाने वाले नैनोशीट में उच्च होते हैं। छिद्रों का घनत्व। जबकि नैनोशीट की तलीय प्रकृति और रसायन लीआयनों को पकड़ने - के लिए एक उच्च सतह क्षेत्र प्रदान करते हैं, छिद्र आयनों के बेहतर प्रसार को संक्षम करते हैं।

प्रो कबीर जसुजा के नेतृत्व में (जेएआईएसटी) और प्रो नोरियोशी मात्सुमी (आईआईटीजीएन से) टीआईबी) शोध दल ने पाया कि जब टाइटेनियम डाइबोराइड (TiB₂) आधारित पदानुक्रमित नैनोशीट्स का उपयोग एनोड तैयार करने के लिए किया गया था (टीएचएनएस), तो उसने 174 की निर्वहन क्षमता प्रदर्शित की थी। एमएच जिसे (एक इकाई जो बैटरी की ऊर्जा क्षमता को मापती है) जी/



10 मिनट के भीतर 1 एजी की वर्तमान दर से प्राप्त किया जा सकता है। इंटरवेटेड कार्पेट जैसी / संरचना आसानी से नैनोशीट के अंदर और बाहर आवेशों के एक कुशलप्रवास की सुवधा प्रदान करती है, जो लथयमसंबंधी चुनौती को हल करती है।-आयन प्रसार-

उन्होंने यह भी पाया कि इस एनोड में उच्च क्षमता प्रतिधारण ऑपरेशन के)10,000 चक्रों के बाद भी 80% तकफास्ट चार्जिंग क्षमता थी-पर काफी डस्चार्ज क्षमता के साथ अल्ट्रा (, जिसका अर्थ है कि इस सामग्री से बनी बैटरी लगभग उतनी ही उच्च देगी 10,000 से ज्यादा साइकल चार्ज करने के बाद भी परफॉर्मेंस। इसके अलावा, रेडॉक्स प्रतिक्रियाओं के कारण THNS का कोई क्षरण या क्षरण नहीं हुआ था, संरचना को भी बहुत अच्छी तरह से बनाए रखा जाता है, और यह हजारों चार्ज) डस्चार्ज चक्रों पर कम वॉल्यूमेट्रिक वस्तु-40% से कमके साथ (संरचनात्मक स्थिरता प्रदर्शित करता है।

अध्ययन के पहले लेखक एमटेक के छात्र आकाश वर्मा कहते हैं, "यह नैनोशीट्स के भीतर एक कालीन जैसी इंटरवेटेड झरझरा संरचना में व्यवस्थित टाइटेनियम और बोरॉन परमाणुओं की उपस्थिति है जो एक कुशल चार्ज परिवहन और भंडारण में मदद कर रहे हैं। उन्होंने एक वर्ष " IITGN में और दूसरा वर्ष JAIST में अपनी डबल मास्टर डिग्री के एक भाग के रूप में बिताया - JAIST और IITGN के बीच एक अद्वितीय सहयोगी कार्यक्रम।

प्रोफेसर कबीर जसुजा, डॉ दिनेश ओ शाह चेयर एसोसिएट प्रोफेसर, केमिकल इंजीनियरिंग, IITGN, कहते हैं, "जो बात इस काम को विशेष रूप से उपयोगी बनाती है, वह यह है कि TiB₂ नैनोशीट को संश्लेषित करने की विधि स्वाभाविक रूप से स्केलेबल है। इसे केवल तनु हाइड्रोजन पेरोक्साइड के जलीय घोल में TiB₂ कणों को मलाने और इसे फर से क्रस्टलीकृत करने की अनुमति देने की आवश्यकता होती है। किसी भी नैनोमटेरियल को मूर्त तकनीक में तब्दील करने के लिए, मापनीयता सीमा कारक है। इन TiB₂ नैनोशीट्स को संश्लेषित करने की हमारी विधि के लिए केवल सरगर्मी और किसी परिष्कृत उपकरण की आवश्यकता नहीं होती है, जिससे यह अत्यधिक अपनाने योग्य हो जाता है।"

यह सहयोगी अध्ययन हाल ही में एसीएस एप्लाइड नैनोमटेरियल्स पत्रिका में प्रकाशित हुआ था।

(इंडिया साइंस वायर)



New material may hold promise for more efficient lithium-ion batteries

By [India Science Wire](#) [November 3, 2022](#) in [Science](#)



Indian researchers have discovered a new anode material, which could be helpful in ensuring the life and fast charging of lithium-ion batteries (LIBs). This discovery could help charge battery-based devices and electric vehicles (EVs) at ultra-fast speeds.

The study was carried out by researchers from the Indian Institute of Technology (IIT) Gandhinagar in collaboration with the Japan Advanced Institute of Science and Technology (JAIST). The new two-dimensional (2D) anode material is developed using Nano sheets derived from titanium diboride (TiB_2), which resemble a stack of sandwiches, where metal molecules exist between layers of boron. This innovation has potential for translation from lab to real-life application, researchers said.

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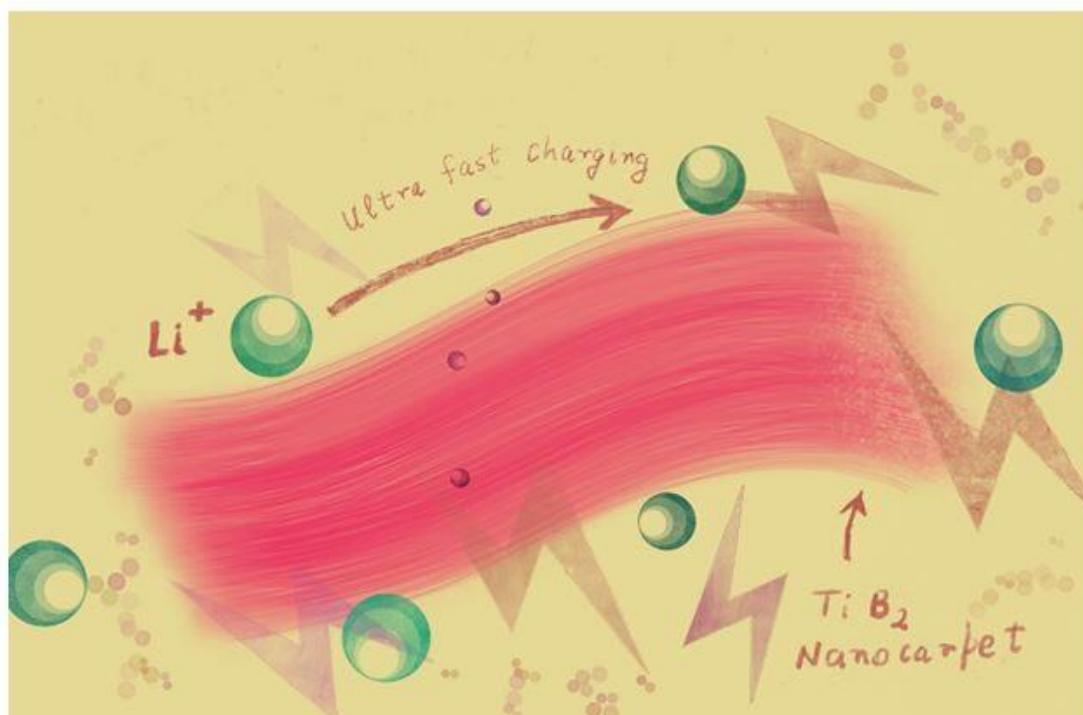
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New material may hold promise for more efficient lithium-ion batteries

SCIENCE

 By Online Editor on Nov 1, 2022



A graphic representing the work on new Anode material for ultra-fast charging of Li-Ion Batteries

New Delhi, Nov. 1st (India Science Wire): Indian researchers have discovered a new anode material, which could be helpful in ensuring the life and fast charging of lithium-ion batteries (LIBs). This discovery could help charge battery-based devices and electric vehicles (EVs) at ultra-fast speeds.

The study was carried out by researchers from the Indian Institute of Technology (IIT) Gandhinagar in collaboration with the Japan Advanced Institute of Science and Technology (JAIST). The new two-dimensional (2D) anode material is developed using Nano sheets derived from titanium diboride (TiB₂), which resemble a stack of sandwiches, where metal molecules exist between layers of boron. This innovation has potential for translation from lab to real-life application, researchers said.

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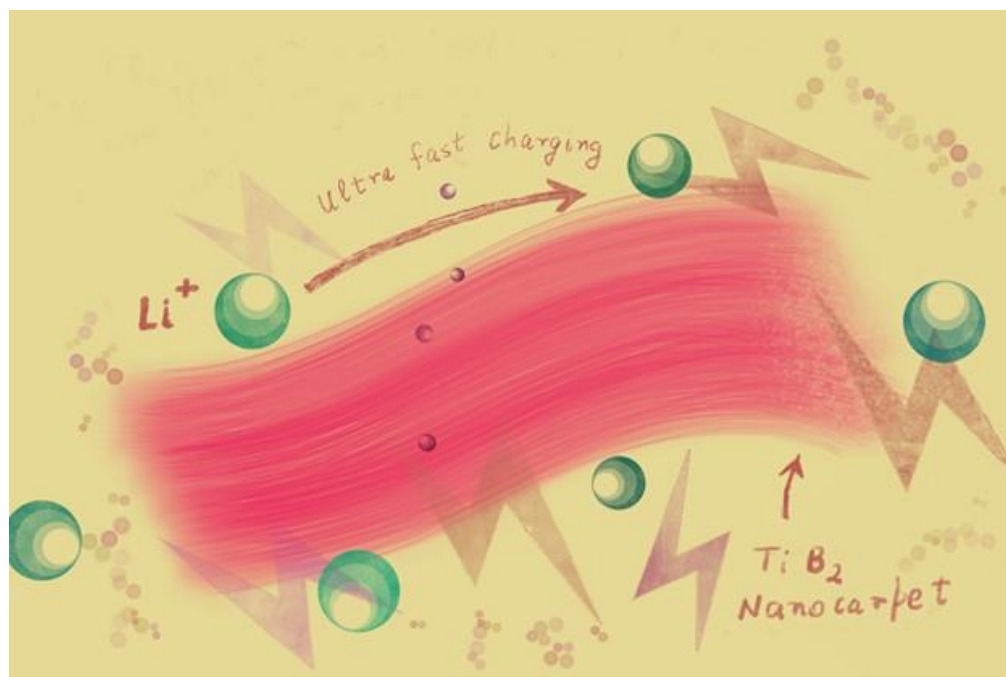
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New material may hold promise for more efficient lithium-ion batteries

Indian researchers have discovered a new anode material which could be helpful in ensuring the life and fast charging of lithium-ion batteries (LIBs)

India Science Wire

8:55 PM, 2 November, 2022



A graphic representing the work on new Anode material for ultra-fast charging of Li-ion batteries | Pic: India Science Wire

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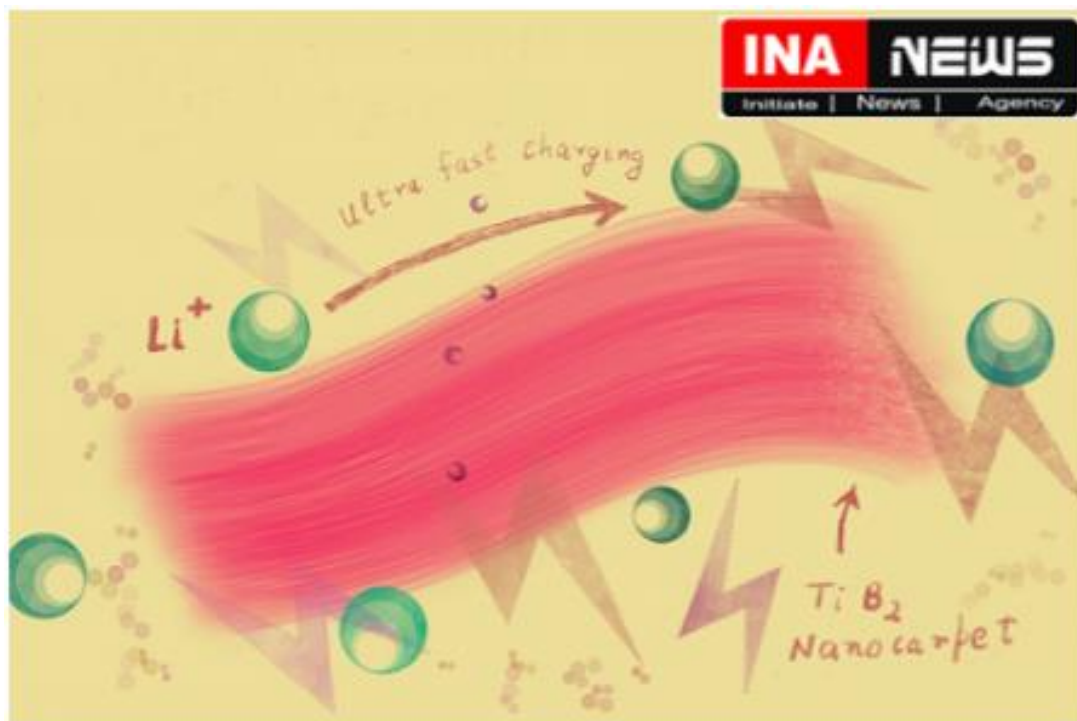
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New Delhi: New material may hold promise for more efficient lithium-ion batteries

News नवंबर 01, 2022



A graphic representing the work on new Anode material for ultra-fast charging of Li-Ion Batteries

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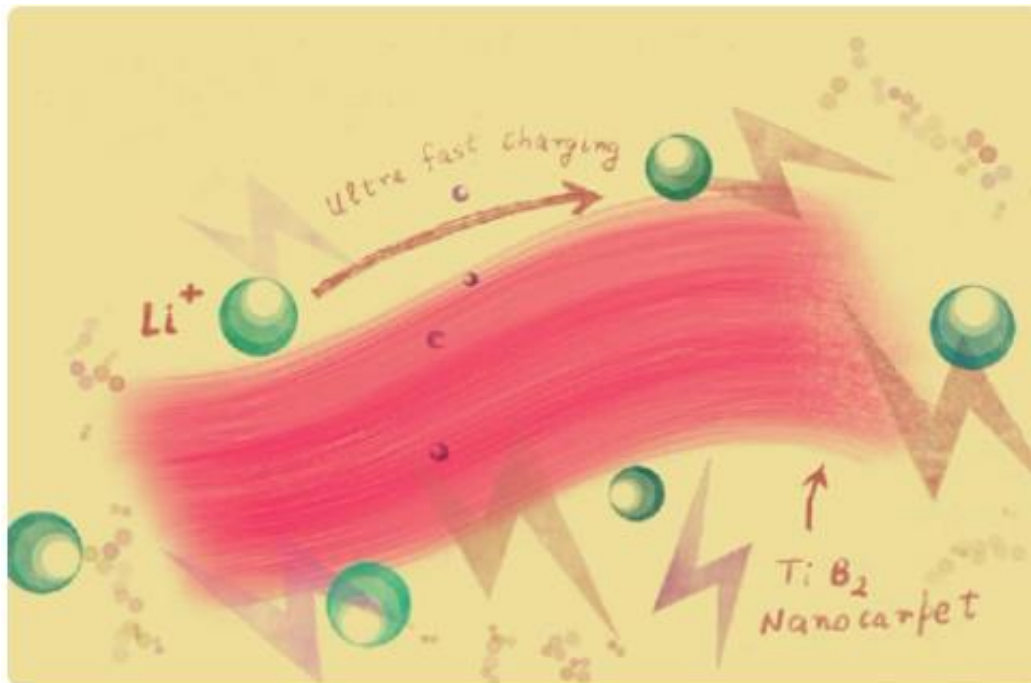
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New material may hold promise for more efficient lithium-ion batteries

A graphic representing the work on new Anode material for ultra-fast charging of Li-Ion Batteries

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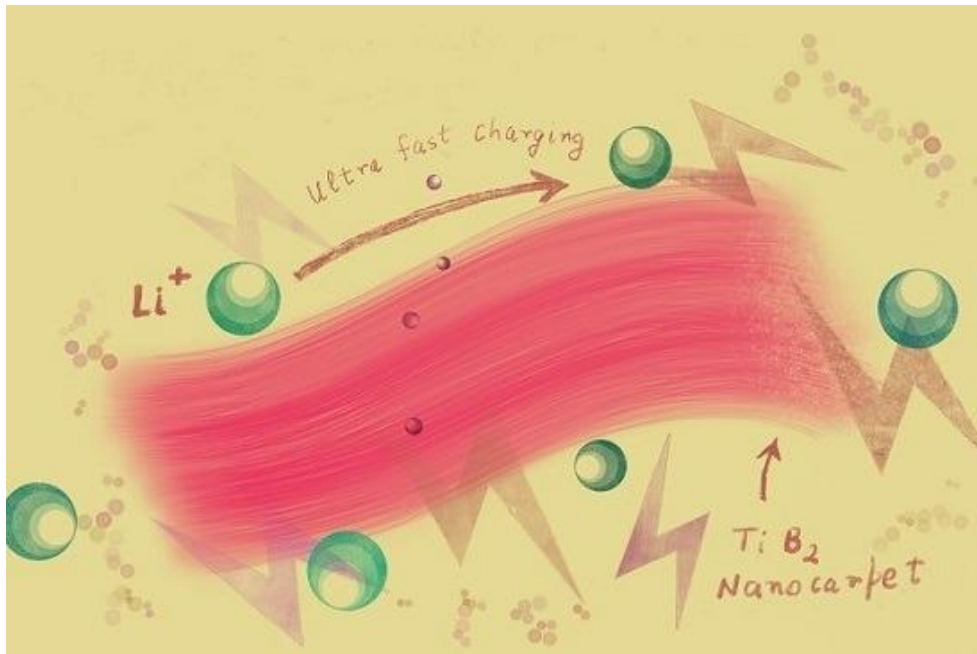
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New Material May Hold Promise for More-efficient Lithium-ion Batteries

Article By : India Science Wire



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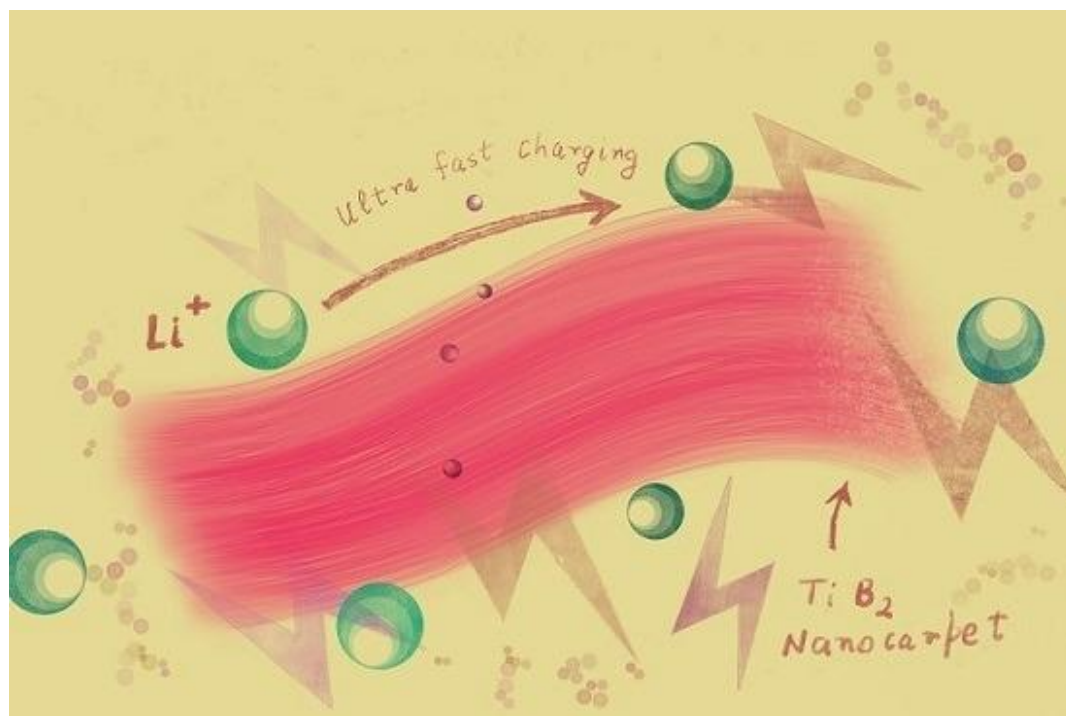
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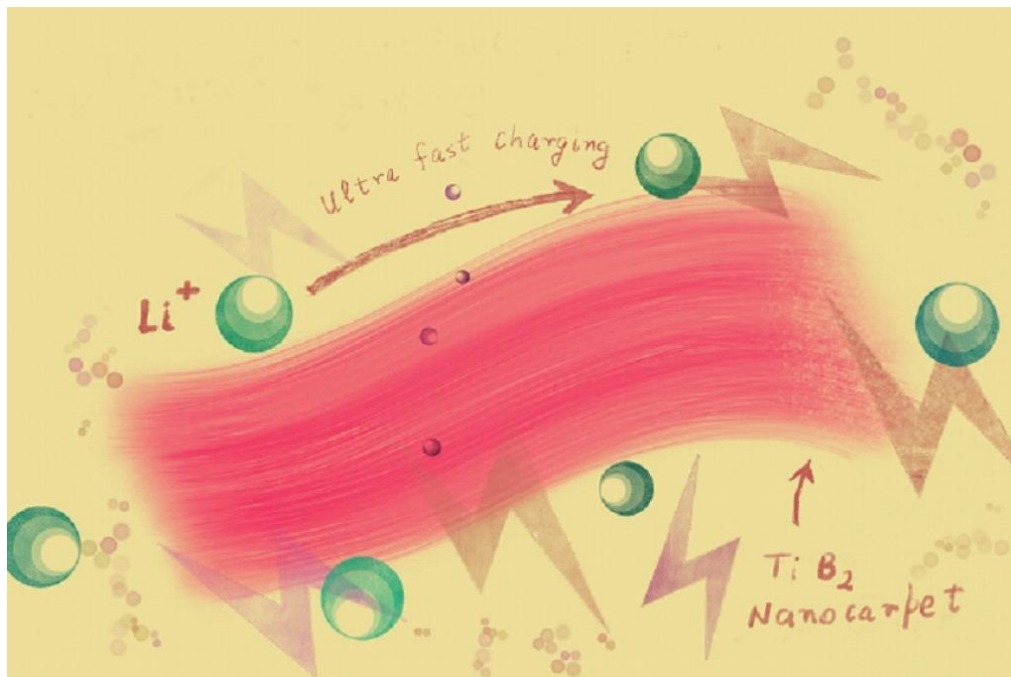
DownToEarth | डाउन टू अर्थ

New material may hold promise for more efficient lithium-ion batteries

Researchers from IIT Gandhinagar and Japan Advanced Institute of Science and Technology discovered a new anode material that could charge electric vehicles at ultra-fast speeds

By [India Science Wire](#)

Published: Tuesday 01 November 2022



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Researchers discover antiviral molecules to treat COVID-19 infections --India Science Wire



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Ankur Singh, Preeti Dhaka, Prof. Pravindra Kumar, Prof. Shailly Tomar & Ruchi Rani (L to R) Researchers at the Indian Institute of Technology (IIT) ...

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#CORONAVIRUS (COVID-19)



Researchers discover antiviral molecules to treat COVID-19 infections

New Delhi, Nov. 02 (India Science Wire): Researchers at the Indian Institute of Technology (IIT) Roorkee, have identified antiviral molecules that can help treat COVID-19 infections.

The researchers identified three antiviral molecules through drug repurposing, computational and antiviral experimental studies.

The COVID-19 pandemic spurred both computational and experimental studies worldwide to understand the structure and nature of SARS-COV-2 viral proteins

and develop vaccines and cures for it. One important branch of study is structure-function studies to unravel the atomic structures of the virus and the proteins that constitute the virus.

These studies have resulted in a Protein Data Bank (PDB), a repository of the structures of proteins and viruses. This PDB is used by researchers globally for drug discovery. The IIT Roorkee team is executing protein structure-based drug-repurposing research on SARS-CoV2 molecules for clinical evaluation and eventual use as antiviral therapeutics.

The research team led by Professor Shailly Tomar, Department of Biosciences and Bioengineering, IIT Roorkee, used the Protein Data Bank to target and identify drug molecules for the COVID-19 virus. They focused on discovering molecules that acted on a specific part of the viral proteins called the nucleotide-binding pockets (NBPs). As the name suggests, the NBP binds to the nucleotides - the building blocks of RNA and DNA, to facilitate virus replication. NBP-targeting drugs are known and used for viral diseases such as HIV, Hepatitis B, Hepatitis C, and Herpes, among others.

The team identified the six NBPs using the atomic structures available in the Protein Data Bank. The researchers used a novel approach of multi-targeting various virus-specific proteins using one drug, instead of targeting only one virus-specific protein. This novel multi-targeting approach is expected to be therapeutically highly effective and is less likely to result in resistant variant strains.

The research study co-authored by Ruchi Rani, Siwen Long, Akshay Pareek, Preeti Dhaka, Ankur Singh, Pravindra Kumar, and Gerald McInerney, has been published in the journal [Virology](#).

"Given the success of NBP-targeting antivirals in other diseases, we attempted to repurpose pharmacologically-active compounds that bind to the NBPs of six SARS-CoV-2 proteins", said Prof. Shailly Tomar.

Drug repurposing strategy is used to discover new anti-SARS-CoV2 molecules from already approved or existing drugs. Without tedious, time-consuming, and expensive drug development studies, molecular therapies based on drug repurposing are ready for clinical trials. IIT Roorkee team using a drug repurposing approach, discovered INCB28060, which is a cancer drug; Darglitazone, an anti-diabetic molecule; and Columbianadin, a natural phytochemical with anti-inflammatory and anti-cancer effects - against the COVID-19 virus.

Elaborating further, , said, "We characterized the selected molecules based on the binding abilities of these molecules to target protein tested using experimental methods such as isothermal titration calorimetry, their Absorption, Distribution, Metabolism, and Excretion (ADME) properties by simulation studies, and subsequent cell-based antiviral assays," explains Prof. Pravindra Kumar, Head, Department of Biosciences and Bioengineering, IIT Roorkee.

"The antivirals that target multiple proteins that we have identified will direct the development of antiviral therapy against SARS-CoV-2 and its emerging variants," added Prof. Pravindra Kumar.

Prof. KK Pant, Director, IIT Roorkee, said, "Such research into SARS-COV-2 virus is critical not only to deal with COVID-19 pandemic but also prepare for any new variants and future pandemics as well. This research can provide valuable inputs to the scientific community to understand such viruses and develop vaccines."

The study was supported by the Intensification of Research in High Priority Areas (IRHPA) program of the Science and Engineering Research Board (SERB), Department of Science & Technology (DST), Government of India. (India Science Wire)



ERB National Post-Doctoral Fellowship (N-PDF) awarded to 301 young researchers



SERB-National Post Doctoral Fellowship (N-PDF)

New Delhi, Nov. 02 (India Science Wire): Science and Engineering Research Board (SERB), a statutory body under the Department of Science and Technology (DST), has announced the names of 301 young researchers selected for support under SERB-National Post-Doctoral Fellowship (N-PDF). The fellowship is awarded to work for two years in frontier areas of science and engineering. The selected fellows will work under a mentor who holds a regular academic/research position in a recognized institution in India.

This year, 3,833 applications were received and considered by the designated expert committees. After several rounds of rigorous screening and vetting, 301 researchers were selected for the coveted fellowship.

The fellowship amount is Rs. 55,000 per month (consolidated) and Rs. 35,000 per month for candidates who have submitted the thesis but the degree has not been awarded. The fellows will receive a research grant of Rs. 2,00,000 and overheads of Rs. 1,00,000 per annum. The fellowships are broadly given in five thematic areas: Chemical Sciences, Earth & Atmospheric Sciences, Engineering Sciences, Life Sciences, and Physical & Mathematical Sciences. Candidates within the age limit of 35 years, with PhD/MD/MS degree from a recognized University, and those who have submitted their PhD/MD/MS thesis and are awaiting award of the degree are eligible to apply for it.

The fellowship, initiated in 2015, supports young budding researchers to establish themselves as independent scientists. Till date, around 23000 applications have been received in the last eight years, out of which about 3500 fellows have benefitted. N-PDF 2022 fellows will bring this number to 3800.

SERB has a vision to position science and technology as the fulcrum for social and economic change by supporting relevant, competitive, and quality scientific research and development. The mandate of SERB includes promoting basic research in Science and Engineering and providing financial assistance to persons engaged in such research, academic institutions, research and development laboratories, industrial concerns, and other agencies for such research.

In addition to the N-PDF, SERB also offers several other awards and fellowships, including J C Bose National fellowship; Abdul Kalam TIN fellowship; Ramanujan fellowship; SERB Research Scientists Scheme; SERB Power fellowship; SERB Women Excellence Award; Teachers Associateship for Research Excellence (TARE); SERB Science and Technology Award for Research (SERB-STAR); SERB Technology Translation Award (SERB-TETRA); and National Science Chair. Besides offering twelve research grants, it also runs two national and three international research



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New material may hold promise for more efficient lithium-ion batteries

New Delhi, Nov 1 (India Science Wire): Indian researchers have discovered a new anode material, which could be helpful in ensuring the life and fast charging of lithium-ion batteries (LIBs). This discovery could help charge battery-based devices and electric vehicles (EVs) at ultra-fast speeds.

The study was carried out by researchers from the Indian Institute of Technology (IIT) Gandhinagar in collaboration with the Japan Advanced Institute of Science and Technology (JAIST). The new two-dimensional (2D) anode material is developed using Nano sheets derived from titanium diboride (TiB₂), which resemble a stack of sandwiches, where metal molecules exist between layers of boron. This innovation has potential for translation from lab to real-life application, researchers said.

LIBs have the anode material as the negative electrode, which is attached to the cathode material in the Li-ion *Contd to Pg 11.*

New material may hold promise for...

battery cell. The anode materials in a lithium-ion cell act as the host, enabling lithium-ion intercalation/de-intercalation during the battery's charge or discharge cycle.

LIBs with Graphite anode, extremely energy dense, can power an electric vehicle for hundreds of kilometers on a single charge. However, it has its challenges on the safety front as they are prone to fire hazards. Lithium Titanate anodes are safer and more preferred alternatives, and they also facilitate fast charging. But, they have a lower energy density, so they would need more frequent recharging.

Anode material is the negative electrode in lithium-ion batteries and is paired with cathode material in a lithium-ion battery cell. The anode materials in lithium-ion cells act as the host where they reversibly allow lithium-ion intercalation/de-intercalation during charge or discharge cycles.

Li-ion batteries enabled by nanosheets based anode material have an edge as they offer ultra-fast charging time (full charge within minutes), long life cycle (10,000 cycles at high charge currents), and nanosheets used to prepare the anode have a high density of pores. While the planar nature and chemistry of nanosheets provide a high surface area for catching hold of Li-ions, the pores enable better diffusion of ions.

The research team led by Prof. Kabeer Jasuja (from IITGN) and Prof. Noriyoshi Matsumi (JAIST) found that when Titanium Diboride (TiB₂)-based Hierarchical Nanosheets (THNS) were used to prepare the anode, it exhibited a discharge capacity of 174 mA h/g (a unit that measures the energy capacity of a battery) that can be obtained at a current rate of 1 A/g within 10 minutes. The intertwined carpet-like structure facilitates an efficient migration of charges in and out of nanosheets easily, which resolves a Lithium-ion diffusion-related challenge.

They also found that this anode had an ultra-fast charging capacity with a considerable discharge capacity at high-capacity retention (up to 80% even after 10,000 cycles of operation), which means that batteries made with this material would give almost the same high performance even after more than 10,000 cycles of charging. Moreover, there was no degradation or corrosion of THNS due to redox reactions, the porosity is also retained very well, and it demonstrates structural stability with less volumetric expansion (less than 40%) over thousands of charge/discharge cycles.

Akash Varma, an M.Tech student, the first author of the study, says, "It is the presence of titanium and boron atoms arranged in a carpet-like interweaved porous structure within the nanosheets that are helping in an efficient charge transport and storage." He spent one year at IITGN and another year at JAIST as a part of his double master's degree - a unique collaborative programme between JAIST and IITGN.

Prof Kabeer Jasuja, Dr Dinesh O Shah Chair Associate Professor of Chemical Engineering, IITGN, says, "What makes this work especially useful is the fact that the method to synthesise TiB₂ nanosheets is inherently scalable. It only requires mixing the TiB₂ particles in an aqueous solution of dilute hydrogen peroxide and allowing it to recrystallise. For any nanomaterial to translate into a tangible technology, scalability is the limiting factor. Our method to synthesise these TiB₂ nanosheets only requires stirring and no sophisticated equipment, making it highly adoptable."

This collaborative study was recently published in the journal ACS Applied Nanomaterials.

SERB National Post-Doctoral Fellowship (N-PDF) awarded to 301 young researchers

By [India Science Wire](#) [November 3, 2022](#) in [Science](#)



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Science and Engineering Research Board awards national post-doctoral fellowships to 301 researchers

These fellowships supports young budding researchers to establish themselves as independent scientists

By [India Science Wire](#)

Published: Wednesday 02 November 2022



The mandate of SERB includes promoting basic research in Science and Engineering and providing financial assistance to persons engaged in such research. Representative photo: iStock.



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IIT-M researchers develop cost-effective agri-produce transportation system

November 4, 2022 by *Dialogue India*

New Delhi, Nov. 3rd (India Science Wire): Researchers at the Indian Institute of Technology Madras (IIT-M), jointly with a farmers' NGO, Pothu Vivasayeegal Sangam, have developed a unique, efficient, and cost-effective agricultural transportation system that would address labour shortage, a major issue faced by Indian farmers.

The lightweight monorail type transportation system can frugally carry agricultural yields from the fields to collection points near the farmland. "Steel posts can be erected easily adjacent to the farmland, on which the monorail system would be mounted. On this rail, trolleys for carrying the produces are to be fitted and they can move back and forth. Once the operation is over it can be dismantled and moved to other farmlands," said Prof. Shankar Krishnapillai from the Mechanical Engineering Department of the IIT-M.

"The system can be extended just by adding lightweight monorail units depending on the distance to be covered. Only two persons are needed to operate the system: one each at the loading and unloading points," Prof. Krishnapillai explains.

The system can be propelled by a petrol engine. Researchers plan to use solar power in the future to make the system more cost effective and sustainable. The research team and members of the NGO have successfully tested this prototype monorail-based cableway system at a farm in Nanjai Thottakurichi village of Karur district, Tamil Nadu.



Workforce shortage is one of the major issues plaguing the Indian farming system, especially during the post-harvest period, when significant human resources is required to transport agri-produces, such as sugarcane, banana, or paddy from the field to the nearby collection point. The problem becomes even more acute in wetland farms, as labourers find it difficult to walk across soggy land with heavy headloads.

Shortage of workforce in farming operations will increase in the future due to several reasons including migration of workers from agricultural regions to nearby cities and towns in search of employment. The Central Institute of Post-Harvest Engineering and Technology (CIPHET), Ludhiana, has estimated the annual value of harvest and post-harvest losses of major agricultural produces at national level to be of the order of Rs. 92,651 Crore, calculated using production data of 2012-13 at 2014 wholesale prices. For cereals, pulses, oilseeds, fruits, and vegetables, this loss ranges from 4-65% to 15.88%. The newly developed monorail-based system can help bring this down at the harvesting stage.



Researchers develop reusable, paper-based lycopene sensors

By [India Science Wire](#) [November 5, 2022](#) in [Science](#)



A team of researchers from the Institute of Nano Science and Technology (INST), Mohali, has developed a nano-biosensor for detecting 'lycopene', a phytochemical with high commercial value. The sensor uses a portable smartphone-based upconverting reusable fluorescent paper strip.

This transparent Upconversion Nanoparticles (UCNPs) strip has been found to be sensitive to lycopene with a detection limit as low as 10 nM. A simple smartphone camera can be used for detection. Upconversion is a process where light can be emitted with photon energies higher than the light generating the excitation.

The research team comprising Dr P.S. Vijayakumar and his student Ms. Kamaljit Kaur from INST, Mohali, has found the newly developed transparent strip offering



minimal scattering with maximum sensitivity despite not using any metal quenchers, in comparison to previous paper strips.

‘An increase in strip hydrophobicity during the fabrication process complements the strip to selectively permeate and present an extraction-free substitute analysis for chromatography. Hydrophobicity endows the strip with the capability to reuse the strip with ~100% luminescence recovery,’ researchers explain.

Lycopene is a carotenoid found in tomatoes, grapefruit, watermelons, and papaya. It is also synthesized by plants and microorganisms, but cannot be synthesized by the human body and can only be obtained via diet. It is a potent antioxidant that helps prevent cancer, heart disease, and macular degeneration. Several epidemiologic studies have suggested a strong association between a high intake of lycopene-rich foods and a reduced risk of several cancers, notably prostate cancer.

However, there are not many well-designed clinical trials conducted and the data remain inconclusive. As lycopene has potent antioxidant effects, it may interfere with chemotherapy and radiation therapy. Cancer patients are therefore suggested to use lycopene supplements with caution.

The undesirable degradation of lycopene affects the health benefit of tomato and other tomato-based foods for the human body. The quality of the produce is rated on the basis of lycopene present in it and is priced accordingly. A commercial sensor is used for determining the percentage. The process is expensive and time consuming. The reusable, paper-based strip may help make the lycopene detection process easy, cheap, and less time consuming. The study has been published in ACS (American Chemical Society).



By Online Editor on Nov 5, 2022



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By **BioVoice News Desk** -November 5, 2022



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India Science Wire 1:35 PM, 5 November, 2022



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New Delhi: Researchers develop reusable, paper-based lycopene sensors

News नवंबर 04, 2022

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By ISW Desk on Nov 5, 2022

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Researchers develop reusable, paper-based lycopene sensors

Lycopene-rich foods may reduce cancer risks.

By [India Science Wire](#)

Published: Friday 04 November 2022



Lycopene is a carotenoid found in tomatoes, grapes, watermelon and papaya. Photo: ISW

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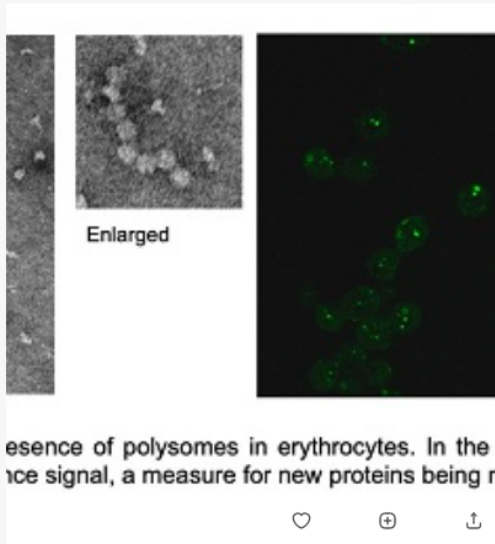


The undesirable degradation of lycopene affects the health benefit of tomato and other tomato-based foods for the human body. The quality of the produce is rated on the basis of the lycopene present in it and is priced accordingly.

A commercial sensor is used for determining the percentage. The process is expensive and time-consuming. The reusable, paper-based strip may help make the lycopene detection process easy, cheap, and less time-consuming. The study has been published in American Chemical Society. **(India Science Wire)**



Study unveils protein synthesis in red blood cells --India Science Wire



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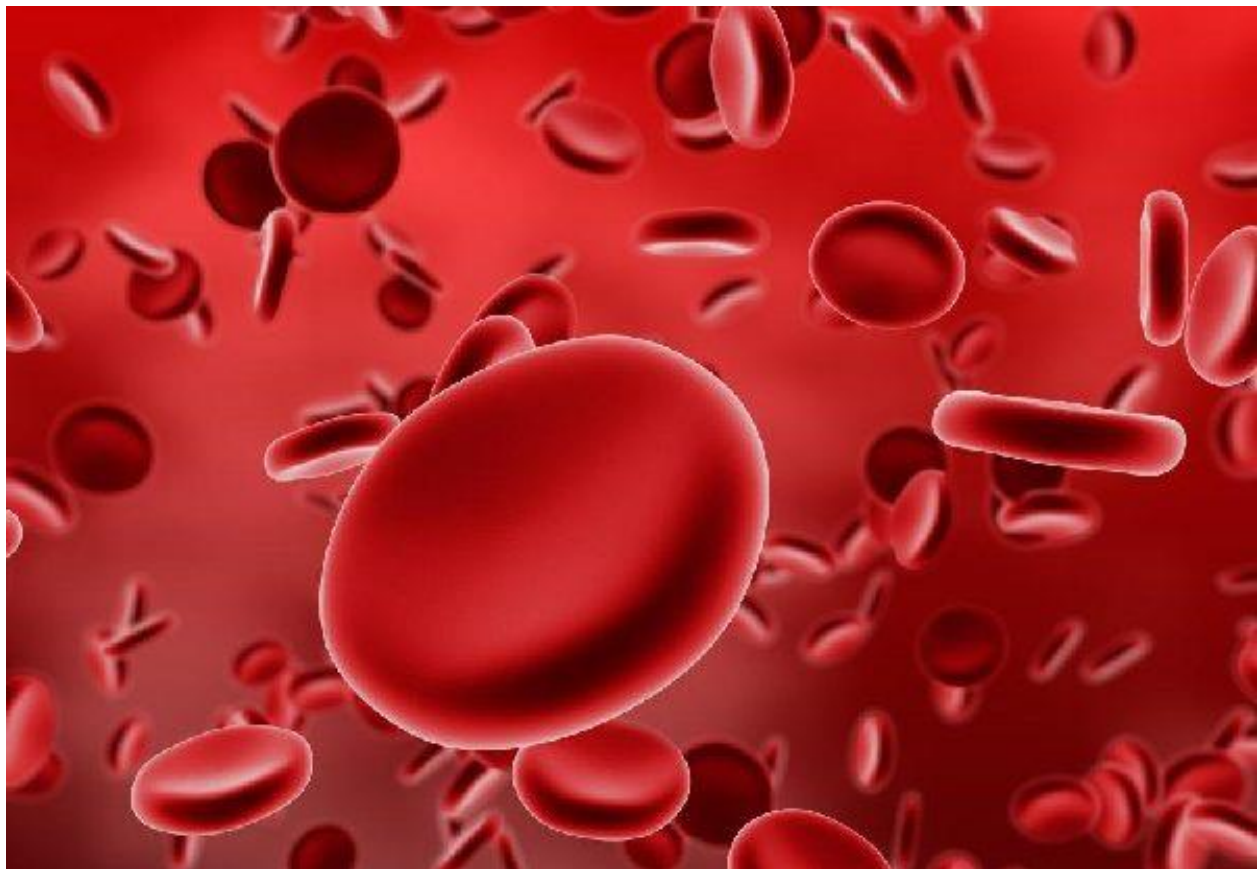
Image Courtesy: IISc, Bengaluru The process by which the mRNA codes for a particular protein is known as translation. It is the final step in which an ...

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A research team led by Sandeep M Eswarappa, Associate Professor, Department of Biochemistry, Indian Institute of Science, Bengaluru, has identified that mature human RBCs can also make their proteins

By **BioVoice News Desk** - November 8, 2022



New Delhi: The process by which the mRNA codes for a particular protein is known as translation. It is the final step in which an mRNA carrying information from DNA synthesises proteins. It is a necessary process performed by almost all living cells, leaving erythrocytes (Red Blood Cells or RBCs), which are believed to be the only exception.

A research team led by Sandeep M Eswarappa, Associate Professor, Department of Biochemistry, Indian Institute of Science, Bengaluru, has identified that mature human RBCs can also make their proteins.

Unlike other cells of the human body, RBCs do not have a nucleus. They have a long lifespan of nearly 115-120 days. Though initially thought to be mere bags of proteins, these cells are now metabolically active and have a comprehensive collection of mRNAs, micro RNAs, and other long non-coding RNAs. As these cells perform metabolic functions, these proteins must be replenished. But, proteins rarely remain stable for 120 days, the lifespan of an RBC. The researchers discovered the presence of active translation in these cells.

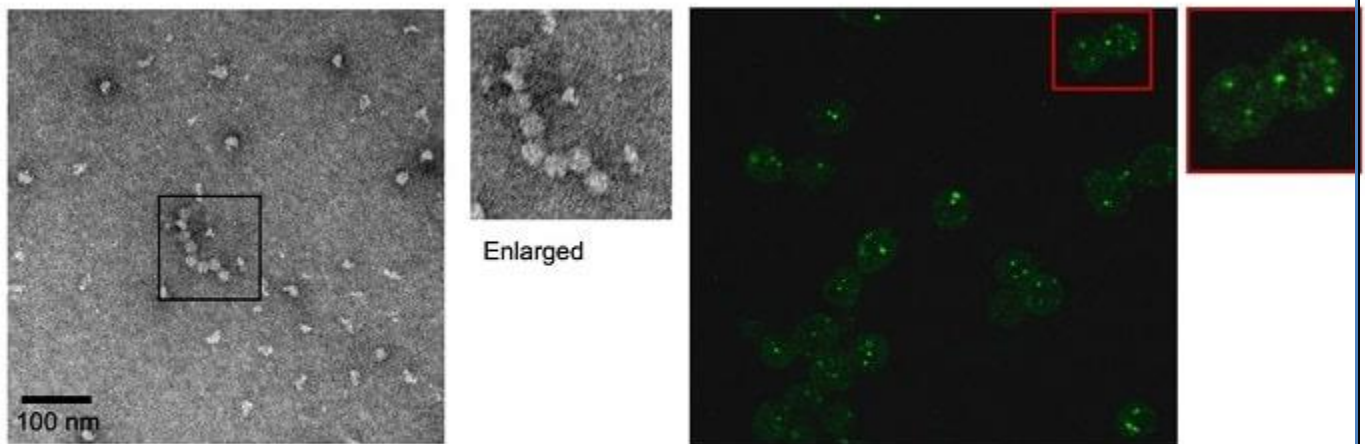


Figure legend:

TEM image showing the presence of polysomes in erythrocytes. In the second panel, erythrocytes are seen showing fluorescence signal, a measure for new proteins being made.

Image Courtesy: IISc, Bengaluru

Study involved techniques such as metabolic labelling using [³⁵S]-methionine and Ribopuromycylation to study this process in erythrocytes. With the help of electron microscopy, the researchers could see actively translating ribosomes - polysomes - and the translation machinery, in these cells. Isolation of polysomes and RNA-sequencing of the mRNAs associated with it provided information on the proteins that were being synthesised. The analysis identified HBA (α -globin) and HBB (β -globin), the components that make haemoglobin, that are primarily synthesised in these cells. Furthermore, it was also observed that mature erythrocytes showed reduced expression of globin proteins (α - and β -) when treated with translation inhibitors.

The Researchers believe that this study would open new avenues to treat group of disorders like haemoglobinopathies, which happen due to abnormal production or structure of the haemoglobin molecule. Currently, the treatment for these disorders includes targeting precursors of the blood cells from bone marrow, which is quite challenging. By discovering the translation process in these cells, they can now proceed to regulate the protein expression directly in these highly accessible cells, making developing therapeutic strategies for such disorders easier.



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15 November 2022 / 0 Comments

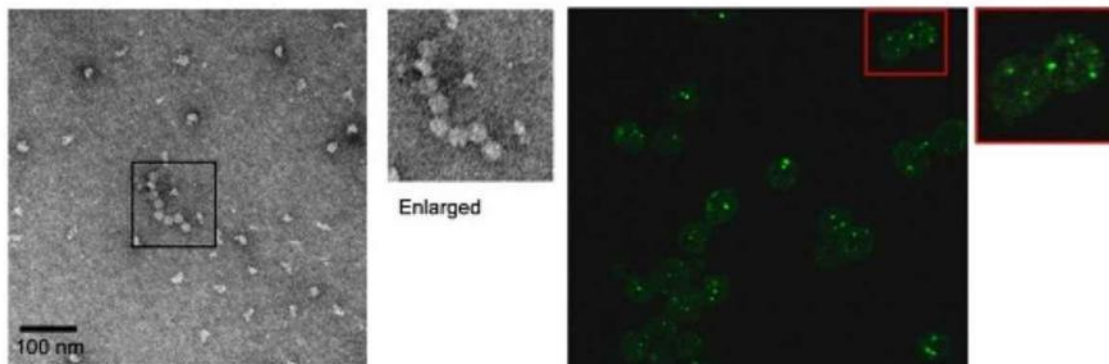


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India Science Wire



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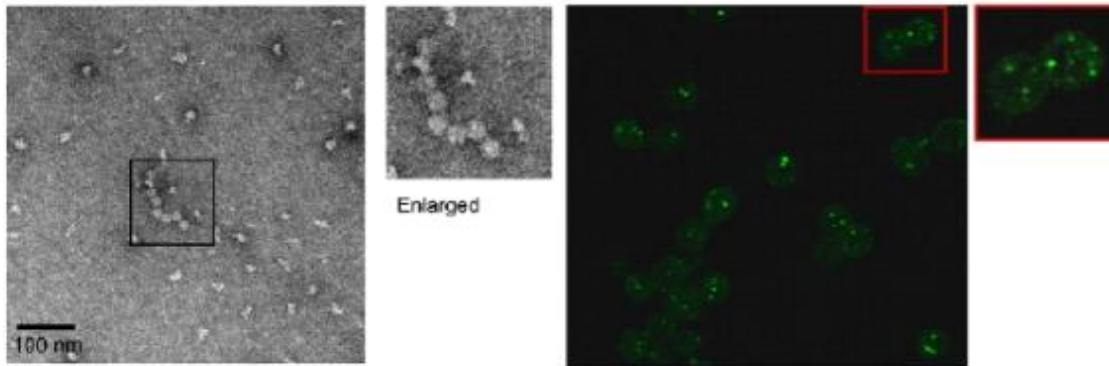


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Continued from Page 11

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News नवंबर 07, 2022

New Delhi: Researchers at the National Centre for Combustion Research and Development (NCCRD) of IIT Madras (IIT-M), have joined hands with Ashok Leyland for the development and commercialization of 'Swirl Mesh Lean Direct Injection (LDI) System' technology. It will be used in developing a series of hybrid Electric Vehicles (EVs).

The main powertrain will be through electric motors. However, NCCRD researchers and AeroStroVilos Energy, a start-up incubated at IIT-M, will be developing a Micro Gas Turbine, a patented combustion technology for on-board power generation. This turbine will replace the large batteries. The team at IIT-M demonstrated the technology on a lab scale, seeing that Ashok Leyland signed a letter to develop the technology for heavy vehicles. Ashok Leyland has already handed over a 9-meter passenger electric bus to NCCRD. This bus would be converted for a hybrid powertrain with the micro gas turbine, and later a series of vehicles will be developed.



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“Micro gas turbines hold significant promise as a technology that will extend fuel combustion beyond traditional IC Engines and provide for more efficient performance and multi-fuel capability,” said Dr N. Saravanan, CTO of Ashok Leyland. Prof. Sathya Chakravarthy, Coordinator, NCCRD, IIT-M, highlighting the key outcomes from the collaboration, commended the industry collaboration that will also enhance the scope of in-house developments.

This micro gas turbine-based ‘Turbine electric vehicle’ (TEV) will aim to establish a power train with ultra-low emissions, low cost, and flexibility regarding fuel selection biogas, CNG, LNG, Diesel, Hydrogen etc. The vehicles will be most suited and reliable for long-range heavy operations. Compared to the currently used battery-powered EVs, these microturbines will have a lighter powertrain and better weight-to-power ratio.

For Indian authorities, clean auto technology is central to their plans to curb the dependency on petroleum products and mitigate air pollution in urban clusters.



This is also important for the national commitment to cut emissions from burning fossil fuel use to net-zero by 2070. According to official data, the government aims for 30% of total car sales to be electric by 2030.

EVs constitute just 0.5% of all the vehicles on Indian roads today. However, as per the latest data, the cost of buying and operating battery-powered buses and three-wheelers has decreased significantly due to various government incentives aimed to increase the acceptance of these vehicles for public transport. The price of battery-powered buses has also come down.





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Arvind Gupta Monday, 7 November, 2022 [Leave a comment](#)

Newswave@ New Delhi

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IIT Madras and Ashok Leyland to Jointly Develop HEVs

Article By : India Science Wire



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By Team DP on Nov 9, 2022

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IAS Toppers

IT'S TIME TO BE AN IAS

Soil carbon sequestration may help fight climate change

An agriculture modelling study can help bolster the fight against climate crisis by helping capture atmospheric carbon dioxide and storing it in soil.



By IASToppers | Nov 11, 2022 5:30 PM

Soil carbon sequestration may help fight climate change

An agriculture modelling study can help bolster the fight against climate crisis by helping capture atmospheric carbon dioxide and storing it in soil.



- The modelling study was conducted in five districts of Maharashtra & eight districts of Odisha.



[Ref: Down to Earth]

About the study:

- The soil carbon sequestration over **30 years in these 13 districts** may significantly contribute to combating global climate change.
- **Biochar increased soil carbon by 130-300%** over 30 years with little difference in yield.
- Using fertilizers increased the amount of **carbon and output by up to 30%**.
- The carbon sequestration increased by more than **300 per cent** when combined with fertiliser, biochar, and irrigation.
- The study aligns with **Sustainable Development Goal 13**, which is on taking urgent action to combat climate change and its impacts.
- Research found that various methods of soil management, including traditional farming and tillage, are not always effective, and that improvements in practices can be made.

Carbon Sequestration:



- Carbon sequestration is the **long-term storage of carbon in plants, soils, geologic formations, and the ocean.**
- Carbon sequestration occurs both naturally and as a result of anthropogenic activities and typically refers to the storage of carbon.

Types:

- **Terrestrial Carbon Sequestration:** Terrestrial carbon sequestration is the **process through which CO₂ from the atmosphere is absorbed by trees and plants** through photosynthesis and stored as carbon in soils and biomass (tree trunks, branches, foliage, and roots)
- **Geologic Carbon Sequestration:** CO₂ can be stored, including **oil reservoirs, gas reservoirs, unmineable coal seams,** saline formations and shale formations with high organic content.
- **Ocean Carbon Sequestration:** **Oceans absorb, release and store large amounts of CO₂** from the atmosphere. This can be done in two ways- enhancing productivity of ocean biological systems through Iron fertilization, and injecting CO₂ into the deep ocean.
 - The dumping of iron stimulates phytoplankton production, which in turn leads to enhanced photosynthesis from these microorganisms, helping in CO₂ absorption.

Biochar:

- Biochar is **charcoal** that is produced by pyrolysis of biomass in the absence of oxygen.
- It is the **solid material obtained** from the thermochemical conversion of biomass in an oxygen limited environment.
- It is a stable solid that is **rich in carbon** and can endure in soil for thousands of years.
- It is used for both **carbon sequestration** and soil health benefits.
- It is investigated as a means of carbon sequestration, and it may be a means to mitigate **global warming and climate change.**



Benefits:

- Increase the **soil fertility of acidic soils**
- Increase **agricultural productivity**
- Provide protection against some **foliar and soil-borne diseases**
- It is hygroscopic and can **attract and retain water**





DownToEarth | डाउन टू अर्थ

Soil carbon sequestration may help fight climate change

New agriculture modelling study shows atmospheric carbon dioxide can be captured, stored in soil

By [India Science Wire](#)

Published: Wednesday 09 November 2022



Soil carbon is critical for crop yield and climate adaptation or mitigation measures.
Photo: ISW

A agriculture modelling study can help bolster the fight against climate crisis by helping capture atmospheric carbon dioxide and storing it in soil.

Food systems account for nearly one-third of greenhouse gas (GHG) emissions. In 2015, food-system emissions amounted to 18Gt CO₂ equivalent per year globally, representing 34 per cent of total GHG emissions.

International Crops Research Institute for The Semi-Arid Tropics (ICRISAT) has published a modelling study that revealed how the right combination of fertiliser⁵,



biochar, and irrigation could potentially increase soil carbon by as much as 300 per cent and help mitigate climate change.

The modelling study was conducted in five districts of Maharashtra (Jalna, Dhule, Ahmednagar, Amravati, and Yavatmal) and eight districts of Odisha (Angul, Bolangir, Deogarh, Dhenkenal, Kalahandi, Kendujhar, Nuapada, and Sundegarh).

They have a predominantly semi-arid climate with annual rainfall between 600 millimetres and 1,100 mm. This soil carbon sequestration over 30 years in these 13 districts may significantly contribute to combating global climate change.

ICRISAT scientists, during 2020-2022, collected various data such as weather, soil types, and crop yield, and crop management practices. Based on such data they made projections for carbon sequestration and yields and conducted long-term experiments.

Carbon sequestration is the process of capturing and storing atmospheric carbon dioxide. The researchers also evaluated improved management practices such as biochar, need-based fertiliser, and irrigation.

Biochar is a charcoal-like substance that burns organic material (biomass) from agricultural and forestry wastes in a controlled process called pyrolysis. Although it looks much like ordinary charcoal, biochar has safely reduced contamination and stored carbon.

The modelling study found that biochar increased carbon value in the soil by 130-300 per cent over 30 years with little difference in yield. It also found that the optimal use of fertilizers increased the carbon and output by up to 30 per cent.

The carbon sequestration increased by more than 300 per cent in combination with fertiliser, biochar, and irrigation. The study is aligned with Sustainable Development Goal 13 (SDG 13: Climate Action) which is on taking urgent action to combat climate change and its impacts.

Important crops such as cotton, sorghum, soybean, chickpea, pigeonpea and millet were studied in the region. In addition, soil sampling and analysis of long-term experiments on improved versus traditional farmer practices and tillage and residue management practices were also conducted.

Scientists observed a significant increase in soil carbon with improved nutrients, crop/variety, landform, minimum tillage and residue addition under the climate change scenario till 2100.

Soil carbon is critical for crop yield and climate adaptation or mitigation measures, which are heavily reduced by both intensive agriculture and indiscriminate use of chemicals leading to increased carbon emissions.

“Profile sampling of long-term experiments found that carbon sequestration increased by 100 kg ha per year with the improved practices of landform management, fertilizers and crop varieties over 45 years. It is enhanced by 300 kg ha per year with residue over nine years (Aditi et al. 2021),” said Dr Girish Chander, co-lead of the project, which studied carbon sequestration.

The German Agency for International Cooperation (GIZ) funded the research. “We would like to analyse how carbon behaves under different agricultural practices,” says Jonas Bartholomay, programme director, GIZ India.

“Agriculture is said to be one of the major factors affecting climate change. However, it can also be a part of the solution. Carbon sequestering can provide an additional source of income for the farmers,” he said.

The study may help policymakers, government, and civil society to implement strategies that incentivise farmers to manage their soils in ways to sequester more carbon.

A new gaming app, ‘Mrida’, has been launched to promote behavioural change among farmers. Dr Melesse Mequanint, co-lead (economics, game app and capacity

building), said, “Apart from English, the app will be released in Marathi and Odiya to reach a larger population of farmers in the two states.” **(ISW)**



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New Delhi, Nov 9 (India Science Wire): Food systems account for Crops Research Institute for The Semi-Arid Tropics)has published a



nearly one-third of greenhouse gas emissions. In 2015, food-system emissions amounted to 18?Gt CO2 equivalent per year globally, representing 34% of total GHG emissions. ICRISAT (International

modelling study thatrevealed how the right combination of fertilizer, biochar, and irrigation could potentially increase soil carbon by as much as 300% and help mitigate climate
Contd to Pg 11.



'Soil carbon sequestration can help fight...

change.

The modelling study was conducted in five districts of Maharashtra (Jalna, Dhule, Ahmednagar, Amravati, and Yavatmal) and eight districts of Odisha (Angul, Bolangir, Deogarh, Dhenkanal, Kalahandi, Kendujhar, Nuapada, and Sundergarh). They have a predominantly semi-arid climate with annual rainfall between 600 mm and 1,100 mm. This soil carbon sequestration over 30 years in these 13 districts may significantly contribute to combating global climate change.

Carbon sequestration is the process of capturing and storing atmospheric carbon dioxide. ICRISAT scientists, during 2020-2022, collected various data such as weather, soil types, and crop yield, and crop management practices. Based on such data they made projections for carbon sequestration and yields and conducted long-term experiments.

The researchers also evaluated improved management practices such as biochar, need-based fertilizer, and irrigation. Biochar is a charcoal-like substance that burns organic material (biomass) from agricultural and forestry wastes in a controlled process called pyrolysis. Although it looks much like ordinary charcoal, biochar has safely reduced contamination and stored carbon.

The modelling study found that biochar increased carbon value in the soil by 130-300% over 30 years with little difference in yield. It also found that the optimal use of fertilizers increased the carbon and output by up to 30%. The carbon sequestration increased by more than 300% in combination with fertilizer, biochar, and irrigation. The study is aligned with Sustainable Development Goal 13 (SDG 13: Climate Action) which is on taking urgent action to combat climate change and its impacts.

Important crops such as cotton, sorghum, soybean, chickpea, pigeonpea and millet were studied in the region. In addition, soil sampling and analysis of long-term experiments on improved versus traditional farmer practices and tillage and residue management practices were also conducted.

Scientists observed a significant increase in soil carbon with improved nutrients, crop/variety, landform, minimum tillage and residue addition under the climate change scenario till 2100.

Soil carbon is critical for crop yield and climate adaptation or mitigation measures which are heavily reduced by both intensive agriculture and indiscriminate use of chemicals leading to increased carbon emissions.

"Profile sampling of long-term experiments found that carbon sequestration increased by 100 kg ha per year with the improved practices of landform management, fertilizers and crop varieties over 45 years. It is enhanced by 300 kg ha per year with residue over nine years (Aditi et al. 2021)," said Dr Girish Chander, co-lead of the project, which studied carbon sequestration.

The German Agency for International Cooperation (GIZ) funded the research. "We would like to analyse how carbon behaves under different agricultural practices," says Jonas Bartholomay, Program Director, GIZ India.

"Agriculture is said to be one of the major factors affecting climate change. However, it can also be a part of the solution. Carbon sequestering can provide an additional source of income for the farmers," he said.

The study may help policymakers, government, and civil society to implement strategies that incentivize farmers to manage their soils in ways to sequester more carbon.

A new gaming app, 'Mrida', has been launched to promote behavioural change among farmers. Dr Melesse Mequanint, co-lead (economics, game app and capacity building), said, "Apart from English, the app will be released in Marathi and Odiya to reach a larger population of farmers in the two states."



नई दिल्ली। नौसेना की सोनार प्रणालियों के लिए नई परीक्षण और मूल्यांकन सुवधा।

News नवंबर 09, 2022

नई दिल्ली। (इंडिया साइंस वायर) रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) ने सोनार प्रणालियों के लिए नई अत्याधुनिक परीक्षण और मूल्यांकन सुवधा वकसत की है। 'हल मॉड्यूल ऑफ सबमर्सिबल प्लेटफॉर्म फॉर अकूस्टिक कैरेक्टराइजेशन ऐंड इवैलुएशन (स्पेस) नामक यह सुवधा जहाजों, पनडुब्बियों और हेलीकॉप्टरों सहित व भन्न प्लेटफॉर्मों पर नौसेना के उपयोग के लिए वकसत की गई सोनार प्रणालियों के परीक्षण एवं मूल्यांकन में अपनी भूमिका निभाएगी।

सोनार प्रणालियों के मूल्यांकन द्वारा सेंसर और ट्रांसड्यूसर जैसे वैज्ञानिक पैकेजों की त्वरित तैनाती तथा आसान रिकवरी संभव हो पाती है। कोच्चि स्थित डीआरडीओ की नौसेना भौतिक एवं समुद्र वज्ञान प्रयोगशाला (एनपीओएल) में यह सुवधा शुरू की गई है। एनपीओएल को सोनार और संबद्ध प्रौद्योगिकियों के विकास के कार्य के लिए जाना जाता है। एनपीओएल के अनुसंधान एवं विकास के प्रमुख क्षेत्रों में सग्नल प्रोसेसिंग, इलेक्ट्रॉनिक्स, इंजीनियरिंग सस्टम, ट्रांसड्यूसर, सामग्री और समुद्र वज्ञान शामिल हैं।



सोनार प्रणाली को दर्शाती एक प्रतिनिधि तस्वीर (फोटो: डीआरडीओ)

इस संबंध में जारी किए गए डीआरडीओ के ताजा वक्तव्य में 'स्पेस' को दुनिया में अपनी तरह की अनूठी सुवधा बताया गया है। वक्तव्य में कहा गया है कि इस सुवधा की विशेषता विशेष रूप से डिजाइन किए गए सबमर्सिबल प्लेटफॉर्म में निहित है, जिसे समसामयिक रूप से संचालित वंच की श्रृंखला के उपयोग से 100 मीटर की गहराई तक उतारा जा सकता है।

महासागरीय अनुसंधान और नौसेना के सुवधा अनुप्रयोगों में सोनार तकनीक का उपयोग होता है। सोनार प्रणालियों में प्रयुक्त ध्वनिक आवृत्तियाँ बहुत कम (इन्फ्रासोनिक) से लेकर अत्यधिक उच्च (अल्ट्रासोनिक) तक अलग-अलग होती हैं। महासागरों की गहराई मापने, दुश्मन की पनडुब्बी का पता लगाने, डूबे हुए जहाजों के मलबे को खोजने, मानचित्रण, नौचालन, समुद्री सतह के नीचे एवं सतह के ऊपर वस्तुओं का पता लगाने के लिए सोनार (Sound Navigation and Ranging) तकनीक का उपयोग होता है। यह तकनीक जल के भीतर तथा सतह पर संचार के लिए ध्वनि संचरण (Sound Propagation) का उपयोग करती है।

'स्पेस' का निर्माण मेसर्स एलएंडटी शिपबिल्डिंग, चेन्नई द्वारा किया गया है। यह पहल एनपीओएल की अनुमानित अवधारणा डिजाइन और आवश्यकताओं पर आधारित है। डीआरडीओ ने कहा है कि प्लेटफॉर्म का डिजाइन और निर्माण भारतीय शिपिंग रजिस्टर और पोत वर्गीकरण प्राधिकरण की सभी वैधानिक आवश्यकताओं के अनुरूप है। यह केरल अंतर्देशीय वेसल नियमों के अनुसार निरीक्षण तथा पंजीकरण मानदंडों का सख्ती से पालन करता है। इस पहल को भारत सरकार की 'आत्मनिर्भर भारत' और 'मेक इन इंडिया' प्रतिबद्धता को प्रोत्साहन देने में महत्वपूर्ण माना जा रहा है।

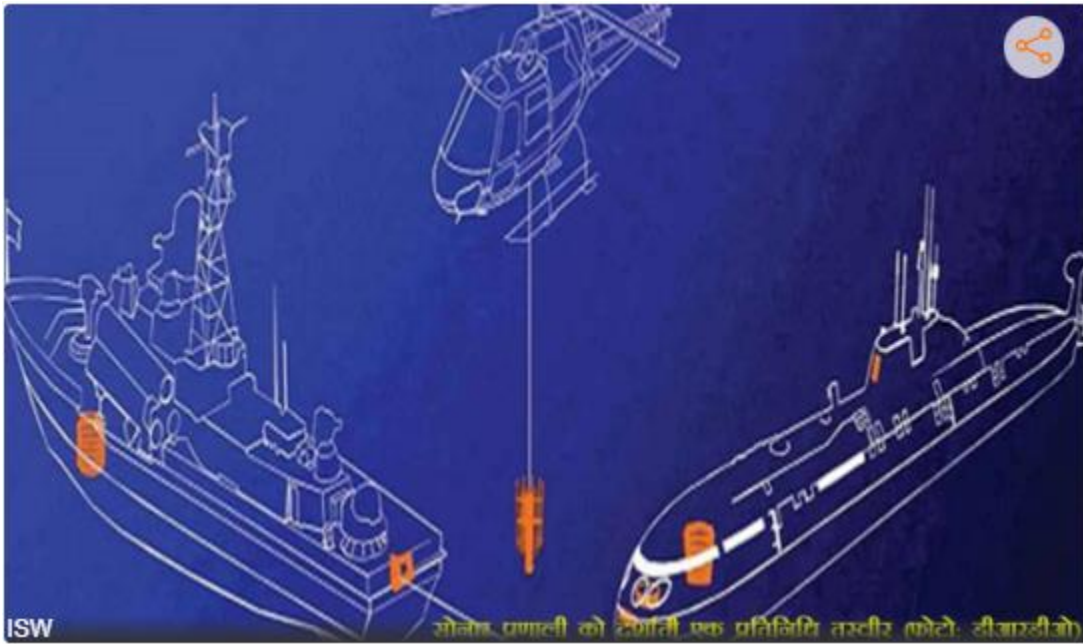
(इंडिया साइंस वायर)





नौसेना की सोनार प्रणालियों के लिए नई परीक्षण और मूल्यांकन सुवधा

इंडिया साइंस वायर | Nov 14, 2022 4:39PM



महासागरीय अनुसंधान और नौसेना के ववध अनुप्रयोगों में सोनार तकनीक का उपयोग होता है। सोनार प्रणालियों में प्रयुक्त ध्वनिक आवृत्तयाँ बहुत कम (अल्ट्रासोनिक) से लेकर अत्यधक उच्च (इन्फ्रासोनिक) अलग होती हैं।-तक अलग

रक्षा अनुसंधान एवं वकास संगठन ने सोनार प्रणालियों के लिए नई (डीआरडीओ) अत्याधुनिक परीक्षण और मूल्यांकन सुवधा वकसत की है। 'हल मॉड्यूल ऑफ सबमर्सिबल प्लेटफॉर्म फॉर अकूस्टिक कैरेक्टराइजेशन ऐंड इवैलुएशन नामक यह (स्पेस) सुवधा जहाजों, पनडुब्बियाँ और हेलीकॉप्टरों सहित वभन्न प्लेटफार्मों पर नौसेना के



उपयोग के लिए वक सत की गई सोनार प्रणालियों के परीक्षण एवं मूल्यांकन में अपनी भूमिका निभाएगी।

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महासागरीय अनुसंधान और नौसेना के विविध अनुप्रयोगों में सोनार तकनीक का उपयोग होता है। सोनार प्रणालियों में प्रयुक्त ध्वनिक आवृत्तियाँ बहुत कम से (इन्फ्रासोनिक) अलग होती हैं। महासागरों की गहराई तक अलग (अल्ट्रासोनिक) लेकर अत्यधिक उच्च मापने, दुश्मन की पनडुब्बी का पता लगाने, डूबे हुए जहाजों के मलबे को खोजने, मानचित्रण, नौचालन, समुद्री सतह के नीचे एवं सतह के ऊपर वस्तुओं का पता लगाने के लिए सोनार (Sound Navigation and Ranging) तकनीक का उपयोग होता है। यह तकनीक जल के भीतर तथा सतह पर संचार के लिए ध्वनि संचरण (Sound Propagation) का उपयोग करती है।

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अंतर्देशीय वेसल नियमों के अनुसार निरीक्षण तथा पंजीकरण मानदंडों का सख्ती से पालन करता है।

इस पहल को भारत सरकार की 'आत्मनिर्भर भारत' और 'मेक इन इंडिया' प्रतिबद्धता को प्रोत्साहन देने में महत्वपूर्ण माना जा रहा है।

(इंडिया साइंस वायर)



नई दिल्ली। जम्मूकश्मीर में कृष प्रौद्योगिकी स्टार्टअप - डॉ जितेंद्र सिंह :के लिए अपार संभावनाएं

News नवंबर 10, 2022

नई दिल्ली। (इंडिया साइंस वायर) जम्मूकश्मीर की भौगोलिक परिस्थितियां और जलवायु - औषधीय एवं सुगंधित पौधों की खेती के लिए अनुकूल हैं। इसी लिए, यहाँ कृष प्रौद्योगिकी स्टार्टअप की अपार संभावनाएं हैं। श्रीनगर में बुधवार को स्टार्टअप केंद्रित कश्मीरएक्स्पो का - (स्वतंत्र प्रभार) उद्घाटन करते हुए केंद्रीय विज्ञान और प्रौद्योगिकी एवं पृथ्वी विज्ञान राज्यमंत्री और पीएमओ, कार्मक, लोक शकायत, पेंशन, परमाणु ऊर्जा और अंतरिक्ष राज्यमंत्री, डॉ जितेंद्र सिंह ने यह बात कही है।

भारत सरकार के विज्ञान और प्रौद्योगिकी विभाग की पहल पर 09 से 11 नवंबर तक चलने वाली यह तीन दिवसीय प्रदर्शनी शेरकश्मीर विश्व विद्यालय में आयोजित की गई है। उद्घाटन -कार्यक्रम के दौरान उर्दू और कश्मीरी में सात पुस्तकें और दो मासिक विज्ञान न्यूजलेटर्स - कश्मीरी में 'गाश' और उर्दू में 'तज्जसुस' का विमोचन भी किया गया। कश्मीरएक्स्पो का - उद्देश्य स्थानीय युवाओं को स्टार्टअप की ओर आकर्षित करना है, जिससे जम्मूकश्मीर और - आसपास के क्षेत्रों में उद्यमता और आत्मनिर्भरता के अवसरों को बढ़ावा मिल सके। इस आयोजन के माध्यम से स्थानीय संसाधनों के उपयोग पर आधारित स्टार्टअप उद्यमों और नवोन्मेषी युवाओं की क्षमता निर्माण के लिए प्रभावी मंच उपलब्ध कराने का प्रयास किया जा रहा है।





इस दौरान 50 स्टार्टअप्स अपने उत्पादों और सेवाओं का प्रदर्शन कर हैं, जिससे क्षेत्र के युवाओं को संसाधनों के कुशलतम उपयोग के लिए प्रेरित किया जा सके, और उनकी व्यक्तिगत क्षमता निर्माण के माध्यम से राष्ट्र निर्माण में उनके प्रभावी योगदान को सुनिश्चित किया जा सके। प्रदर्शित की जा रही स्टार्टअपआजी वका/परियोजनाओं में जम्मूसाथ आसपास -कश्मीर के साथ-के राज्यों और देश के अन्य हिस्सों से आये लोग शामिल हैं। डॉ जितेंद्र सिंह ने कश्मीर के लिए नवाचारों और स्टार्टअप्स में अधिक अवसर पैदा करने पर जोर दिया है। उन्होंने उल्लेख किया कि इस क्षेत्र में प्रचुर मात्रा में प्रतिभा और संसाधन हैं, लेकिन समय की आवश्यकता है कि इन संसाधनों का उपयोग लोगों के कल्याण के लिए किया जाए ताकि उनके जीवन को सुवधाजनक और आसान बनाया जा सके।

डॉ सिंह ने कहा, जैवअर्थव्यवस्था राष्ट्र की आर्थिक समृद्धि में महत्वपूर्ण भूमिका निभाने जा रही है। बहुत सारी प्रतिभाएँ आउटलेट खोज रही हैं, और कश्मीर एक्स्पो उन्हें वह आउटलेट प्रदान करने का अवसर लेकर आया है। युवाओं को अपनी प्रतिभा का उपयोग करना चाहिए और ऐसे अवसरों का लाभ उठाना चाहिए। केंद्रीय मंत्री ने उल्लेख किया कि कश्मीर कैसे कृषि स्टार्टअप्स का केंद्र बन सकता है, और भारत सरकार स्थायी आजी वका के लिए स्थायी स्टार्टअप बनाने के लिए किस प्रकार पहल कर रही है। उन्होंने कहा कि भविष्य युवाओं का है, और यह उन पर निर्भर है कि वे अपने भविष्य को और अधिक उत्पादक बनाएं।

डॉ जितेंद्र सिंह ने भविष्य के दृष्टिकोण के लिए प्रधानमंत्री नरेन्द्र मोदी को श्रेय दिया, जिन्होंने 2015 में स्वतंत्रता दिवस के अवसर पर लाल कले की प्राचीर से स्टार्टअप इंडिया, स्टैंडअप



इंडिया का आह्वान क्या था, जिससे लोगों की अभिरुचि बढ़ी, और भारत में स्टार्टअप्स की संख्या, जो 2014 में केवल 350 थी, वह 2022 में बढ़कर 100 से ज्यादा यूनिकॉर्न के साथ 80 हजार के पार पहुँच चुकी है। केंद्रीय मंत्री ने कृषि प्रौद्योगिकी स्टार्टअप्स की स्थापना के लिए डीबीटी और सीएसआईआर के माध्यम से पूर्ण सहयोग देने की प्रतिबद्धता भी व्यक्त की है।

वज्ञान और प्रौद्योगिकी विभाग के सचिव डॉ. श्रीवरी चंद्रशेखर ने बताया कि कैसे इन स्टार्टअप्स को उनके नवाचारों के वपणन और रोजगार पैदा करने के लिए समर्थन दिया जाएगा। उन्होंने अपने क्षतिज का वस्तार करने की आवश्यकता पर भी जोर दिया ताकि उनके उत्पाद क्षेत्र के बाहर पहुँच सकें। कश्मीर केंद्रीय विश्वविद्यालय के कुलपति प्रोफेसर अहमद शाह ने पुस्तकों और समाचार पत्रों के प्रकाशन से संबंधित प्रयासों की सराहना की और आशा व्यक्त की है कि उर्दू और कश्मीरी में वज्ञान को लोकप्रिय बनाने के लिए इस तरह के उपयोगी तथा दिलचस्प संसाधन बढ़ेंगे।

वज्ञान प्रसार के निदेशक डॉ. नकुल पाराशर ने न्यूजलेटर 'गाश' एवं 'तज्जसुस' सहित कश्मीरी और उर्दू में अन्य प्रकाशनों के माध्यम से कश्मीरी और उर्दू बोलने वाली आबादी तक पहुँचने के लिए स्कोप (SCOPE) परियोजना सचिवालय के प्रयासों को सराहा है। उन्होंने कहा कि इस तरह की वज्ञान आधारित सामग्री को अधिक वकसत किया जाएगा, और उसे आम जनता के लिए सुलभ बनाया जाएगा, जिससे समाज को हर तरह से लाभ होगा।

वज्ञान और प्रौद्योगिकी विभाग से सम्बद्ध राष्ट्रीय वज्ञान और प्रौद्योगिकी उद्यमिता विकास बोर्ड की प्रमुख एवं सलाहकार डॉ. अनीता गुप्ता ने कहा है कि कश्मीरएक्सपो स्थानीय स्टार्टअप्स के उद्यमीय कौशल, अभिनव उत्पादों और नवाचारों को बड़े पैमाने पर लोगों तक पहुँचाने में भूमिका निभाएगा। डॉ. गुप्ता ने कहा कि इस प्रदर्शनी में स्टार्टअप्स को बढ़ावा देने के लिए सरकार के वभिन्न विभागों द्वारा प्रदान की जाने वाली सहायता के बारे में भी जानकारी प्रदान की गई है। इस अवसर पर, सौरभ भगत, सचिव, वज्ञान एवं प्रौद्योगिकी विभाग, जम्मूकश्मीर; डॉ. डीश्रीनिवास रेड्डी, निदेशक, सीएसआईआरआईआईआईएम, जम्मू; और कई अन्य गणमान्य व्यक्ति, नवप्रवर्तनकर्ता और उद्यमी, शोधार्थी और छात्र उपस्थित थे।

(इंडिया साइंस वायर)



विज्ञान भूमि वैज्ञानिक दृष्टिकोण को समर्पित

जम्मूडॉ :कश्मीर में कृष प्रौद्यो गकी स्टार्टअप के लए अपार संभावनाएं-
जितेंद्र संह

नई दिल्ली, नवंबर 10: जम्मू कश्मीर की भौगोलिक-परिस्थितियां और जलवायु औषधीय एवं सुगंधित पौधों की खेती के लए अनुकूल हैं। इसी लए, यहाँ कृष प्रौद्यो गकी स्टार्टअप की अपार संभावनाएं हैं। श्रीनगर में बुधवार को स्टार्टअप केंद्रित कश्मीरएक्स्पो का- उद्घाटन करते हुए केंद्रीय वज्ञान और प्रौद्यो गकी एवं पृथ्वी वज्ञान राज्यमंत्री और (स्वतंत्र प्रभार) पीएमओ, कार्मक, लोक शकायत, पेंशन, परमाणु ऊर्जा और अंतरिक्ष राज्यमंत्री, डॉ जितेंद्र संह ने यह बात कही है।

भारत सरकार के वज्ञान और प्रौद्यो गकी वभाग की पहल पर नवंबर तक चलने 11 से 09 वाली यह तीन दिवसीय प्रदर्शनी शेरकश्मीर विश्व विद्यालय में आयोजित की गई है। उद्घाटन -ए- - कार्यक्रम के दौरान उर्दू और कश्मीरी में सात पुस्तकें और दो मासिक वज्ञान न्यूजलेटर्स कश्मीरी में 'गाश' और उर्दू में 'तज्जसुस' का वमोचन भी कया गया।

कश्मीरएक्स्पो का उद्देश्य स्थानीय- युवाओं को स्टार्टअप की ओर आकर्षित करना है, जिससे जम्मूकश्मीर और आसपास के क्षेत्रों में उद्यमता और आत्मनिर्भरता के अवसरों को बढ़ावा - मल सके। इस आयोजन के माध्यम से स्थानीय संसाधनों के उपयोग पर आधारित स्टार्टअप उद्यमों और नवोन्मेषी युवाओं की क्षमता निर्माण के लए प्रभावी मंच उपलब्ध कराने का प्रयास कया जा रहा है।





इस दौरान 50 स्टार्टअप्स अपने उत्पादों और सेवाओं का प्रदर्शन कर हैं, जिससे क्षेत्र के युवाओं को संसाधनों के कुशलतम उपयोग के लिए प्रेरित किया जा सके, और उनकी व्यक्तिगत क्षमता निर्माण के माध्यम से राष्ट्र निर्माण में उनके प्रभावी योगदान को सुनिश्चित किया जा सके। प्रदर्शित की जा रही स्टार्टअपसाथ-कश्मीर के साथ-आजी वका परियोजनाओं में जम्मू/आसपास के राज्यों और देश के अन्य हिस्सों से आये लोग शामिल हैं।

डॉ जितेंद्र सिंह ने कश्मीर के लिए नवाचारों और स्टार्टअप्स में अधिक अवसर पैदा करने पर जोर दिया है। उन्होंने उल्लेख किया कि इस क्षेत्र में प्रचुर मात्रा में प्रतिभा और संसाधन हैं, लेकिन समय की आवश्यकता है कि इन संसाधनों का उपयोग लोगों के कल्याण के लिए किया जाए ताकि उनके जीवन को सुवधाजनक और आसान बनाया जा सके।

डॉ सिंह ने कहा, जैवअर्थव्यवस्था राष्ट्र की आर्थिक समृद्धि में महत्वपूर्ण भूमिका निभाने जा रही है। बहुत सारी प्रतिभाएँ आउटलेट खोज रही हैं, और कश्मीर एक्स्पोजे उन्हें वह आउटलेट प्रदान करने का अवसर लेकर आया है। युवाओं को अपनी प्रतिभा का उपयोग करना चाहिए और ऐसे अवसरों का लाभ उठाना चाहिए। केंद्रीय मंत्री ने उल्लेख किया कि कश्मीर कैसे कृषि स्टार्टअप्स का केंद्र बन सकता है, और भारत सरकार स्थायी आजी वका के लिए स्थायी



स्टार्टअप बनाने के लिए किस प्रकार पहल कर रही है। उन्होंने कहा कि भव्य युवाओं का है, और यह उन पर निर्भर है कि वे अपने भव्य को और अधिक उत्पादक बनाएं।

डॉ. जितेंद्र सिंह ने भव्य के दृष्टिकोण के लिए प्रधानमंत्री नरेन्द्र मोदी को श्रेय दिया, जिन्होंने 2015 में स्वतंत्रता दिवस के अवसर पर लाल कले की प्राचीर से स्टार्टअप इंडिया, स्टैंडअप इंडिया का आह्वान किया था, जिससे लोगों की अभिरुचि बढ़ी, और भारत में स्टार्टअप्स की संख्या, जो 2014 में केवल 350 थी, वह 2022 में बढ़कर 100 से ज्यादा यूनिकॉर्न के साथ 80 हजार के पार पहुँच चुकी है। केंद्रीय मंत्री ने कृषि प्रौद्योगिकी स्टार्टअप्स की स्थापना के लिए डीबीटी और सीएसआईआर के माध्यम से पूर्ण सहयोग देने की प्रतिबद्धता भी व्यक्त की है।

वैज्ञानिक और प्रौद्योगिकी विभाग के सचिव डॉ. श्रीवरी चंद्रशेखर ने बताया कि कैसे इन स्टार्टअप्स को उनके नवाचारों के वपणन और रोजगार पैदा करने के लिए समर्थन दिया जाएगा। उन्होंने अपने क्षतिज का वस्तु करने की आवश्यकता पर भी जोर दिया ताकि उनके उत्पाद क्षेत्र के बाहर पहुँच सकें।

कश्मीर केंद्रीय विश्व विद्यालय के कुलपति प्रोफेसर अहमद शाह ने पुस्तकों और समाचार पत्रों के प्रकाशन से संबंधित प्रयासों की सराहना की और आशा व्यक्त की है कि उर्दू और कश्मीरी में वैज्ञानिक को लोकप्रिय बनाने के लिए इस तरह के उपयोगी तथा दिलचस्प संसाधन बढ़ेंगे।

वैज्ञानिक प्रसार के निदेशक डॉ. नकुल पाराशर ने न्यूजलेटर 'गाश' एवं 'तज्जसुस' सहित कश्मीरी और उर्दू में अन्य प्रकाशनों के माध्यम से कश्मीरी और उर्दू बोलने वाली आबादी तक पहुँचने के लिए स्कोप (SCOPE) परियोजना सचिवालय के प्रयासों को सराहा है। उन्होंने कहा कि इस तरह की वैज्ञानिक आधारित सामग्री को अधिक विकसित किया जाएगा, और उसे आम जनता के लिए सुलभ बनाया जाएगा, जिससे समाज को हर तरह से लाभ होगा।

वैज्ञानिक और प्रौद्योगिकी विभाग से सम्बद्ध राष्ट्रीय वैज्ञानिक और प्रौद्योगिकी उद्यमिता विकास बोर्ड की प्रमुख एवं सलाहकार डॉ. अनीता गुप्ता ने कहा है कि कश्मीर एक्सपो-स्थानीय स्टार्टअप्स के उद्यमीय कौशल, अभिनव उत्पादों और नवाचारों को बड़े पैमाने पर लोगों तक पहुँचाने में भूमिका निभाएगा। डॉ. गुप्ता ने कहा कि इस प्रदर्शनी में स्टार्टअप्स को बढ़ावा देने के लिए



सरकार के व भन्न वभागों द्वारा प्रदान की जाने वाली सहायता के बारे में भी जानकारी प्रदान की गई है।

इस अवसर पर, सौरभ भगत, स चव, वज्ञान एवं प्रौद्योगिकी वभाग, जम्मूकश्मीर-; डॉ डी . श्रीनिवास रेड्डी, निदेशक, सीएसआईआरआईआईआईएम-, जम्मू; और कई अन्य गणमान्य व्यक्ति, नवप्रवर्तनकर्ता और उद्यमी-, शोधार्थी और छात्र उपस्थित थे। (इं डया साइंस वायर)





जम्मूकश्मीर में कृष प्रौद्योगिकी स्टार्टअप के लिए अपार - डॉ जितेंद्र सिंह :संभावनाएं

इंडिया साइंस वायर | Nov 10, 2022 7:39PM



डॉ सिंह ने कहा, जैवअर्थव्यवस्था राष्ट्र की आर्थिक समृद्धि में महत्वपूर्ण भूमिका निभाने जा रही है। - बहुत सारी प्रतिभाएँ आउटलेट खोज रही हैं, और कश्मीर एक्स्पो उन्हें वह आउटलेट प्रदान करने का अवसर लेकर आया है।

जम्मूकश्मीर की भौगोलिक परिस्थितियाँ और जलवायु औषधीय एवं सुगंधित पौधों की - खेती के लिए अनुकूल हैं। इसी लिए, यहाँ कृष प्रौद्योगिकी स्टार्टअप की अपार संभावनाएं हैं। श्रीनगर में बुधवार को स्टार्टअप केंद्रित कश्मीरएक्स्पो का उद्घाटन करते हुए - और (स्वतंत्र प्रभार) केंद्रीय विज्ञान और प्रौद्योगिकी एवं पृथ्वी विज्ञान राज्यमंत्री



पीएमओ, कार्मक, लोक शकायत, पेंशन, परमाणु ऊर्जा और अंतरिक्ष राज्यमंत्री, डॉ जितेंद्र सिंह ने यह बात कही है।

भारत सरकार के वज्ञान और प्रौद्योगिकी विभाग की पहल पर 09 से 11 नवंबर तक चलने वाली यह तीन दिवसीय प्रदर्शनी शेरकश्मीर विश्व विद्यालय में आयोजित की गई है। उद्घाटन कार्यक्रम के दौरान उर्दू और कश्मीरी में सात पुस्तकें और दो मासिक कश्मीरी - वज्ञान न्यूजलेटर्स में 'गाश' और उर्दू में 'तज्जसुस' का विमोचन भी किया गया।

कश्मीर एक्सपो का उद्देश्य स्थानीय युवाओं को स्टार्टअप की ओर आकर्षित करना है, जिससे जम्मूकश्मीर और आसपास के क्षेत्रों में उद्यमिता और आत्मनिर्भरता के अवसरों को बढ़ावा मिल सके। इस आयोजन के माध्यम से स्थानीय संसाधनों के उपयोग पर आधारित स्टार्टअप उद्यमों और नवोन्मेषी युवाओं की क्षमता निर्माण के लिए प्रभावी मंच उपलब्ध कराने का प्रयास किया जा रहा है।

इस दौरान 50 स्टार्टअप्स अपने उत्पादों और सेवाओं का प्रदर्शन कर हैं, जिससे क्षेत्र के युवाओं को संसाधनों के कुशलतम उपयोग के लिए प्रेरित किया जा सके, और उनकी व्यक्तिगत क्षमता निर्माण के माध्यम से राष्ट्र निर्माण में उनके प्रभावी योगदान को सुनिश्चित किया जा सके। प्रदर्शित की जा रही स्टार्टअपआजीविका परियोजनाओं में साथ आसपास के राज्यों और देश-कश्मीर के साथ-जम्मूके अन्य हिस्सों से आये लोग शामिल हैं।

डॉ जितेंद्र सिंह ने कश्मीर के लिए नवाचारों और स्टार्टअप्स में अधिक अवसर पैदा करने पर जोर दिया है। उन्होंने उल्लेख किया कि इस क्षेत्र में प्रचुर मात्रा में प्रतिभा और संसाधन हैं, लेकिन समय की आवश्यकता है कि इन संसाधनों का उपयोग लोगों के कल्याण के लिए किया जाए ताकि उनके जीवन को सुवधाजनक और आसान बनाया जा सके।

डॉ सिंह ने कहा, जैवअर्थव्यवस्था राष्ट्र की आर्थिक समृद्धि में महत्वपूर्ण भूमिका निभाने जा रही है। बहुत सारी प्रतिभाएँ आउटलेट खोज रही हैं, और कश्मीर एक्सपो उन्हें वह आउटलेट प्रदान करने का अवसर लेकर आया है। युवाओं को अपनी प्रतिभा का उपयोग



करना चाहिए और ऐसे अवसरों का लाभ उठाना चाहिए। केंद्रीय मंत्री ने उल्लेख किया कि कश्मीर कैसे कृषि स्टार्टअप का केंद्र बन सकता है, और भारत सरकार स्थायी आजीविका के लिए स्थायी स्टार्टअप बनाने के लिए किस प्रकार पहल कर रही है। उन्होंने कहा कि भविष्य युवाओं का है, और यह उन पर निर्भर है कि वे अपने भविष्य को और अधिक उत्पादक बनाएं।

डॉ. जितेंद्र सिंह ने भविष्य के दृष्टिकोण के लिए प्रधानमंत्री नरेन्द्र मोदी को श्रेय दिया, जिन्होंने 2015 में स्वतंत्रता दिवस के अवसर पर लाल कले की प्राचीर से स्टार्टअप इंडिया, स्टैंडअप इंडिया का आह्वान किया था, जिससे लोगों की अभिरूचि बढ़ी, और भारत में स्टार्टअप की संख्या, जो 2014 में केवल 350 थी, वह 2022 में बढ़कर 100 से ज्यादा यूनिकॉर्न के साथ 80 हजार के पार पहुँच चुकी है। केंद्रीय मंत्री ने कृषि प्रौद्योगिकी स्टार्टअप की स्थापना के लिए डीबीटी और सीएसआईआर के माध्यम से पूर्ण सहयोग देने की प्रतिबद्धता भी व्यक्त की है।

विज्ञान और प्रौद्योगिकी विभाग के सचिव डॉ. श्रीवरी चंद्रशेखर ने बताया कि कैसे इन स्टार्टअप को उनके नवाचारों के वर्णन और रोजगार पैदा करने के लिए समर्थन दिया जाएगा। उन्होंने अपने क्षतिज का विस्तार करने की आवश्यकता पर भी जोर दिया ताकि उनके उत्पाद क्षेत्र के बाहर पहुँच सकें।

कश्मीर केंद्रीय विश्वविद्यालय के कुलपति प्रोफारूक अहमद शाह ने पुस्तकों और समाचार पत्रों के प्रकाशन से संबंधित प्रयासों की सराहना की और आशा व्यक्त की है कि उर्दू और कश्मीरी में विज्ञान को लोकप्रिय बनाने के लिए इस तरह के उपयोगी तथा दिलचस्प संसाधन बढ़ेंगे।

विज्ञान प्रसार के निदेशक डॉ. नकुल पाराशर ने न्यूजलेटर 'गाश' एवं 'तज्जसुस' सहित कश्मीरी और उर्दू में अन्य प्रकाशनों के माध्यम से कश्मीरी और उर्दू बोलने वाली आबादी तक पहुँचने के लिए स्कोप (SCOPE) परियोजना सचिवालय के प्रयासों को सराहा है। उन्होंने कहा कि इस तरह की विज्ञान आधारित सामग्री को अधिक विकसित किया जाएगा, और उसे आम जनता के लिए सुलभ बनाया जाएगा, जिससे समाज को हर तरह से लाभ होगा।



वज्ञान और प्रौद्योगिकी विभाग से सम्बद्ध राष्ट्रीय वज्ञान और प्रौद्योगिकी उद्यमता विकास बोर्ड की प्रमुख एवं सलाहकार डॉ अनीता गुप्ता ने कहा है कि कश्मीरएक्स्पोजे - स्थानीय स्टार्टअप्स के उद्यमीय कौशल, अभिनव उत्पादों और नवाचारों को बड़े पैमाने पर लोगों तक पहुँचाने में भूमिका निभाएगा। डॉ गुप्ता ने कहा कि इस प्रदर्शनी में स्टार्टअप्स को बढ़ावा देने के लिए सरकार के विभिन्न विभागों द्वारा प्रदान की जाने वाली सहायता के बारे में भी जानकारी प्रदान की गई है।

इस अवसर पर, सौरभ भगत, सचिव, वज्ञान एवं प्रौद्योगिकी विभाग, जम्मूकश्मीर-; डॉ डी . श्रीनिवास रेड्डी, निदेशक, सीएसआईआरआईआईआईआईएम-, जम्मू; और कई अन्य गणमान्य व्यक्ति, नवप्रवर्तनकर्ता और उद्यमी-, शोधार्थी और छात्र उपस्थित थे।

(इं डया साइंस वायर)



“Bio-economy to play a key role in economic prosperity of the nation”-Dr Jitendra Singh

By [India Science Wire](#) [November 12, 2022](#) in [Science](#)



Union Minister of State (Ind. Charge) Science & Technology (Ind. Charge); Earth Sciences; PMO, PP/DoPT, Atomic Energy, and Space Dr Jitendra Singh inaugurated the three-day Kashmir Expo-startup for livelihood yesterday at the Sher-i-Kashmir International Convention Center (SKICC), Srinagar. Seven books in Urdu and Kashmiri and two monthly science newsletters: Gaash in Kashmiri and Tajassus in Urdu were also released during the event.

Fifty startups showcased their products and services to inspire the region’s youth to utilize the resources and channel their potentialities and capacities to grow personally and contribute to nation-building.

Dr Srivari Chandrasekhar, Secretary, Department of Science and Technology, Govt. of India, stated how these start-ups would be supported to market their innovations and generate employment. He also emphasized the need to expand their horizon so that their products reach outside the region.

Prof. Farooq Ahmad Shah, Vice Chancellor of Central University of Kashmir, lauded the efforts in bringing out the books and newsletters and hoped more such useful and interesting resources would be created to popularize science in Urdu and Kashmiri.

Dr Nakul Parashar, Director, Vigyan Prasar, appraised every one of the efforts and hard work of Vigyan Prasar's project SCoPE secretariat in catering to the Kashmiri and Urdu populace by publishing monthly newsletters Gaash and Tajassus and other original publications in Kashmiri and Urdu. He further mentioned that more such content would be developed and made accessible to the common masses which will benefit society in all terms.

Chief Guest of the event Dr Jitendra Singh, stressed creating more avenues in innovations and startups for Kashmir as the region lags in terms of exposure and channelization of sources. He mentioned that the region has abundant talent and resources, but the need of the hour is to utilize resources for the welfare of people to make their lives convenient and easy.

“There is so much talent waiting to find an outlet, and Kashmir expo is one of its kind to provide that outlet. We must make use of our intelligence and talent. Bio-economy is going to play a key role in economic prosperity of the nation,” he said.

The Union Minister mentioned how Kashmir could become an agri-hub of startups and how the Government of India is taking initiative to create sustainable startups for sustainable livelihoods. He also stated that the future belongs to youth, and it is up to them to make their future more productive.

Dr Anita Gupta, Advisor and Head (Innovation and entrepreneurship) NSTEDB, DST; Shri Saurabh Bhagat, Secretary, S&T Department J&K; Dr D. Srinivasa Reddy,

Director, CSIR-IIIM, Jammu; and several other dignitaries, innovators and entrepreneurs, scholars and students from Jammu and Kashmir attended the inaugural function.





New Delhi: “Bio-economy to play a key role in economic prosperity of the nation”-Dr Jitendra Singh

News नवंबर 10, 2022

New Delhi: (India Science Wire): Union Minister of State (Ind. Charge) Science & Technology (Ind. Charge); Earth Sciences; PMO, PP/DoPT, Atomic Energy, and Space Dr Jitendra Singh inaugurated the three-day Kashmir Expo-startup for livelihood yesterday at the Sher-i-Kashmir International Convention Center (SKICC), Srinagar. Seven books in Urdu and Kashmiri and two monthly science newsletters: Gaash in Kashmiri and Tajassus in Urdu were also released during the event. Fifty startups showcased their products and services to inspire the region’s youth to utilize the resources and channel their potentialities and capacities to grow personally and contribute to nation-building.

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Prof. Farooq Ahmad Shah, Vice Chancellor of Central University of Kashmir, lauded the efforts in bringing out the books and newsletters and hoped more such useful and interesting resources would be created to popularize science in Urdu and Kashmiri. Dr Nakul Parashar, Director, Vigyan Prasar, appraised every one of the efforts and hard work of Vigyan Prasar's project SCoPE secretariat in catering to the Kashmiri and Urdu populace by publishing monthly newsletters Gaash and Tajassus and other original publications in Kashmiri and Urdu. He further mentioned that more such content would be developed and made accessible to the common masses which will benefit society in all terms.

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“There is so much talent waiting to find an outlet, and Kashmir expo is one of its kind to provide that outlet. We must make use of our intelligence and talent. Bio-economy is going to play a key role in economic prosperity of the nation,” he said. The Union Minister mentioned how Kashmir could become an agri-hub of



startups and how the Government of India is taking initiative to create sustainable startups for sustainable livelihoods. He also stated that the future belongs to youth, and it is up to them to make their future more productive.

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Bio-Economy to Play a Key Role in Economic Prosperity of the Nation-Dr Jitendra Singh

Fifty startups showcased their products and services to inspire the region's youth to utilize the resources.

By ISW Desk on Nov 11, 2022

Union Minister Dr Jitendra Singh inaugurated the three-day Kashmir Expo-startup for livelihood yesterday at the Sher-i-Kashmir International Convention Center (SKICC), Srinagar. Seven books in Urdu and Kashmiri and two monthly science newsletters: Gaash in Kashmiri and Tajassus in Urdu, were also released during the event.



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Dr Srivari Chandrasekhar, Secretary, Department of Science and Technology, Govt. of India, stated how these start-ups would be supported to market their innovations and generate employment. He also emphasized the need to expand their horizon so that their products reach outside the region.

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Chief Guest of the event Dr Jitendra Singh stressed creating more avenues in innovations and startups for Kashmir as the region lags in terms of exposure and channelization of sources. He mentioned that the region has abundant talent and resources, but the need of the hour is to utilize resources for the welfare of people to make their lives convenient and easy.

“There is so much talent waiting to find an outlet, and the Kashmir expo is one of its kind to provide that outlet. We must make use of our intelligence and talent. Bio-economy is going to play a key role in the nation's economic prosperity,” he said.

The Union Minister mentioned how Kashmir could become an agri-hub of startups and how the Government of India is taking the initiative to create sustainable startups for sustainable livelihoods. He also stated that the future belongs to youth, and it is up to them to make their future more productive.

Dr Anita Gupta, Advisor and Head (Innovation and entrepreneurship) NSTEDB, DST; Shri Saurabh Bhagat, Secretary, S&T Department J&K; Dr D. Srinivasa Reddy,



Director, CSIR-IIIM, Jammu; and several other dignitaries, innovators and entrepreneurs, scholars and students from Jammu and Kashmir attended the inaugural function.



नई दिल्ली। फरीदाबाद स्थित राष्ट्रीय लाइफ साइंस डेटा केंद्र देश को समर्पित।

News नवंबर 11, 2022

नई दिल्ली (इंडिया साइंस वायर: (केंद्रीय राज्य मंत्री (स्वतंत्र प्रभार) वज्ञान और प्रौद्योगिकी मंत्रालय; राज्य मंत्री पृथ्वी वज्ञान मंत्रालय (स्वतंत्र प्रभार); राज्य मंत्री पीएमओ, कार्मिक, लोक शकायत, पेंशन, अंतरिक्ष और परमाणु ऊर्जा, डॉ जितेंद्र सिंह ने फरीदाबाद, हरियाणा में निर्मित राष्ट्रीय लाइफ साइंस डेटा केंद्र इंडियन - बायोलॉजिकल डेटा सेंटर (IBDC) बृहस्पतिवार को राष्ट्र को समर्पित कर दिया है।

राष्ट्रीय सूचना वज्ञान केंद्र (एनआईसी), भुवनेश्वर स्थित डेटा 'आपदा रिकवरी' साइट के साथ जैव प्रौद्योगिकी विभाग के सहयोग से आईबीडीसी की स्थापना क्षेत्रीय जैव प्रौद्योगिकी (डीबीटी) केंद्र (आरसीबी), फरीदाबाद में की गई है।



इस केंद्र के उद्घाटन के अवसर पर, डॉ जितेंद्र सिंह ने कहा क भारत सरकार के जैव प्रौद्योगिकी-गर्व निर्देशों के अनुसार भारत में सार्वजनिक रूप से वक्त-दिशा (प्राइड-बायोटेक) पोषत अनुसंधान से उत्पन्न सभी लाइफ साइंस डेटा को संग्रहीत करना आईबीडीसी के लए अनिवार्य कया गया है।

आईबीडीसी में लगभग चार पेटाबाइट डेटा भंडारण क्षमता है, और इसमें उच्च प्रदर्शन कंप्यूटिंग सुवधा (एचपीसी)'ब्रह्म' भी शामिल है। गहन कम्प्यूटेशनल वश्लेषण में रुच रखने वाले शोधकर्ताओं के लए आईबीडीसी में कम्प्यूटेशनल आधारभूत ढांचा भी उपलब्ध (इंफ्रास्ट्रक्चर) कराया गया है।

डॉ जितेंद्र सिंह ने बताया क आईबीडीसी ने दो डेटा पोर्टलों के माध्यम से न्यूक्लियोटाइड डेटा सव्मिशन सेवाएं शुरू की हैं। 'इं डयन न्यूक्लियोटाइड डेटा आर्काइव (आईएनडीए)' तथा 'इं डयन न्यूक्लियोटाइड डेटा आर्काइव(सीए-आईएनडीए) कंट्रोलड एक्सेस-' भारत की 50 से अधिक प्रयोगशालाओं की दो लाख से अधिक प्रस्तुतियों से, 200 बिलियन से अधिक आधार एकत्रित कर चुके हैं।

यह केंद्र आईएनएसएसीओजी (INSACOG) प्रयोगशालाओं से उत्पन्न जीनोमिक निगरानी डेटा के लए एक ऑनलाइन 'डैशबोर्ड' की भी व्यवस्था करता है। यह डैशबोर्ड पूरे देश में अनुकूलत डेटा प्रस्तुतिकरण (सव्मिशन), पहुँच (एक्सेस), डेटा वश्लेषण सेवाएं और रीयल-टाइम सार्स कोव-2 वायरस निगरानी सुवधा प्रदान करता है। वज्ञान और प्रौद्योगिकी मंत्रालय के वक्तव्य में बताया गया है क अन्य डेटा प्रकारों के लए भी डेटा सव्मिशन और एक्सेस पोर्टल वकसत कए जा रहे हैं, और उन्हें शीघ्र ही प्रारम्भ कर दिया जाएगा।

गहन कम्प्यूटेशनल वश्लेषण से जुड़े शोधकर्ता डेटा केंद्र का उपयोग करने के लए अपने अनुरोध support@ibdc.rcb.res.in पर भेजकर केंद्र से संपर्क कर सकते हैं। आईबीडीसी डेटा जमा करने में उपयोगकर्ताओं की सहायता के लए नियमित कार्यशालाएं और ऑरिएंटेशन कार्यक्रम भी आयोजित करता है। आईबीडीसी में डेटा जमा करने के लए वीडियो ट्यूटोरियल डेटा सेंटर की वेबसाइट पर उपलब्ध हैं।

(इं डया साइंस वायर)



New Delhi: National conclave to empower tribal community through S&T innovation

News नवंबर 12, 2022

New Delhi (India Science Wire): IIT Guwahati is hosting a two-day National Conclave on 11-12 November to showcase various ways of empowering tribal communities through Science & Technology interventions. The event commemorates Janjatiya Gaurav Diwas (National Tribal Day), observed on 15th November. The conclave was inaugurated in the presence of Union Minister of Tribal Affairs, Arjun Munda. The Union Minister of State (Independent Charge) Science & Technology; Minister of State (Independent Charge) Earth Sciences, Minister of State PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr Jitendra Singh, virtually presided over the inaugural ceremony.

The National Conclave on 'Science & Technology Empowerment of Tribal Community' conclave will bring out strategies and recommendations for strengthening the institutional and Human Capacity (both at community and individual levels) for the comprehensive development of Tribal Communities through Science and Technology.

Dr Jitendra Singh, said, "This is the first time in the country, on such a large scale, the contribution of the Department of Science and Technology (DST) for the empowerment of tribal communities in different walks of their lives and livelihoods is being showcased. I am happy to declare that DST is launching a special programme for "Accelerated Development of Particularly Vulnerable Tribal Groups" as a part of Azadi ki Amrit Mahotsav.





“While science is universal, technology must be local to provide solutions relevant to local needs and conditions. DST has developed, deployed and disseminated many locally relevant, proven technologies to solve the problems of economically weaker Scheduled Tribe (ST) communities, especially in rural areas, through the application of science and technology,” said Dr Singh.

“It is need of the hour to incorporate scientific and technological interventions for the empowerment of tribal community. DST is spearheading around 75 such science, technology and innovation hubs in different parts of the country that directly benefit the students from the tribal communities; providing techno interventions in agriculture, resource management, and micro enterprises development among others. I hope this national conclave will build a strong foundation for further development of the tribal communities through science and technology”, said Arjun Munda, the Union Minister of Tribal Affairs.

The two-day event will showcase DST’s various initiatives in empowering tribal communities through science, technology and innovation while deliberating on the challenges and opportunities for empowering their lives and livelihoods.

The conclave is attended by stakeholders from knowledge organisations, research & development labs, civil society, social entrepreneurs, grassroots innovators, beneficiaries, and change makers from tribal communities. The highlights of the conclave include roundtable discussion by Vice Chancellors of Tribal Universities, technical sessions, change-makers conclave, and exhibition on S&T Innovations. Prof. T.G. Sitharam, Director, IIT Guwahati, said, “The theme of this National Conclave aligns with IIT Guwahati’s mission to provide technological solutions for challenges faced by a diverse population of the North East region.

“As part of the Prime Minister, Narendra Modi’s vision for 'Jai Jawan, Jai Kisan, Jai Vigyan, Jai Anusandhan', we are working towards making a social impact by providing developmental solutions in niche areas to enhance the life quality at all levels,” Prof Sitharam stated.

The conclave is being organised by DST, and Ministry of Tribal Affairs (MoTA), Govt. of India, in collaboration with IIT Guwahati; North-East Centre for Technology Application and Reach (NECTAR), Shillong; Assam Science & Technology and Environment Council (ASTECC), Guwahati; Institute of Advanced Study in Science and Technology, Guwahati; and Vigyan Prasar, New Delhi.

(India Science Wire)



National Conclave to Empower Tribal Community through S&T Innovation

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By ISW Desk On Nov 12, 2022

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India Joins Mangrove Alliance for Climate

India is home to one of the world's largest remaining areas of mangroves- the Sundarbans.

By Team DP On Nov 12, 2022

Union Minister for Environment, Forest, and Climate Change, Bhupender Yadav has said that India is home to one of the world's largest remaining areas of mangroves- the Sundarbans, and has extensive experience in mangrove restoration that can be used to aid global measures. He spoke at the Mangrove Alliance for Climate (MAC) launch event, held on the sidelines of the ongoing COP 27 at Sharm El-Sheikh, Egypt.



MAC is an intergovernmental alliance that seeks to expand and hasten the progress toward the conservation and restoration of mangrove ecosystems. India is among



the first five countries to join the MAC, other than Australia, Japan, Spain, and Sri Lanka. The action aims to scale up and accelerate the conservation and restoration of the mangrove forests.

India has adopted three strategies for managing mangrove forests; promotion, regulatory, and participatory. As per the 2021 India State of Forest Report, the states that show gain in mangrove cover are Odisha (8 sq. km) and Maharashtra (4 sq. km).

India has mangrove forests along more than 30% of its coastline. Nearly 50% of the country's mangrove forests are in the Sundarbans. This region is home to 58 species of mammals, 55 species of reptiles, and around 248 bird species, along with a human population of 12 million in the greater Sundarbans region.

These coastal trees (Mangroves) help mitigate damage from extreme storms like cyclones and monsoons. Mangrove forests can store ten times more carbon per hectare than terrestrial forests. Also, they can store carbon up to 400 per cent faster than land-based tropical rainforests.

Global Mangrove Alliance (GMA) reports when the mangroves are cut, the carbon stored in these plants gets released into the air. However, once the plants die, they take the stored carbon into the soil, called the "Blue Carbon". Therefore, it is essential to develop awareness among the people in the regions to preserve the trees and keep the carbon emissions levels low.

As part of the MAC, India's efforts are expected to increase in its natural regeneration and planned plantation activities. Steps adopted by individual states must be replicated by other states and regions globally to protect and regenerate mangroves.

The Ministry of Environment, Forest and Climate Change, Govt of India, has taken several steps to protect, sustain, conserve, and augment forests in the country through promotional and regulatory measures.



“India has committed in its NDC (Nationally Determined Contribution) - to create an additional carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent through additional forest and tree cover by 2030,” Bhupender Yadav said.



New Delhi: First 3D printer for implant-grade silicone

News नवंबर 11, 2022

New Delhi (India Science Wire):The Indian Institute of Science (IISc) Bengaluru's Center for BioSystem Science and Engineering (BSSE) has collaborated with a startup Prayasta to bring up a state-of-the-art 3D printer that can 3D print medical implant grade silicone. Prayasta has developed this 3D printer in-house with support grants from various government agencies, including Nidhi Prayas (Department of Science & Technology Government of India), Biotech Ignition Grant (Biotechnology Industry Research Assistance Council), Design Clinic Scheme (MSME Center of Excellence Indian Institute of Science Bangalore), Tide 2.0 Meity Startup Hub (Ministry of Electronics & Information Technology), Elevate Call 2 Startup Karnataka (Department of Electronics, IT, BT, S&T).





Silimac P250

The conventional 3D printer cannot use implant-grade silicone to make medical silicone implants because traditional 3D printers either use a filament or a powdered material. The natural form of the 'implant-grade' silicone is a liquid (of high viscosity) and cannot be converted to a filament or a powder. Hence, conventional 3D printers cannot use 'implant-grade' silicone.

The 3D printer developed by Prayasta has been named Silimac P250, the world's first 3D printer to make medical-grade silicone implants. The startup has also developed its key technology- iEAM. Silimac P250 can be used for personalised

implants and prostheses for all soft tissues, including breast, nose, chin, ear, lip, windpipe, food pipe, calf, pectoral etc. It is an industrial-level machine that works reliably and uninterruptedly for long production hours. It can hold up to 14,000 mL of silicone in a single refill and is production-scale-ready.

Silimac P250 has an in-built UV sterilisation for the print chamber and a contamination-free support system. The implants made by Silimac P250 are based on a Novel Internal Architecture (NIA) design methodology, which makes the implants rupture-safe with reduced risk of post-implantation displacements. The implants made by this 3D printer are personalised and are weight balanced.

Personalised shapes & sizes with perfectly symmetric appearances lead to more confidence and less anxiety in personal, professional, and social environments. Moreover, Silimac P250 can be directly installed in hospitals providing facilities to make personalised silicone implants within the hospital.

Shilpi Sen, CEO & Co-Founder of Prayasta, said that animal trials followed by human trials of Silimac P250 would begin soon. Prayasta has also received the Technology Startup Awards 2022 from the Department of Science and Technology(DST), Government of India, on National Technology Day 2022 for developing indigenous technology with potential for commercialisation.



First 3D printer for implant-grade silicone

The conventional 3D printer cannot use implant-grade silicone to make medical silicone implants because traditional 3D printers either use a filament or a powdered material

By **BioVoice News Desk** - November 15, 2022



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BSSE, Prayasta partner to make first 3D printer for implant-grade silicone

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India Science Wire 2:11 PM, 12 November, 2022



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First 3D printer for implant-grade silicone

By [India Science Wire](#) [November 14, 2022](#) in [Science](#)



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First 3D Printer for Implant-Grade Silicone

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By ISW Desk on Nov 13, 2022

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Silimac P250 can be used for personalised implants and prostheses for all soft tissues, including the breast, nose, chin, ear, lip, windpipe, food pipe, calf, pectoral etc. It is an industrial-level machine that works reliably and uninterruptedly for long production hours. It can hold up to 14,000 mL of silicone in a single refill and is production-scale-ready.



Silimac P250 has an in-built UV sterilisation for the print chamber and a contamination-free support system. The implants made by Silimac P250 are based on a Novel Internal Architecture (NIA) design methodology, which makes the implants rupture-safe with reduced risk of post-implantation displacements. The implants made by this 3D printer are personalised and are weight balanced.

Personalised shapes & sizes with perfectly symmetric appearances lead to more confidence and less anxiety in personal, professional, and social environments. Moreover, Silimac P250 can be directly installed in hospitals providing facilities to make personalised silicone implants within the hospital.

Shilpi Sen, CEO & Co-Founder of Prayasta, said that animal trials followed by human trials of Silimac P250 would begin soon.

Prayasta has also received the Technology Startup Awards 2022 from the Department of Science and Technology(DST), Government of India, on National Technology Day 2022 for developing indigenous technology with potential for commercialisation.



‘Falcon Capital of the World’ records 178 bird species

TOPICS: Biodiversity Nagaland



A clockwise collage of birds which includes Red-billed Liocichla, Black-breasted Thrush, Mountain-Bamboo Partridge, Crested Finchbill and Rusty-capped Fulvetta. (Photo with courtesy: Albin Jacob/Macaulay Library)

POSTED BY: HASTAKSHEP NEWS 14 NOVEMBER 2022

TEBC A recent birding drive organised in Nagaland

New Delhi, Nov. 14th (India Science Wire): A recent birding drive - Tokhü Emong Bird Count (TEBC), organised in Nagaland during Tokhü Emong post-harvest festival of the Lotha Nagas, has documented a total of 178 bird species in the



state. Birders uploaded 84 checklists to [eBird](#), an online platform to record their observations.

This four-day drive organised on 04-07 Nov 2022 comprises 18 eBirders from the north-eastern state of Nagaland, known as the “Falcon Capital of the World”.

Birders from Dimapur, Kohima, Peren, and Wokha districts contributed to the lists. This birding event was organised in collaboration with the Wokha Forest Division and the Divisional Management Unit, Nagaland Forest Management Project (NFMP), Wokha, Nagaland and [Bird Count India](#).

A total of 72 species, including an exciting record of Brown Shrike, was reported on the first day of the drive. Seven species of warblers—Ashy-throated, Buff-barred, Yellow-browed, Dusky, Grey-cheeked, Greenish, and Yellow-bellied Warblers were reported. Second-day drive documented 104 species—that’s 32 more than on day one. This included Spot-breasted Parrotbill, and three species of partridge—Hill, Rufous-throated, and Mountain Bamboo-Partridge.

Multiple raptors were seen on the second day, which included Eurasian Sparrowhawk, Himalayan Buzzard, Oriental Scops-Owl and Amur Falcon. Also reported were ten warbler species—Ashy-throated, Buff-barred, Yellow-browed, Greenish, Yellow-bellied, Whistler’s, Blyth’s Leaf, Grey-hooded, Brown Bush, and Brownish-flanked Bush Warbler.

A total of 90 bird species were recorded on the third day of the drive. Asian Barred and Collared Owlet and three species of Scops-Owl—Mountain Scops-Owl, Collared Scops-Owl and Oriental Scops-Owl were documented on the third day. Interestingly, only four of the nine warbler species reported on the third day were also reported on 2nd day. It was a high turnover of species that left birders excited.



On the final day of TEBC, 86 bird species were reported, including three individuals of Black-tailed Crake. Eight species of bulbul - Black-crested, Crested Finchbill, Striated, Red-vented, Red-whiskered, Flavescent, Himalayan Black, Mountain Bulbul; four species of thrush - Long-billed, Black-breasted, Eyebrowed, Blue Whistling-Thrush; and three species of wagtail - Grey, Eastern Yellow, and White Wagtail, were observed on the last day of documentation drive.

“This initiative involves local communities to identify different species that are found in the state. Nagaland is a state with rich bird diversity. It is important to document and monitor bird populations to protect and conserve them,” -said Suman WM Sivachar, IFS, Divisional Forest Officer cum Divisional Management Unit Head, Wokha, Nagaland Forest Department.

An essential part of bird watching is finding and documenting unusual and rare birds in any given area. Birding is a rather unique enterprise in which birdwatchers contribute crucial information on the behaviour, distribution, and occurrence of bird species to ornithological knowledge. Nagaland birders have documented rich avian diversity during such a drive in this northeastern landlocked state.

The idea of such an event was to get people interested in birds, create awareness and celebrate the rich bird diversity of the state. Such events can help establish a benchmark against which future studies of avian populations can be compared. This is especially important given the widespread effects of climate change in North East India.

(India Science Wire)



178 bird species documented during first edition of TEBC

November 13, 2022



Clockwise: Red-billed Liocichla, Black-breasted Thrush, Mountain-Bamboo Partridge, Crested Finchbill and Rusty-capped Fulvetta. (Photos by Albin Jacob/Macaulay Library).

A four-day 'Tokhü Emong Bird Count' (TEBC), a first-of-its kind in Nagaland, was held from November 4 to 7 where 18 eBirders from Dimapur, Kohima, Peren and Wokha uploaded 84 checklists and recorded 178 species of birds. Informing this in a press note, program manager for Bird Count India Nature Conservation Foundation (NCF), Bangalore, Mittal Gala said during the first edition of TEBC- the bird count event was opened to public across India. Around 33 checklists came from regions outside Nagaland- Karnataka, Kerala, Maharashtra and



Tamil

Nadu.

Mittal said that though it was just a preliminary report, the final report would be published in December 2022. This was the very first time for Nagaland to hold a bird documentation event which was organised by the Wokha Forest Division and the Divisional Management Unit, Nagaland Forest Management Project (NFMP), and Bird Count India. The idea of such an event was to get people interested in birds, create awareness and celebrate the rich bird diversity of the state. Events such as these when conducted every year can also help in generating a baseline data to compare the year after year trends of our birds.

On day one (November 4), eight participants from three districts uploaded 29 checklists and reported a total of 72 species, including an interesting record of Brown Shrike. Seven species of warblers—Ashy-throated, Buff-barred, Yellow-browed, Dusky, Grey-cheeked, Greenish, Yellow-bellied Warbler were reported. On November 5, 10 birders uploaded 23 checklists and documented 104 species, this included Spot-breasted Parrotbill, three species of partridge- Hill, Rufous-throated, Mountain Bamboo-Partridge. Multiple raptors (not seen on Day 1) were spotted- Eurasian Sparrowhawk, Himalayan Buzzard, Oriental Scops-Owl and of course Amur Falcon.

The team also reported ten warbler species- Ashy-throated, Buff-barred, Yellow-browed, Greenish, Yellow-bellied, Whistler's, Blyth's Leaf, Grey-hooded, Brown Bush, Brownish-flanked Bush Warbler.

On November 6 Nov, being a Sunday, only three birders could participate and uploaded 22 checklists and recorded 90 species which included Asian Barred and Collared Owlet and three species of Scops-Owl- Mountain Scops, Collared Scops- and Oriental Scops-Owl.

Other than the usual species of warblers, babblers, scimitar-babblers and laughingthrushes were also recorded—Pin-striped Tit-, Golden, and Rufous-capped babblers; Red-billed, Streak-breasted, and White-browed scimitar-babblers; and Brown-capped, Blue-winged, Striped, Assam, Spot-breasted, and White-crested laughingthrushes.

On the final day TEBC, seven birders uploaded 10 checklists and reported 86 species, including three individuals of Black-tailed Crake! Birders observed eight



species of bulbul- Black-crested, Crested Finchbill, Striated, Red-vented, Red-whiskered, Flavescent, Himalayan Black, Mountain Bulbul; four species of thrush- Long-billed, Black-breasted, Eyebrowed, Blue Whistling-Thrush; and three species of wagtail- Grey, Eastern Yellow, White Wagtail. According to the organizers, TEBC will return next year, with the hope of having more influx of birders and enthusiasts across Nagaland.



178 species of birds have been recorded within the 'Falcon Capital of the World'

By Auto News Detail

NOV 15, 2022



The birding occasion was organized in collaboration with Wokha Forest Division and Divisional Administration Unit, Nagaland Forest Administration Venture, Wokha, Nagaland and Chook Rely India.





A clockwise collage of birds together with red-billed liosichla, black-breasted thrush, mountain-bamboo partridge, crested finchbill, and rusty-capped fulveta. (Photograph: Albin Jacob/Macaulay Library)

A current chook expedition - Tokhu Amongst Chook Rely (TEBC) carried out in Nagaland in the course of the Tokhu Amongst post-harvest competition of the Lotha Nagas has documented a complete of 178 chook species within the state. Birders uploaded 84 checklists to eBird, an internet platform for recording their observations.

The four-day expedition, to be held from November 4-7, 2022, includes 18 e-birders from the north-eastern state of Nagaland, referred to as the “Falcon Capital of the World”. Birds from Dimapur, Kohima, Peren and Wokha districts contributed to the record.

This birding occasion was organized by Wokha Forest Division and Divisional Administration Unit, Nagaland Forest Administration Venture (NFMP), Wokha, Nagaland and in affiliation with Chook Rely India.

A complete of 72 species together with an thrilling report of Brown Shrike had been reported on the primary day of the drive. Seven species of warblers - ash-throated, buff-barred, yellow-browed, dusky, grey-cheeked, greenish and yellow-bellied warblers had been reported.

The expedition on the second day documented 104 species - 32 greater than on the primary day. This included the spot-breasted parrotbill, and three species of partridge - hill, rufous-throated and mountain bamboo-partridge.

A number of raptors had been sighted on the second day, together with Eurasian sparrowhawks, Himalayan buzzards, Oriental scops-owls and Amur falcons. Additionally reported are ten warbler species - ash-throated, buff-barred, yellow-brooded, greenish, yellow-bellied, whistler, Blythe leaf, grey-hooded, brown bush and brownish-flanked bush warbler.

A complete of 90 species of birds had been recorded on the third day of the expedition. Asian barred and collared owls and three species of scops-owls - Mountain scops-owls, Collared scops-owls and Oriental scops-owls had been documented on the third day. Curiously, of the 9 warbler species reported on the third day, solely 4 had been additionally reported on the second day. It was a excessive turnover of species that excited birders.

On the ultimate day of TEBC, 86 chook species had been reported together with three people of black-tailed crake. eight species of bulbul - black-crested, crested finchbill, striated, red-vented, red-whiskered, flavescent, Himalayan black, mountain bulbul; 4 species of thrush - long-billed, black-breasted, eyebrowed, blue whistling-thrush; and three species of wagtails - gray, japanese yellow and white wagtails, had been sighted on the final day of the documentation expedition.



“The initiative includes native communities to determine the varied species discovered within the state. Nagaland is a state with wealthy chook variety. Documenting and monitoring chook populations is essential to guard and preserve them,” stated Suman WM Shivchar, IFS, Divisional Forest Officer-cum-Divisional Administration Unit Head, Wokha, Nagaland Forest Division.

An important part of chook watching is discovering and documenting uncommon and uncommon birds in a given space. Birding is a singular enterprise through which birdwatchers contribute essential info to ornithological data concerning the conduct, distribution, and incidence of chook species. Birders from Nagaland have documented the wealthy avian variety throughout such expeditions to this northeastern landlocked state.

The concept of such an occasion was to get folks all in favour of birds, create consciousness and rejoice the wealthy chook variety of the state. Such occasions will help set up a benchmark towards which future research of avian populations will be in contrast. That is particularly essential given the wide-ranging impacts of local weather change in North East India.**India Science Wire,**



Nagaland's Bird Count drive

👤 IASbaba 📅 November 16, 2022 0 Comments

In News: A recent 4-day birding drive called **Tokhü Emong Bird Count (TEBC)**, was organised in **Nagaland** during Tokhü Emong post-harvest festival of the **Lotha Nagas**.

- **Birding** is a unique enterprise in which birdwatchers contribute crucial information on the behaviour, distribution, and occurrence of bird species to ornithological knowledge.

About the event:

- Organised in collaboration with the **Wokha Forest Division**, Nagaland Forest Management Project, Wokha, Nagaland and **Bird Count India**.
- **Aim:** To get people interested in birds, create awareness, celebrate the rich bird diversity of the state and set a benchmark against which future studies of avian populations can be compared.
- This initiative **involves local communities** to identify different species that are found in the state.
- It has documented a total of **178 bird species** in the state.
- **eBird** is an online platform to record their observations.
- Nagaland is known as the “**Falcon Capital of the World**”.
- Species reported included:
- **Brown Shrike**



- **Warblers** – Ashy-throated, Buff-barred, Yellow-browed, Dusky, Grey-cheeked, Greenish, and Yellow-bellied Warblers, Whistler's, Blyth's Leaf, Grey-hooded, Brown Bush, and Brownish-flanked Bush Warbler.
- Spot-breasted **Parrotbill**
- **Partridge** – Hill, Rufous-throated, and Mountain Bamboo-Partridge.
- **Raptors** included Eurasian Sparrowhawk, Himalayan Buzzard, Oriental Scops-Owl and **Amur Falcon**.
- Asian Barred and Collared Owlet
- **Scops-Owl** – Mountain Scops-Owl, Collared Scops-Owl and Oriental Scops-Owl
- Black-tailed **Crake**.
- **Bulbul** – Black-crested, Crested Finchbill, Striated, Red-vented, Red-whiskered, Flavescent, Himalayan Black, Mountain Bulbul;
- **Thrush** – Long-billed, Black-breasted, Eyebrowed, Blue Whistling-Thrush
- **Wagtail** – Grey, Eastern Yellow, and White Wagtail.



About Bird Count India:



- Bird Count India is an **informal partnership** of organizations and groups working together to increase our collective knowledge about bird distributions and populations.
- The **eBird India portal** is managed by Bird Count India.

Source: [Down To Earth](#)



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‘Falcon Capital of the World’ records 178 bird species

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A clockwise collage of birds which includes Red-billed Liocichla, Black-breasted Thrush, Mountain-Bamboo Partridge, Crested Finchbill and Rusty-capped Fulvetta.(Photo: Albin Jacob/Macaulay Library)



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This four-day drive organised Nov 4-7, 2022 comprises 18 eBirders from the north-eastern state of Nagaland, known as the “Falcon Capital of the World”. Birders from Dimapur, Kohima, Peren, and Wokha districts contributed to the lists.

This birding event was organised in collaboration with the Wokha Forest Division and the Divisional Management Unit, Nagaland Forest Management Project (NFMP), Wokha, Nagaland and Bird Count India.

A total of 72 species, including an exciting record of Brown Shrike was reported on the first day of the drive. Seven species of warblers – Ashy-throated, Buff-barred, Yellow-browed, Dusky, Grey-cheeked, Greenish, and Yellow-bellied Warblers were reported.

Second day drive documented 104 species – that’s 32 more than on day one. This included Spot-breasted Parrotbill, and three species of partridge – Hill, Rufous-throated, and Mountain Bamboo-Partridge.

Multiple raptors were seen on the second day, which included Eurasian Sparrowhawk, Himalayan Buzzard, Oriental Scops-Owl and Amur Falcon. Also reported were ten warbler species – Ashy-throated, Buff-barred, Yellow-browed, Greenish, Yellow-bellied, Whistler’s, Blyth’s Leaf, Grey-hooded, Brown Bush, and Brownish-flanked Bush Warbler.

A total of 90 bird species were recorded on the third day of drive. Asian Barred and Collared Owlet and three species of Scops-Owl – Mountain Scops-Owl, Collared Scops-Owl and Oriental Scops-Owl were documented on the third day. Interestingly, only four of the nine warbler species reported on third day were also reported on 2nd day. It was a high turnover of species that left birders excited.



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“This initiative involves local communities to identify different species that are found in the state. Nagaland is a state with rich bird diversity. It is important to document and monitor bird populations to protect and conserve them,” said Suman WM Sivachar, IFS, Divisional Forest Officer-cum-Divisional Management Unit Head, Wokha, Nagaland Forest Department.

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‘Falcon capital of the world’ Nagaland records 178 bird species

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India Science Wire The Federal

7:58 PM, 17 November, 2022 Updated 8:00 PM, 17 November, 2022



A clockwise collage of birds which includes Red-billed Liocichla, Black-breasted Thrush, Mountain-Bamboo Partridge, Crested Finchbill and Rusty-capped Fulvetta. Photo: Albin Jacob/Macaulay Library

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Falcon Capital of the World' records 178 bird species --India Science Wire



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A clockwise collage of birds which includes Red-billed Liocichla, Black-breasted Thrush, Mountain-Bamboo Partridge, Crested Finchbill and ...

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By Team DP On Nov 15, 2022

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Collage of birds: Red-billed Liocichla, Black-breasted Thrush, Mountain-Bamboo Partridge, Crested Finchbill and Rusty-capped Fulvetta. (Photo: Albin Jacob/Macaulay Library)

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By [India Science Wire](#) [November 14, 2022](#) in [Science](#)



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New Delhi: Falcon Capital of the World' records 178 bird species

News नवंबर 14, 2022

New Delhi (India Science Wire): A recent birding drive - Tokhü Emong Bird Count (TEBC), organised in Nagaland during Tokhü Emong post-harvest festival of the Lotha Nagas, has documented a total of 178 bird species in the state. Birders uploaded 84 checklists to eBird, an online platform to record their observations. This four-day drive organised on 04-07 Nov 2022 comprises 18 eBirders from the north-eastern state of Nagaland, known as the "Falcon Capital of the World". Birders from Dimapur, Kohima, Peren, and Wokha districts contributed to the lists. This birding event was organised in collaboration with the Wokha Forest Division and the Divisional Management Unit, Nagaland Forest Management Project (NFMP), Wokha, Nagaland and Bird Count India.



A clockwise collage of birds which includes Red-billed Liocichla, Black-breasted Thrush, Mountain-Bamboo Partridge, Crested Finchbill and Rusty-capped Fulvetta.(Photo: Albin Jacob/Macaulay Library)

A total of 72 species, including an exciting record of Brown Shrike was reported on the first day of the drive. Seven species of warblers—Ashy-throated, Buff-barred, Yellow-browed, Dusky, Grey-cheeked, Greenish, and Yellow-bellied Warblers were reported. Second day drive documented 104 species—that’s 32 more than on day one. This included Spot-breasted Parrotbill, and three species of partridge—Hill, Rufous-throated, and Mountain Bamboo-Partridge.

Multiple raptors were seen on the second day, which included Eurasian Sparrowhawk, Himalayan Buzzard, Oriental Scops-Owl and Amur Falcon. Also reported were ten warbler species—Ashy-throated, Buff-barred, Yellow-browed, Greenish, Yellow-bellied, Whistler’s, Blyth’s Leaf, Grey-hooded, Brown Bush, and Brownish-flanked Bush Warbler. A total of 90 bird species were recorded on the third day of drive. Asian Barred and Collared Owlet and three species of Scops-Owl—Mountain Scops-Owl, Collared Scops-Owl and Oriental Scops-Owl were documented on the third day. Interestingly, only four of the nine warbler species reported on third day were also reported on 2nd day. It was a high turnover of species that left birders excited.



On the final day of TEBC, 86 bird species were reported, including three individuals of Black-tailed Crake. Eight species of bulbul - Black-crested, Crested Finchbill, Striated, Red-vented, Red-whiskered, Flavescent, Himalayan Black, Mountain Bulbul; four species of thrush - Long-billed, Black-breasted, Eyebrowed, Blue Whistling-Thrush; and three species of wagtail - Grey, Eastern Yellow, and White Wagtail, were observed on the last day of documentation drive.

This initiative involves local communities to identify different species that are found in the state. Nagaland is a state with rich bird diversity. It is important to document and monitor bird populations to protect and conserve them,” - said Suman WM Sivachar, IFS, Divisional Forest Officer cum Divisional Management Unit Head, Wokha, Nagaland Forest Department.

An essential part of bird watching is finding and documenting unusual and rare birds in any given area. Birding is a rather unique enterprise in which birdwatchers contribute crucial information on the behavior, distribution, and occurrence of bird species to ornithological knowledge. Nagaland birders have documented rich avian diversity during such a drive in this northeastern landlocked state.

The idea of such an event was to get people interested in birds, create awareness and celebrate the rich bird diversity of the state. Such events can help establish a benchmark against which future studies of avian populations can be compared. This is especially important given the widespread effects of climate change in North East India.

(India Science Wire)





DownToEarth | डाउन टू अर्थ

‘Falcon Capital of the World’ records 178 bird species

This birding event was organised in collaboration with the Wokha Forest Division and the Divisional Management Unit, Nagaland Forest Management Project, Wokha, Nagaland and Bird Count India

By [India Science Wire](#)

Published: Monday 14 November 2022



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total of 178 bird species in the state. Birders uploaded 84 checklists to [eBird](#), an online platform to record their observations.

This four-day drive organised Nov 4-7, 2022 comprises 18 eBirders from the north-eastern state of Nagaland, known as the “Falcon Capital of the World”. Birders from Dimapur, Kohima, Peren, and Wokha districts contributed to the lists.

This birding event was organised in collaboration with the Wokha Forest Division and the Divisional Management Unit, Nagaland Forest Management Project (NFMP), Wokha, Nagaland and [Bird Count India](#).

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The idea of such an event was to get people interested in birds, create awareness and celebrate the rich bird diversity of the state. Such events can help establish a benchmark against which future studies of avian populations can be compared. This is especially important given the widespread effects of climate change in North East India. **(India Science Wire)**



New Delhi: Workshop on Earthquake Risk Management

News नवंबर 14, 2022

New Delhi (India Science Wire): Earthquake is a natural disaster that cannot be predicted. However, seismologists can estimate where earthquakes may be likely to strike by calculating probabilities and forecasts. Scientists can get additional information by digging trenches to examine the geological record of earthquake ruptures in ancient history. Earthquakes, often followed by tsunamis if the epicentre is at the seabed, however, create colossal destruction and loss of life. That loss can be partially minimised by creating awareness among people of its mitigation tactics and risk management measures.

A five-day Training of Trainers Programme on Earthquake Risk Management: A Community-based Approach was inaugurated today at the National Council of Educational Research and Training (NCERT) Auditorium, New Delhi. This has been jointly organised by Vigyan Prasar, an autonomous organisation of the Department of Science and Technology, Government of India and the National Institute of Disaster Management (NIDM), Ministry of Home Affairs.



It is expected that the training would unveil pathways for more advanced training for urban preparedness along with the emergency response to earthquake and other such disasters. During the inaugural session, Dr A.A. Khan of NIDM explained the basic concepts of earthquake risk mitigation while interacting with the participants. Experts from varied fields will discuss pertinent issues like earthquake early warning systems, fire safety and mitigation, community response, psychological challenges and preparedness for disaster, structural and non-structural mitigation measures, earthquake-safe schools, etc.

A team of experts from NDRF will organise a session on First-aid and CPR after an earthquake to sensitise masses on the preventive measures. An important issue often overlooked during any disaster is 'communication and disaster risk management'. A session has been planned on this so that people understand the importance of keeping the communication effective and avoid creating panic or rumours. The workshop will end on 18 November.



Workshop on Earthquake Risk Management

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By ISW Desk On Nov 16, 2022

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समुद्र के बढ़ते जलस्तर और बारिश से संकट में मैंग्रोव आवास'

November 16, 2022 by Dialogue India

पारिस्थितिकी तंत्र से जुड़ी प्रक्रियाओं में मैंग्रोव सहायक होते हैं और तटीय पारिस्थितिक खतरों को कम करने में मदद करते हैं। लेकिन, जलवायु परिवर्तन, समुद्री जलस्तर में उतारचढ़ाव और -मानवीय गति व धरों के कारण मैंग्रोव कवर दुनियाभर में तेजी से सकुड़ रहा है। यही नहीं, मैंग्रोव आवास गंभीर रूप से संकटग्रस्त पारिस्थितिक तंत्रों में शामिल हो गए हैं।

एक नये अध्ययन में पता चला है कि वर्ष 2070 तक भारत के पूर्वी और पश्चिमी तट पर कई मैंग्रोव आवास क्षेत्र सकुड़कर भूमि की ओर स्थानांतरित हो सकते हैं। मैंग्रोव आवास क्षेत्रों के सकुड़ने के लिए शोधकर्ताओं ने बरसात और समुद्री जलस्तर में बदलाव को जिम्मेदार ठहराया है। पूर्वी तट पर चल्का एवं सुंदरबन और पश्चिमी घाट पर द्वारका तथा पोरबंदर क्षेत्रों में कये गए एक अध्ययन में यह बात उभरकर आयी है।

पूर्वानुमान मॉडल पर आधारित यह अध्ययन भारत सरकार के वज्ञान और प्रौद्योगिकी विभाग से सम्बद्ध लखनऊ स्थित (डीएसटी)बीरबल साहनी पुरा वज्ञान संस्थान (बीएसआईपी); अन्नामलाई विश्व विद्यालय, तमिलनाडु; एकेडेमी ऑफ साइंटिफिक एंड इनोवेटिव रिसर्च (AcSIR), गाजियाबाद; और इंस्टीट्यूट फॉर बायोडायवर्सिटी कन्जर्वेशन एंड ट्रेनिंग, बेंगलुरु के शोधकर्ताओं ने किया है। शोधकर्ताओं का कहना है कि यह अध्ययन मैंग्रोव आवास क्षेत्रों के संरक्षण के लिए प्रभावी रणनीति विकसित करने में उपयोगी हो सकता है।

शोधकर्ताओं ने दो मैंग्रोव प्रजातियों की अतीत और वर्तमान स्थिति के अध्ययन और भविष्य के पूर्वानुमान के लिए समूह प्रजाति वृत्तण मॉडल का उपयोग किया है। उन्होंने मैंग्रोव के उपयुक्त प्राकृतिक पर्यावास क्षेत्रों के क्षरण और भूमि की ओर इन क्षेत्रों के खसकने का अनुमान लगाया है। इसके साथ ही, अध्ययन में, अतीत के मैंग्रोव आवास क्षेत्र की सीमा का आकलन भी किया है जिसकी पुष्टि जीवाश्म पराग (Fossil Pollen) डेटा से की गई है।



शोधकर्ताओं का कहना है कि मैंग्रोव आवास क्षेत्रों के संरक्षण की आवश्यकता वाली पट्टियों की समय रहते पहचान जरूरी है। इसके लिए, भूस्थानिक मॉडलिंग तकनीकों का विकास समय की मांग है, जो तटरेखा पर समृद्ध मैंग्रोव जैव व वधता वाले क्षेत्रों के संरक्षण में विशेष रूप से उपयोगी हो सकती है। इस अध्ययन के निष्कर्ष तटीय आर्द्रभूमियों के संरक्षण और भारतीय साथ तटीय वनस्पतियों पर जलवायु परिवर्तन के प्रभाव को कम करने के समुद्र तट के साथ लिए चर्चित किये गए संवेदनशील स्थानों में शमन और अनुकूलन रणनीतियों के कार्यान्वयन में भी उपयोगी हो सकते हैं।

भारतीय समुद्री तटरेखा जलवायु और समुद्री जलस्तर में परिवर्तन के प्रभाव के प्रति संवेदनशील है। इसके बावजूद, तटीय आर्द्रभूमि की प्रजातियों के आकलन एवं प्रबंधन के उद्देश्य से बहुत प्रयास नहीं किये गए हैं। मैंग्रोव आवास क्षेत्रों के मानचित्रण के लिए सीमित शोध ही हुए हैं। इस अंतर को भरने के लिए, अध्ययन में तटीय आर्द्रभूमि प्रजातियों के रूप में मैंग्रोव पर जलवायु परिवर्तन के संभावित प्रभाव को प्रस्तुत करने का प्रयास किया गया है।

इस अध्ययन में, शोधकर्ताओं ने मैंग्रोव प्रजातियों के लोकेशन पॉइंट्स एकत्र किए हैं, और वर्ल्डक्लिम डेटाबेस से पर्यावरणीय डेटा प्राप्त किया है। अलग-अलग समय और क्षेत्र में विशिष्ट जलवायु परिस्थितियों में इन प्रजातियों के संभावित वृद्धि तथा प्राकृतिक पर्यावास उपयुक्तता के पूर्वानुमान के लिए एन्सेम्बल स्पीशीज मॉडल का उपयोग किया गया है।

यह अध्ययन भारत में प्रमुख मैंग्रोव प्रजातियों के उपयुक्त प्राकृतिक आवासों का मानचित्रण करके तटीय आर्द्रभूमि के संरक्षण के लिए एक मूल्यवान संसाधन उपलब्ध कराता है। अध्ययनकर्ताओं का कहना है कि संरक्षित क्षेत्रों में प्रभावी बफर जोन स्थापित करने से मुख्य संरक्षित क्षेत्र पर गैर-संरक्षित क्षेत्रों के प्रभाव को कम किया जा सकता है। उनका कहना है कि प्रभावी संरक्षण उपायों से मैंग्रोव प्रजातियों के विकास के साथसाथ संवेदनशील क्षेत्रों को अत्यधिक उपयुक्त आवास क्षेत्रों में रूपांतरित किया जा सकता है। यह अध्ययन, शोध पत्रिका [इकोलॉजिकल इन्फार्मेटिक्स](#) में प्रकाशित किया गया है। अध्ययनकर्ताओं में पुजारिनी सामल, ज्योति श्रीवास्तव, पूजा नितिन सर्राफ, बिपिन चार्ल्स और संगारसुब्रमण्यम एसआर शामिल हैं।



नई दिल्ली। 'समुद्र के बढ़ते जलस्तर और बारिश से संकट में मैंग्रोव आवास'

News नवंबर 15, 2022

नई दिल्ली (इंडिया साइंस वायर: (पारिस्थितिकी तंत्र से जुड़ी प्रक्रियाओं में मैंग्रोव सहायक होते हैं और तटीय पारिस्थितिक खतरों को कम करने में मदद करते हैं। लेकिन, जलवायु परिवर्तन, समुद्री जलस्तर में उतारचढ़ाव और मानवीय गति व धरों के कारण मैंग्रोव कवर दुनियाभर में तेजी से - सकुड़ रहा है। यही नहीं, मैंग्रोव आवास गंभीर रूप से संकटग्रस्त पारिस्थितिक तंत्रों में शामिल हो गए हैं। एक नये अध्ययन में पता चला है कि वर्ष 2070 तक भारत के पूर्वी और पश्चिमी तट पर कई मैंग्रोव आवास क्षेत्र सकुड़कर भूमि की ओर स्थानांतरित हो सकते हैं। मैंग्रोव आवास क्षेत्रों के सकुड़ने के लिए शोधकर्ताओं ने बरसात और समुद्री जलस्तर में बदलाव को जिम्मेदार ठहराया है। पूर्वी तट पर चल्का एवं सुंदरबन और पश्चिमी घाट पर द्वारका तथा पोरबंदर क्षेत्रों में किये गए एक अध्ययन में यह बात उभरकर आयी है।



पूर्वानुमान मॉडल पर आधारित यह अध्ययन भारत सरकार के वज्ञान और प्रौद्योगिकी विभाग (बीएसआईपी) से सम्बद्ध लखनऊ स्थित बीरबल साहनी पुरा वज्ञान संस्थान (डीएसटी); अन्नामलाई विश्व विद्यालय, तमिलनाडु; एकेडेमी ऑफ साइंटिफिक ऐंड इनोवेटिव रिसर्च (AcSIR), गाजियाबाद; और इंस्टीट्यूट फॉर बायोडायवर्सिटी कन्जर्वेशन ऐंड ट्रेनिंग, बेंगलुरु के शोधकर्ताओं ने किया है। शोधकर्ताओं का कहना है कि यह अध्ययन मैंग्रोव आवास क्षेत्रों के संरक्षण के लिए प्रभावी रणनीति विकसित करने में उपयोगी हो सकता है।

शोधकर्ताओं ने दो मैंग्रोव प्रजातियों की अतीत और वर्तमान स्थिति के अध्ययन और भविष्य के पूर्वानुमान के लिए समूह प्रजाति वृत्त मॉडल का उपयोग किया है। उन्होंने मैंग्रोव के उपयुक्त प्राकृतिक पर्यावास क्षेत्रों के क्षरण और भूमि की ओर इन क्षेत्रों के खसकने का अनुमान लगाया है। इसके साथ ही, अध्ययन में, अतीत के मैंग्रोव आवास क्षेत्र की सीमा का आकलन भी किया है जिसकी पुष्टि जीवाश्म पराग (Fossil Pollen) डेटा से की गई है। शोधकर्ताओं का कहना है कि मैंग्रोव आवास क्षेत्रों के संरक्षण की आवश्यकता वाली पट्टियों की समय रहते पहचान जरूरी है। इसके लिए, भू-स्थानिक मॉडल तकनीकों का विकास समय की मांग है, जो तटरेखा पर समृद्ध मैंग्रोव जैव-विविधता वाले क्षेत्रों के संरक्षण में विशेष रूप से उपयोगी हो सकती है। इस अध्ययन के निष्कर्ष तटीय आर्द्रभूमियों के संरक्षण और भारतीय समुद्र तट के साथसाथ तटीय वनस्पतियों पर जलवायु-परिवर्तन के प्रभाव को कम करने के लिए चिह्नित किये गए संवेदनशील स्थानों में शमन और अनुकूलन रणनीतियों के कार्यान्वयन में भी उपयोगी हो सकते हैं।

भारतीय समुद्री तटरेखा जलवायु और समुद्री जलस्तर में परिवर्तन के प्रभाव के प्रति संवेदनशील है। इसके बावजूद, तटीय आर्द्रभूमि की प्रजातियों के आकलन एवं प्रबंधन के उद्देश्य से बहुत प्रयास नहीं किये गए हैं। मैंग्रोव आवास क्षेत्रों के मानचित्रण के लिए सीमित शोध ही हुए हैं। इस अंतर को भरने के लिए, अध्ययन में तटीय आर्द्रभूमि प्रजातियों के रूप में मैंग्रोव पर जलवायु परिवर्तन के संभावित प्रभाव को प्रस्तुत करने का प्रयास किया गया है।

इस अध्ययन में, शोधकर्ताओं ने मैंग्रोव प्रजातियों के लोकेशन पॉइंट्स एकत्र किए हैं, और वर्ल्डक्लिम डेटाबेस से पर्यावरणीय डेटा प्राप्त किया है। अलग-अलग समय और क्षेत्र में विशिष्ट जलवायु-परिस्थितियों में इन प्रजातियों के संभावित वृत्त तथा प्राकृतिक पर्यावास उपयुक्तता के पूर्वानुमान के लिए एन्सेम्बल स्पीशीज मॉडल का उपयोग किया गया है। यह अध्ययन भारत में प्रमुख मैंग्रोव प्रजातियों के उपयुक्त प्राकृतिक आवासों का मानचित्रण करके तटीय आर्द्रभूमि के संरक्षण के लिए एक मूल्यवान संसाधन उपलब्ध कराता है। अध्ययनकर्ताओं का कहना है कि संरक्षित क्षेत्रों में प्रभावी बफर जोन स्थापित करने से मुख्य संरक्षित क्षेत्र पर गैर-संरक्षित क्षेत्रों के प्रभाव को कम किया जा



सकता है। उनका कहना है क प्रभावी संरक्षण उपायों से मेंगोव प्रजातियों के वकास के साथसाथ - संवेदनशील क्षेत्रों को अत्य धक उपयुक्त आवास क्षेत्रों में रूपांतरित कया जा सकता है ।

यह अध्ययन, शोध पत्रिका इकोलॉजिकल इन्फार्मेटिक्स में प्रका शत कया गया है। अध्ययनकर्ताओं में पुजारिनी सामल, ज्योति श्रीवास्तव, पूजा नितिन सराफ, बि पन चार्ल्स और संगारसुब्रमण्यम एसआर शा मल हैं।

(इं डया साइंस वायर)



New Delhi: Mission 'LiFE' for combating climate change

News नवंबर 16, 2022

New Delhi (India Science Wire): Currently, the world is amidst intense dialogue with one another on the defining global challenge humanity faces- climate change. This year, the ongoing 27th session of the Conference of the Parties (COP 27) of the United Nations Framework Convention on Climate Change (UNFCCC) is hosted by the Government of Egypt at Sharm-el-Sheikh from 06th-18th November 2022.

On this global platform, countries Party to the Convention have gathered to make concrete decisions and discuss further courses of action toward achieving the world's collective climate goals as agreed under the Paris Agreement and the Convention. Aligning with the Theme of COP27- 'Delivering for people and the planet' the conference brings together the countries and reinstates and delivers on the commitments made under the Paris Agreement for combating the grave challenges of our time; high greenhouse gas emissions, growing energy crisis, and rapidly increasing extreme weather events.

Countries must focus on concerted and collective actions and policies focused on building climate resilience and adaptation, reducing greenhouse gas emissions, promoting innovation and discovery of methods, sustainable practices, and technology, conserving and protecting nature and biodiversity, and delivering on the financial commitments for climate actions, mitigation, and adaptation. In the ongoing COP27, the Union Minister of Environment, Forest and Climate Change, Bhupender Yadav, inaugurated India Pavilion and conveyed India's commitment to combat climate change. He shared the vision of Prime Minister Narendra Modi on the mission 'LiFE- Lifestyle for Environment' to confront the issue of climate



change. LiFE, as explained by him, is adopting an environmentally conscious lifestyle, a pro-planet people approach.



India Pavilion at COP 27 held at Sharm-El-Sheikh, Egypt. Image Source- MoEFCC

Prime Minister Modi introduced LiFE in COP26 (held in Glasgow, United Kingdom, 2021), to unite individuals and communities to protect and preserve the environment. It embraces a sustainable lifestyle focused on 'mindful and deliberate utilization, instead of mindless and destructive consumption' to protect, conserve and preserve the environment.

During COP27, aligning with the theme of LiFE, the India pavilion emphasized the significance and need to adopt sustainable and eco-friendly lifestyles. Showcasing the sustainable practices adopted by Indian civilization for centuries, it underlined cohesive living- an integration of traditional knowledge values and practices in our daily life, which is in harmony with nature. A change in not only our outlook but also the way we choose to live is a prerequisite for tackling the issue of climate change.





Shri Bhupender Yadav, addressing the gathering about India LiFE Campaign at COP27, Egypt (Photo: MoEFCC)

Mission LiFE seeks to translate the vision into action to mobilize at least one billion Indians and other global citizens to take individual and collective action to protect and conserve the environment in 2022-28. It aims to make at least 80% of all villages and urban local bodies environment-friendly by 2028. Based on a collective approach to sustainability, the LiFE campaign is divided into three steps- (1) change in demand (promoting and encouraging environment-friendly actions at individual, community and global levels), (2) change in supply (promoting and encouraging industries to respond and develop tailor made environment-friendly solutions), and (3) change in policy (promoting and encouraging shift in industrial and government policies that support both sustainable consumption and production).

Given the global commitment to achieve the Sustainable Development Targets 2030, LiFE was launched in the 75th year of India's independence. A comprehensive and



non-exhaustive list of 75 measurable LiFE actions are listed under seven categories; energy saved, water saved, single-use plastic reduced, sustainable food systems adopted, waste reduced, healthy lifestyle adopted, and e-waste reduced.

India has been at the forefront and proactively marching towards its commitment to cooperate in combating climate change impacts that were collectively agreed upon under the UNFCCC, Kyoto Protocol, and Paris Agreement. Keeping to its duty of protecting India's interests while safeguarding the development needs based on the principles of United Nations Framework Convention on Climate Change (UNFCCC), India submitted its Long-Term Low-Carbon (Greenhouse Gas) Emission Development Strategy (LT-LED). The document entails India's vision, approach, and strategy in the short-term and long-term action plans for achieving Nationally Determined Contribution (NDC) goals by 2030 and the target of net zero emissions by 2070.

An inclusive and integrated approach based on Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC), climate justice and equity along with development in research and innovation, ease in technology transfer, effective utilization of climate financial resources for the development of new sustainable technologies, building climate adaptation and resilience, strengthening of governance and institutions for climate actions and reinforcing international cooperation are prerequisites and is imperative to fulfil the vision of climate-resilient and sustainable future. With its strategy of LiFE for confronting the challenge of climate change, India is moving ahead. It urges every individual and community, leaving no one behind, to move forward and together in this global mass movement.

(India Science Wire)

राजनीतिक पत्रिका
डायलॉग इंडिया
***** परिवर्तन की चाह - संवाद की राह



Mission 'LiFE' for combating climate change

November 17, 2022 by *Dialogue India*

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With its strategy of LiFE for confronting the challenge of climate change, India is moving ahead. It urges every individual and community, leaving no one behind, to move forward and together in this global mass movement. (India Science Wire)



New Delhi: eDNA-based assay to detect invasive catfish in waterbodies

News नवंबर 18, 2022

New Delhi (India Science Wire): Invasive alien species are a severe threat to biodiversity, causing local extinction of native species and impacting ecosystem services, human livelihood, economy, and health. The North African Sharptooth catfish is one such species that was illegally introduced in India for aquaculture purposes. Now the species has invaded most freshwater ecosystems. “The ecological damage is staggering that the Indian government has eventually banned this species from culturing and selling. Yet the control and management of this species is an uphill task, which requires the primary task of detecting the presence of this species in waterbodies and mapping its distribution,” said Govindhaswamy Umapathy, Senior Principal Scientist of Centre for Cellular and Molecular Biology (CSIR-CCMB).

While the conventional methods to detect invasive species, like using nets, traps, and visual observations, are cumbersome, the researchers from CCMB now have developed Environmental DNA (eDNA)-based molecular methods that provide a time and cost-effective alternative.





Catfish

eDNA is defined as “genetic material obtained directly from environmental samples (soil, sediment, water, etc.) without any obvious signs of the biological source material.” It is an efficient, non-invasive and easy-to-standardise sampling approach. eDNA can be obtained from ancient and modern environments. Coupled with sensitive, cost-efficient and ever-advancing DNA sequencing technology, the technique is increasingly being used for biodiversity monitoring.

“Our lab has designed a molecular assay utilising eDNA to specifically detect this invasive catfish in Indian ecosystems, which is affordable and quick, and will be a very useful tool in conservation management”, Dr Umapathy said. Dr Umapathy hoped that the pilot study will serve as a foundation to map the distribution of invasive *Clarias gariepinus* and also as a useful tool to inform management authorities for timely control and regular monitoring of this species.





Govindhaswamy Umapathy

The developed assay helps detect invasive fish species using eDNA. The researchers have designed and optimised a reliable eDNA-based quantitative PCR assay to detect the African Sharptooth Catfish from water samples in the aquatic system. The step-by-step processes involved in the design and optimisation of the assay were field-tested in selected water bodies of Hyderabad city and around. The present workflow can be used to design assays to detect a wide range of aquatic species. The research study has been published in *Biological Invasions*.





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November 17, 2022

India Science Wire

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By [India Science Wire](#) [November 17, 2022](#) in [Science](#)



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By **BioVoice News Desk** - November 18, 2022



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Environmental DNA-based assay to detect invasive catfish in waterbodies

North African Sharptooth catfish is one such species that was illegally introduced in India for aquaculture purposes

By [India Science Wire](#)

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The researchers have designed and optimised a reliable eDNA-based quantitative assay to detect the African Sharptooth Catfish from water samples in the aquatic system. Photo: iStock.



Invasive alien species are a severe threat to biodiversity, causing local extinction of native species and impacting ecosystem services, human livelihood, economy, and health.

The North African Sharptooth catfish is one such species that was illegally introduced in India for aquaculture purposes. Now the species has invaded most freshwater ecosystems.

“The ecological damage is staggering that the Indian government has eventually banned this species from culturing and selling. Yet the control and management of this species is an uphill task, which requires the primary task of detecting the presence of this species in waterbodies and mapping its distribution,” said Govindhaswamy Umapathy, Senior Principal Scientist of Centre for Cellular and Molecular Biology (CSIR-CCMB).

While the conventional methods to detect invasive species, like using nets, traps, and visual observations, are cumbersome, the researchers from CCMB now have developed Environmental DNA (eDNA)-based molecular methods that provide a time and cost-effective alternative.

eDNA is defined as “genetic material obtained directly from environmental samples (soil, sediment, water, etc.) without any obvious signs of the biological source material.”

It is an efficient, non-invasive and easy-to-standardise sampling approach. eDNA can be obtained from ancient and modern environments. Coupled with sensitive, cost-efficient and ever-advancing DNA sequencing technology, the technique is increasingly being used for biodiversity monitoring.

“Our lab has designed a molecular assay utilising eDNA to specifically detect this invasive catfish in Indian ecosystems, which is affordable and quick, and will be a very useful tool in conservation management,” Umapathy said.



Umapathy hoped that the pilot study will serve as a foundation to map the distribution of invasive *Clarias gariepinus* and also as a useful tool to inform management authorities for timely control and regular monitoring of this species.

The developed assay helps detect invasive fish species using eDNA. The researchers have designed and optimised a reliable eDNA-based quantitative PCR assay to detect the African Sharptooth Catfish from water samples in the aquatic system.

The step-by-step processes involved in the design and optimisation of the assay were field-tested in selected water bodies of Hyderabad city and around. The present workflow can be used to design assays to detect a wide range of aquatic species. The research study has been published in *Biological Invasions*. **(India Science Wire)**





हवा से पेयजल उत्पादन की अक्षय ऊर्जा आधारित तकनीक



इंडिया साइंस वायर | Nov 22, 2022 6:23PM

वैसे तो हवा की नमी से जल प्राप्त करने की अवधारणा नई नहीं है। लेकिन, वायुमंडलीय नमी से जल प्राप्त करने की परंपरागत पद्धति में काफी बिजली खर्च होती है। जबकि, हम यह जानते हैं कि बिजली हमेशा स्वच्छ तथा नवीकरणीय स्रोतों से उत्पन्न नहीं होती।

लगातार बढ़ता पेयजल संकट पूरी दुनिया में एक बड़ी चुनौती बनकर उभरा है। बेंगलुरु स्थित नवोन्मेषी स्टार्टअप- उरावु लैब्स ने इस चुनौती के बीच स्वच्छ पेयजल उपलब्ध कराने के लिए एक नई एवं टिकाऊ तकनीक पेश की है। हवा की नमी से जल उत्पादन के लिए यह तकनीक शत प्रतिशत अक्षय ऊर्जा पर आधारित है, जो पेयजल के संकट से जूझ रहे इलाकों में परिवर्तनकारी साबित हो सकती है।



उरावु लैब्स की अवधारणा नवोन्मेषी युवाओं की टीम द्वारा वक सत की गई है, जिसमें वैज्ञानिक, इंजीनियर और डजाइनर शामिल हैं। उनके द्वारा वक सत स्वच्छ पेयजल उत्पादन की यह तकनीक वायुमंडलीय नमी एवं शत प्रतिशत नवीकरणीय ऊर्जा पर आधारित है। भूमगत जल की कमी, खारे पानी और प्रदूषित पेयजल की समस्या से जूझ रहे इलाकों के लिए यह तकनीक विशेष रूप से उपयोगी हो सकती है।

इस प्रौद्योगिकी में व शष्ट जलअवशोषक से लैस अभिनव डजाइन का उपयोग किया गया है - और इसका बड़े पैमाने पर वस्तार भी किया जा सकता है। शत प्रतिशत नवीकरणीय रूप से स्वच्छपेयजल प्राप्त करने के लिए इसे सौर ऊर्जा, अप शष्टताप अथवा बायोमास जैसे - नवीकरणीय ऊर्जा स्रोतों से जोड़ा जा सकता है। निजी उपयोग से लेकर व्यावसायिक, सरकारी एवं गैरसरकारी संस्थानों में इसका उपयोग किया जा सकता है।-

वैसे तो हवा की नमी से जल प्राप्त करने की अवधारणा नई नहीं है। लेकिन, वायुमंडलीय नमी से जल प्राप्त करने की परंपरागत पद्धति में काफी बिजली खर्च होती है। जब क, हम यह जानते हैं क बिजली हमेशा स्वच्छ तथा नवीकरणीय स्रोतों से उत्पन्न नहीं होती। इसके वपरीत, उरावु लैब्स ने अपनी जलअवशोषक मशीनों में जलशुष्कक (desiccant) सामग्री पर आधारित व शष्ट तकनीकी रूपरेखा का उपयोग किया है। जलशुष्ककआधारित प्रौद्योगिकी में स्थानांतरित - होने का लाभ यह है क इससे वायुमंडलीय नमी से जल प्राप्त करने की पद्धति को 100% नवीकरणीय बनाया जा सकता है।

वर्ष 2019 में, यह स्टार्टअप नवोन्मेषी वचार के कुछ उत्साही युवाओं की टीम द्वारा शुरू किया गया है, जिसमें प्रदीप गर्ग, स्वप्निल श्रीवास्तव, वेंकटेश आर, और गो वंदा बालाजी शामिल हैं। इस स्टार्टअप का प्रयास सभी के लिए सुलभ पेयजल एवं उसके वतरण के नवोन्मेषी तरीकों के उपयोग से पर्यावरणीय एवं उसके सामाजिक घटकों में प्रभावी बदलाव लाना है।

प्रदीप गर्ग और स्वप्निल श्रीवास्तव बताते हैं क अपनी शत प्रतिशत नवीकरणीय पद्धति " आधारित पेयजल मशीनों के जरिये हमारी योजना व वध आवश्यकताओं के अनुसार स्वच्छ पेयजल उपलब्ध कराने की है। प्रतिदिन 20-100 लीटर की कम क्षमता वाली मशीनें सामुदायिक स्थानों (शहरी और ग्रामीण), कार्यालय परिसरों और अपार्टमेंट भवनों में उपयोग की जा सकती हैं। वहीं, प्रतिदिन 10 हजार लीटर वाली अधिक क्षमता की मशीनें भी एक नये बदलाव के लिए तैयार हैं।"



इस स्टार्टअप के कुछ प्रमुख निवेशकों में स्पेशल इन्वेस्टमेंट, पीटर योल्स इकोरिवर कै पटल), अमेरिका(, सोरेन श्रोडर (अमेरिका), शगेरू सु ममोटो कॉनसेलक्स कॉर्पोरेशन), जापानऔर (कानेको कॉर्ड) टॉमोकी कानेको, जापानशा मल हैं। (

(इं डया साइंस वायर)





हवा से पेयजल उत्पादन की अक्षय ऊर्जा की तकनीक

November 19, 2022 [cgkhabar](#) 0 Comments [Renewable](#), [Water solutions](#), [पेयजल](#)

नई दिल्ली | इं डया साइंस वायर: लगातार बढ़ता पेयजल संकट पूरी दुनिया में एक बड़ी चुनौती बनकर उभरा हैउरावु लैब्स ने-बेंगलुरु स्थित नवोन्मेषी स्टार्टअप . इस चुनौती के बीच स्वच्छ पेयजल उपलब्ध कराने के लिए एक नई एवं टिकाऊ तकनीक पेश की है.

हवा की नमी से जल उत्पादन के लिए यह तकनीक शत प्रति शत अक्षय ऊर्जा पर आधारित है, जो पेयजल के संकट से जूझ रहे इलाकों में परिवर्तनकारी साबित हो सकती है.

उरावु लैब्स की अवधारणा नवोन्मेषी युवाओं की टीम द्वारा वक सत की गई है, जिसमें वैज्ञानिक, इंजीनियर और डजाइनर शामिल हैंउनके द्वारा वक सत स्वच्छ पेयजल उत्पादन की यह तकनीक वायुमंडलीय नमी एवं शत प्रतिशत नवीकरणीय ऊर्जा पर आधारित है.

भूमगत जल की कमी, खारे पानी और प्रदूषित पेयजल की समस्या से जूझ रहे इलाकों के लिए यह तकनीक विशेष रूप से उपयोगी हो सकती है.



इस प्रौद्योगिकी में व शष्ट जल अवशोषक से लैस अभनव डजाइन-का उपयोग किया गया है और इसका बड़े पैमाने पर वस्तार भी किया जा सकता है.

शत प्रतिशत नवीकरणीय रूप से स्वच्छ पेयजल प्राप्त करने के लिए इसे सौर ऊर्जा, अप शष्ट-निजी उपयोग से ताप अथवा बायोमास जैसे नवीकरणीय ऊर्जा स्रोतों से जोड़ा जा सकता है लेकर व्यावसायिक, सरकारी एवं गैर.सरकारी संस्थानों में इसका उपयोग किया जा सकता है-

वैसे तो हवा की नमी से जल प्राप्त करने की अवधारणा नई नहीं हैलेकिन, वायुमंडलीय नमी से जल प्राप्त करने की परंपरागत पद्धति में काफी बिजली खर्च होती हैजबकि, हम यह जानते हैं कि बिजली हमेशा स्वच्छ तथा नवीकरणीय स्रोतों से उत्पन्न नहीं होती.

इसके वपरीत, उरावु लैब्स ने अपनी जल) अवशोषक मशीनों में जलशुष्कक-desiccant) सामग्री पर आधारित व शष्ट तकनीकी रूपरेखा का उपयोग किया है.

जलशुष्ककआधारित प्रौद्योगिकी में स्थानान्तरित होने का लाभ यह है कि इससे वायुमंडलीय-नमी से जल प्राप्त करने की पद्धति को 100% नवीकरणीय बनाया जा सकता है.

वर्ष 2019 में, यह स्टार्टअप नवोन्मेषी वचार के कुछ उत्साही युवाओं की टीम द्वारा शुरू किया गया है, जिसमें प्रदीप गर्ग, स्वप्निल श्रीवास्तव, वेंकटेश आर, और गो वंदा बालाजी शा मल हैं.

इस स्टार्टअप का प्रयास सभी के लिए सुलभ पेयजल एवं उसके वतरण के नवोन्मेषी तरीकों के उपयोग से पर्यावरणीय एवं उसके सामाजिक घटकों में प्रभावी बदलाव लाना है.

प्रदीप गर्ग और स्वप्निल श्रीवास्तव बताते हैं कि “अपनी शत प्रतिशत नवीकरणीय पद्धति आधारित पेयजल मशीनों के जरिये हमारी योजना व वध आवश्यकताओं के अनुसार स्वच्छ पेयजल उपलब्ध कराने की है.

प्रतिदिन 20-100 लीटर की कम क्षमता वाली मशीनें सामुदायिक स्थानों (शहरी और ग्रामीण), कार्यालय परिसरों और अपार्टमेंट भवनों में उपयोग की जा सकती हैंवहीं, प्रतिदिन 10 हजार लीटर वाली अधिक क्षमता की मशीनें भी एक नये बदलाव के लिए तैयार हैं.”

इस स्टार्टअप के कुछ प्रमुख निवेशकों में स्पेशल इन्वेस्टमेंट, पीटर योल्स इकोरिवर कैपटल), अमेरिका(, सोरेन श्रोडर (अमेरिका), शगेरु सुममोटो कॉनसेलक्स कॉर्पोरेशन), जापानऔर (कानेको कॉर्ड) टॉमोकी कानेको, जापान.शा मल हैं (

नई दिल्ली। हवा से से पेयजल उत्पादन की अक्षय ऊर्जा आधारित तकनीक।

News नवंबर 18, 2022

नई दिल्ली (इं डया साइंस वायर)। लगातार बढ़ता पेयजल संकट पूरी दुनिया में एक बड़ी चुनौती बनकर उभरा है। बेंगलुरु स्थित नवोन्मेषी स्टार्टअप - उरावु लैब्स ने इस चुनौती के बीच स्वच्छ पेयजल उपलब्ध कराने के लिए एक नई एवं टिकाऊ तकनीक पेश की है। हवा की नमी से जल उत्पादन के लिए यह तकनीक शत प्रतिशत अक्षय ऊर्जा पर आधारित है, जो पेयजल के संकट से जूझ रहे इलाकों में परिवर्तनकारी साबित हो सकती है।

उरावु लैब्स की अवधारणा नवोन्मेषी युवाओं की टीम द्वारा वकसत की गई है, जिसमें वैज्ञानिक, इंजीनियर और डिजाइनर शामिल हैं। उनके द्वारा वकसत स्वच्छ पेयजल उत्पादन की यह तकनीक वायुमंडलीय नमी एवं शत प्रतिशत नवीकरणीय ऊर्जा पर आधारित है। भूमगत जल की कमी, खारे पानी और प्रदूषित पेयजल की समस्या से जूझ रहे इलाकों के लिए यह तकनीक विशेष रूप से उपयोगी हो सकती है।



उरावु लैब्स की टीम में शामिल गोवंदा बालाजी (इंजीनियरिंग), स्वप्निल श्रीवास्तव (व्यवसाय), प्रदीप गर्ग (प्रौद्योगिकी एवं व्यवसाय), और वेंकटेश आर. (डिजाइन एवं संचालन)

इस प्रौद्योगिकी में व शष्ट जल-अवशोषक से लैस अभिनव डिजाइन का उपयोग किया गया है और इसका बड़े पैमाने पर वस्तु भी किया जा सकता है। शत प्रतिशत नवीकरणीय रूप से स्वच्छ पेयजल प्राप्त करने के लिए इसे सौर ऊर्जा, अप शष्ट-ताप अथवा बायोमास जैसे नवीकरणीय ऊर्जा स्रोतों से जोड़ा जा सकता है। निजी उपयोग से लेकर व्यावसायिक, सरकारी एवं गैर-सरकारी संस्थानों में इसका उपयोग किया जा सकता है।

वैसे तो हवा की नमी से जल प्राप्त करने की अवधारणा नई नहीं है। लेकिन, वायुमंडलीय नमी से जल प्राप्त करने की परंपरागत पद्धति में काफी बिजली खर्च होती है। जबकि, हम यह जानते हैं कि बिजली हमेशा स्वच्छ तथा नवीकरणीय स्रोतों से उत्पन्न नहीं होती। इसके विपरीत, उरावु लैब्स ने अपनी जल-अवशोषक मशीनों में जलशुष्कक (desiccant) सामग्री पर आधारित व शष्ट तकनीकी रूपरेखा का उपयोग किया है। जलशुष्कक-आधारित प्रौद्योगिकी में स्थानांतरित होने का लाभ यह है कि इससे वायुमंडलीय नमी से जल प्राप्त करने की पद्धति को 100% नवीकरणीय बनाया जा सकता है।

वर्ष 2019 में, यह स्टार्टअप नवोन्मेषी वचार के कुछ उत्साही युवाओं की टीम द्वारा शुरू किया गया है, जिसमें प्रदीप गर्ग, स्वप्निल श्रीवास्तव, वेंकटेश आर, और गोवंदा बालाजी शामिल हैं। इस स्टार्टअप का प्रयास सभी के लिए सुलभ पेयजल एवं उसके वितरण के नवोन्मेषी तरीकों के उपयोग से पर्यावरणीय एवं उसके सामाजिक घटकों में प्रभावी बदलाव लाना है।



प्रदीप गर्ग और स्वप्निल श्रीवास्तव बताते हैं क "अपनी शत प्रतिशत नवीकरणीय पद्धति आधारित पेयजल मशीनों के जरिये हमारी योजना व वध आवश्यकताओं के अनुसार स्वच्छ पेयजल उपलब्ध कराने की है। प्रतिदिन 20-100 लीटर की कम क्षमता वाली मशीनें सामुदायिक स्थानों (शहरी और ग्रामीण), कार्यालय परिसरों और अपार्टमेंट भवनों में उपयोग की जा सकती हैं। वहीं, प्रतिदिन 10 हजार लीटर वाली अधिक क्षमता की मशीनें भी एक नये बदलाव के लए तैयार हैं।”

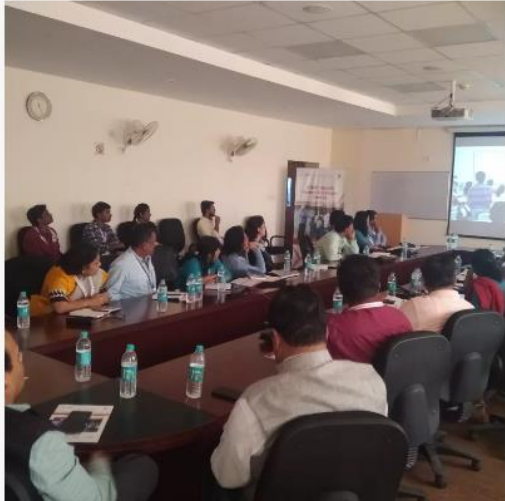
इस स्टार्टअप के कुछ प्रमुख निवेशकों में स्पेशल इन्वेस्टमेंट, पीटर योल्स (इकोरिवर कै पटल, अमेरिका), सोरेन श्रोडर (अमेरिका), शगेरू सु ममोटो (कॉनसेलक्स कॉर्पोरेशन, जापान) और टॉमोकी कानेको (कानेको कॉर्ड, जापान) शा मल हैं।

(इं डया साइंस वायर)





Vigyan Prasar conducts health communication workshop for ICMR scientists



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New Delhi, Nov. 18th (India Science Wire): A one-day interactive contact session on health communication was organised by Vigyan Prasar (VP), an ...

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by [India Science Wire](#) [November 21, 2022](#) in [Science](#)

A one-day interactive contact session on health communication was organised by Vigyan Prasar (VP), an autonomous organization of the Department of Science and Technology, Government of India, for the scientists from the Indian Council of Medical Research (ICMR) on 17 November, at its office in Noida, Uttar Pradesh. Various aspects of science communications in general and health communications in particular were discussed during the sessions.

ICMR is the apex body in India for formulating, coordinating, and promoting biomedical research. It is one of the oldest medical research bodies in the world. ICMR attempts to address the growing demands of scientific advances in biomedical research and in finding practical solutions to the country's health challenges.

Understanding and practicing various communication strategies is crucial for physicians and healthcare workers to develop therapeutic relationships with their patients. The importance of communication in the field of scientific research was felt even more deeply during the days of COVID-19 pandemic.

Thirty-five scientists from ICMR and scientists and science communicators of VP interacted during the workshop. The scientists were provided orientation on the need to disseminate their research information to the common people. It was hoped that their interaction with the communicators would help them translate their work into a language that is understood by non-technical people.

Dr Samiran Panda, Dr AS Paintal Distinguished Scientist Chair and Former Additional Director General of ICMR, spoke on "Risk communication in health and



diseases - A few nuts and bolts.” In his talk, he elaborated on the importance of communication on behavioural change, risk factors involved, communication with a purpose and structure, etc.

Kapil Tripathi, Scientist VP, welcomed the attendees and briefed about the role and functioning of VP in the past 33 years in science communication and its popularisation. He spoke on the importance of development of scientific temper and the relevance of developing content specifically for science communication.

Ms Kinkini Dasgupta Mishra, Scientist, VP, talked about gender and science communications and the role of the India Science, Technology and Innovation (ISTI) portal and its impact on disseminating a wide range of health information.

Nimish Kapoor, Scientist VP, talked about the orientation programme’s importance and purpose. He also shared information on tools to identify fake news and demonstrated the procedures.

Dr Bharat Bhushan, Scientist VP, Saurabh Sen, Consultant of India Science, and other VP officials were present at the workshop.





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News नवंबर 18, 2022

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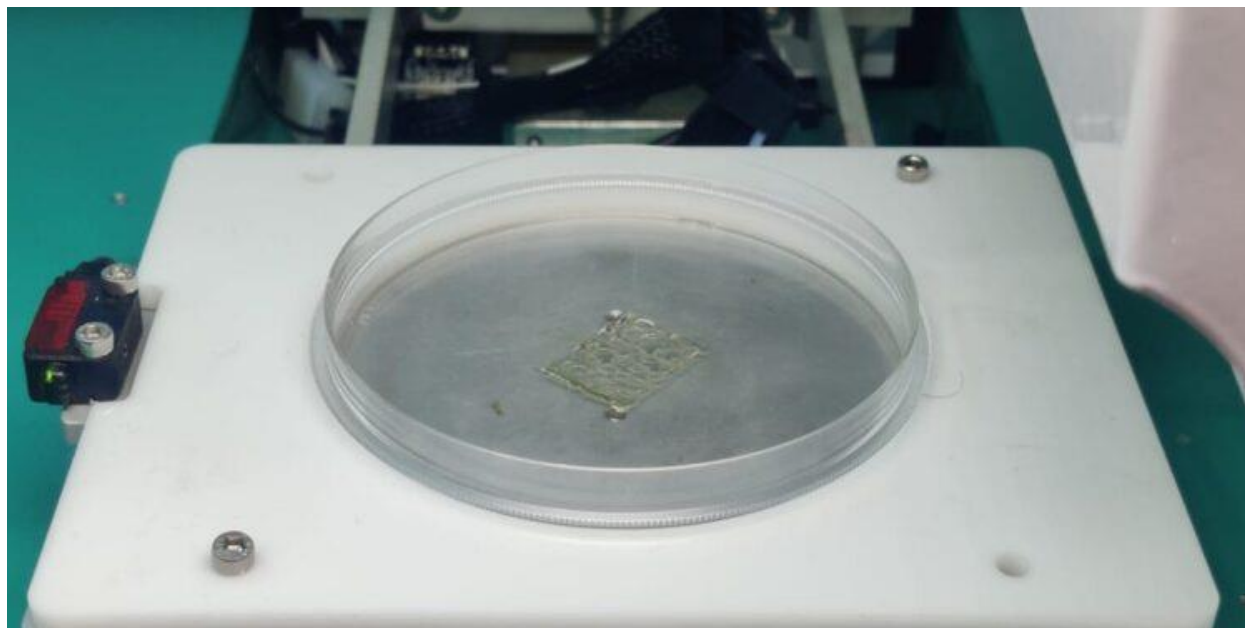
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Indigenous 3D bio-printer to print human tissues

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Bio-printing is a method of tissue replication that temporarily or permanently supports and nurtures living cells. This technique is a potential alternative to organ transplantation, which could be useful in manufacturing functional human tissues such as skin by using specifically engineered biomaterials or bio-inks to print artificial living tissues.

An indigenous state-of-the-art 3D Bio-Printer 'Mito Plus' launched by Indian Tech Startup Avay Biosciences has been found to be helpful in printing human tissues. Mito Plus was launched at Bengaluru Tech Summit held between 16th and 18th November 2022. The prototype of Mito Plus was installed at the Indian Institute of Science (IISc), Bangalore, the top-ranked science research institute by NIRF Rankings.



Mito Plus is an advanced version of 3D bio-printer developed with inputs on the prototype from the research lab of Dr Bikramjit Basu at IISc, and developed by Avay which an IIT Madras alumnus co-founded. It is one of the advanced 3D bio-printers in India. Avay Biosciences provides wholly indigenous software and hardware development for end-to-end Bio 3D printing solutions in India.

Manish Amin, Chief Executive Officer, Avay Biosciences, said, “MITO plus is an advanced bio-printer at its price range which can be used to print a wide range of biomaterials. This printer comes up with an inbuilt UV curing option, HEPA filter and effective temperature control features. In this the print-head and the print-bed can be cooled up to four degrees celsius and heated to 80 degrees celsius. MITO plus can be used for pharmaceutical drug discovery and drug testing applications, it can also be used in cancer biology and cosmetology applications.”

Bio-printers work in almost the same way as other 3D printers do, with one major difference i.e instead of delivering materials such as plastic, metal or powders, bio-printers deposit layer of biomaterials, that may include living cells, to build complex structures like skin tissue, liver tissue, etc. 3D bio-printing is a unique gift to humanity through science and technology. However, many challenges are yet to be solved. “There is still a long way to go before we can create fully functioning and viable organs for human transplant,” Amin explained.

“We are working on having our printers develop skin - the most common type of layered tissue that could help victims of severe burns. These tissues can also be used for toxicology screens and other testing mechanisms,” said Suhridh Sundaram, Chief Operating Officer, Avay Biosciences.

Typically bio-printing uses various polymers which attempt to recreate the extracellular matrix (ECM) native to the specific cell. The availability of cost-effective bio-printers is essential in developing artificial organs, since all future research depends on this infrastructure. If animal cells are used, bioprinting can also be utilized to create artificial meat, a space-age food dream.



Apart from premier Research and Development institutions such as IIT Madras and IISc Bangalore, the tech startup's customers and collaborators include the Institute of Chemical Technology (ICT), Mumbai; National Institute of Pharmaceutical Education And Research (NIPER), Hyderabad; and BITS Pilani (Goa Campus). (India Science Wire)



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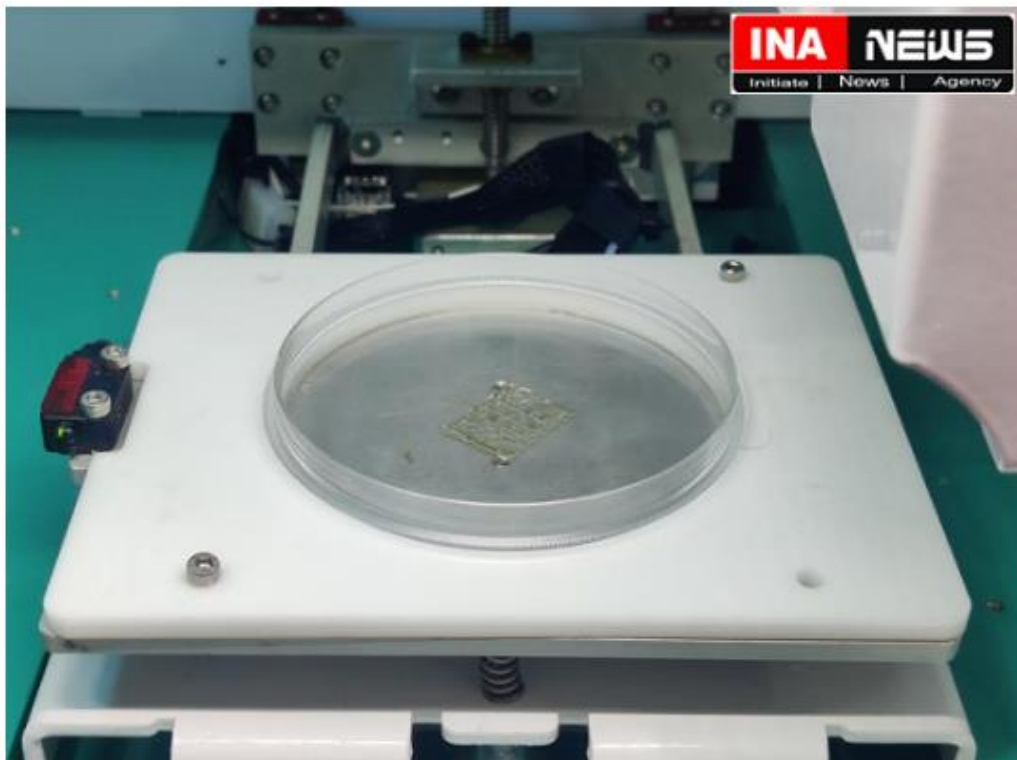
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Tissue printed by Mito Plus 3D Bio Printer

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(India Science Wire)



Indigenous 3D Bio-Printer to Print Human Tissues

An indigenous state-of-the-art 3D Bio-Printer ‘Mito Plus’ launched by Indian Tech Startup Avay Biosciences.

By Team DP On Nov 20, 2022

Bio-printing is a method of tissue replication that temporarily or permanently supports and nurtures living cells. This technique is a potential alternative to organ transplantation, which could be useful in manufacturing functional human tissues such as skin by using specifically engineered biomaterials or bio-inks to print artificial living tissues.



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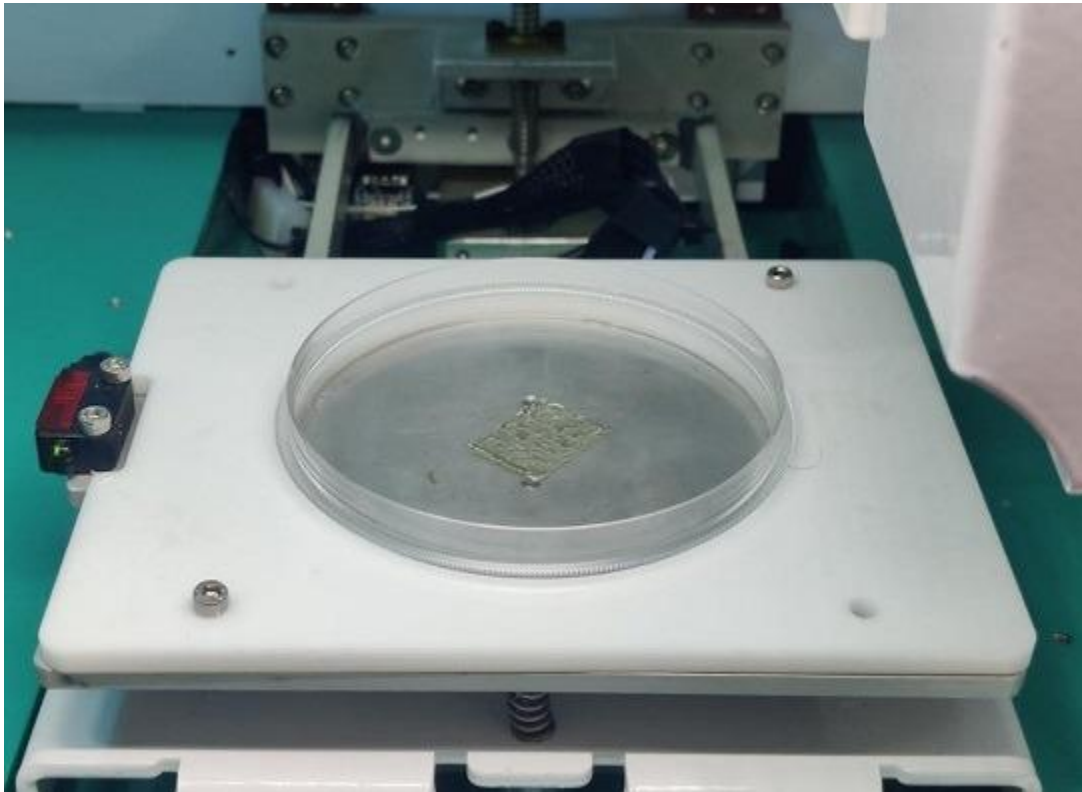
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Article By : India Science Wire

- **Category : Medical** 2022-11-23



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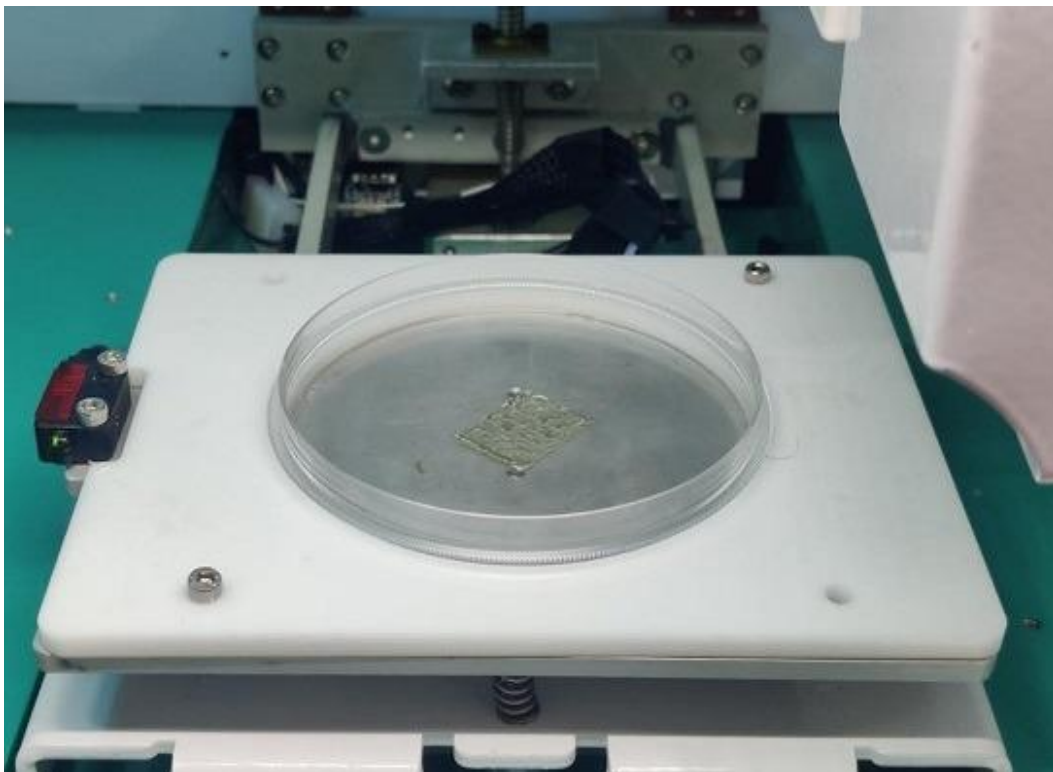
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India's first privately built rocket launched successfully

by [India Science Wire](#) [November 21, 2022](#) in [Science](#)



India's new space age begins with first-ever private rocket launch by the Indian Space Research Organisation (ISRO) in Sriharikota, Andhra Pradesh, on Friday. Nation's first private rocket 'Vikram-S' is considered a turning point for space startups and a new beginning for ISRO.

India's maiden private Vikram-suborbital (VKS) rocket has been named after Dr Vikram Sarabhai, the father of India's space programme and former chairman of ISRO.

Union Minister of Science and Technology and MoS PMO, Atomic Energy and Space, Dr Jitendra Singh, witnessed the momentous occasion at Sriharikota; described it as



a new beginning in India's space journey, and a turning point for India's startup movement.

“This is a major milestone in the journey of ISRO, after Prime Minister Narendra Modi unlocked the Space Sector in 2020 for private participation,” said Dr Singh.

He further said that the ISRO has added another feather to its glorious space journey, setting a new milestone in the 75 years history of independent India. The launch has put India among the frontline space powers of the world and many aspiring countries will look forward to take cues from Indian expertise. The Minister described this as a significant milestone after Prime Minister Narendra Modi had unlocked the space sector in India two years ago for private participation.

Vikram-S is a single-stage fuel rocket meant to test most systems and processes in Skyroot Aerospace's project ahead of the launch of Vikram-1 next year. “The rocket goes to the max altitude of 81.5 kilometres and splashes into the sea and the overall duration of the launch is about 300 seconds only,” said Dr Jitendra Singh.

Skyroot was the first startup to sign an MoU with ISRO for launching its rockets. Apart from being the nation's first private launch, it is also the maiden mission of Skyroot Aerospace, named “Prarambh”.

Dr Singh said that the space reforms have unleashed innovative potentials of startups and within a short period, from a couple of space startups three -four years back, today we have 102 startups working in cutting-edge areas of space debris management, nano-satellite, launch vehicle, ground systems, research etc.

The Minister underlined that PM Modi had enabled India to earn universal recognition for its science, technology, innovation capabilities. He said that the whole world is looking at India as an inspirational place, as it is helping budding countries in capacity building and satellite building including nanosatellites.

ISRO said in a statement that Mission Prarambh is successfully accomplished, while the Skyroot Aerospace said that Vikram-S makes history as the first private rocket



of India to grace the skies. It carried three payloads in space, including one from foreign customers. (India Science Wire)

India's Successfully Launches First Privately Built Rocket

Article By : India Science Wire

- Category : Aerospace 2022-11-22



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Prof. Ajay Sood launches Bengaluru Science & Technology Cluster

Launched at Bengaluru Tech Summit, the Bengaluru Science and Technology Cluster (BeST) is a collaborative effort of more than 50+ organizations from Bengaluru

By **BioVoice News Desk** - November 19, 2022



New Delhi: The conceptualization of the Bengaluru Science and Technology Cluster (BeST) is a collaborative effort of more than 50+ organizations from Bengaluru, including major academic institutions, industry partners, start-ups, civil society organizations, and government bodies.

This effort was coordinated by the Indian Institute of Science (IISc) in partnership with Centre for Cellular and Molecular Platforms (C-CAMP), India's leading biotech research and innovation hub supported by Department of Biotechnology, Government of India.

A proposal for funding for BeST was submitted with Principal Investigator (PI) Prof. Govindan Rangarajan (Director, IISc) and co-PIs Prof. Ambarish Ghosh (Professor IISc) and Dr. Taslimarif Saiyed (CEO, CCAMP). The funding was recently sanctioned by the Office of the Principal Scientific Adviser to the Government of India. The BeST cluster was formally launched at the plenary session of the Bengaluru Tech Summit, 2022, by the Honourable PSA, Prof. Ajay Sood, in the presence of Prof. G. Padmanabhan (ex. Director of IISc) and Shri S Gopalakrishnan (Kris), Co-founder, Infosys on 16th November 2022.

During the launch, Prof. Sood emphasized that Bangalore has enormous technological potential and that Karnataka State is among the leaders in science and technology advancements. He anticipates that the Bangalore cluster will succeed and pave the path for future success.

A science and technology cluster is a collaborative ecosystem in a city or a region, in which scientists, engineers, social scientists, and entrepreneurs working in academia, government labs, and industry identify and collaborate to solve some socially relevant problems. Science & Technology (S&T) Clusters are being established as formal umbrella structures for S&T organizations in various cities to work together more effectively while retaining their autonomy. On the recommendation of the Prime Minister's Science, Technology, and Innovation Advisory Council (PM-STIAC) to build an Atmanirbhar Bharat through S&T, the O/o PSA supports these initiatives.



The Bengaluru Science and Technology Cluster (BeST), the latest in this set of O/o PSA supported clusters, has identified Health & Wellness, Urban Life, and Futuristic Technologies as its core sectors and has set up teams to work on areas of One Health, Digital Health, Precision Agriculture, Urban Transportation, Monsoon & Climate Change, Quantum Technologies, Active Matter & Robotics and Jet Engine.

As Prof Sood explained, the BeST Cluster is envisaged as a platform of active collaboration for the entire R&D ecosystem in Bangalore cutting across disciplines and mandates but retaining their individual autonomy. A Section 8 company is being set up to catalyse this collaboration as an independent body, provide organizational support and raise and manage resources.

Co-Lead Dr Taslimarif Saiyed, at the launch said that “Bangalore is a city of science, innovation and opportunity. The BeST Cluster launch could be a landmark moment for Science and Technology in India and possibly the world. We aim to bring together stakeholders with shared ecosystems, identify and address problems first with locally relevant solutions, but also scale-up nationally and internationally by building global competitiveness. BeST activities will be based on this ground-up pyramid model.”

Co-Lead Prof Ambarish Ghosh said, “Bengaluru Tech Summit is the ideal launch-pad for the BeST Cluster. Impact of the BeST can be defined in many ways. In addition to immediate social and economic impact at a city scale, we must also consider the impact on sustainability and being globally competitive.”

The earlier S&T Clusters in this program have been set up in Pune, Jodhpur, Delhi-NCR, Bhubaneswar and Hyderabad.



Bengaluru science & technology cluster launched

by [India Science Wire](#) [November 21, 2022](#) in [Science](#)



Prof. Ajay K Sood, Principal Scientific Adviser (PSA), Government of India, formally launched the Bengaluru Science & Technology Cluster (BeST) at the plenary session of the Bengaluru Tech Summit, 2022. Prof. Sood delivered the plenary talk on “Convergence of technological revolution - for advancing India’s growth trajectory” before the launch event.

BeST is a collaboration of more than fifty organisations from Bengaluru, including industry partners, major academic institutions, start-ups, civil society organizations, and government bodies. The Indian Institute of Science (IISc) coordinated the effort in partnership with Centre for Cellular and Molecular Platforms (C-CAMP), India’s



leading biotech research and innovation hub supported by the Department of Biotechnology (DBT), Govt. of India.

A funding proposal for BeST was submitted by Principal Investigator (PI) Prof. Govindan Rangarajan (Director, IISc) and co-PIs Prof. Ambarish Ghosh (Professor IISc) and Dr Taslimarif Saiyed (CEO, C-CAMP). The funding was recently sanctioned by the office of the PSA. A science and technology cluster is a collaborative ecosystem in a city or a region in which scientists, engineers, social scientists, and entrepreneurs working in academia, government labs, and industry can identify and collaborate to solve some socially relevant problems.

On the recommendation of the Prime Minister's Science, Technology, and Innovation Advisory Council (PM-STIAC), the office of the PSA supports the S&T clusters being established as formal umbrella structures for S&T organizations in various cities to collaborate more effectively while retaining their autonomy. Five more clusters at Delhi-NCR, Hyderabad, Bhubaneswar, Pune, and Jodhpur are currently in operation, said the press release issued by C-CAMP.

BeST, the latest in this set of clusters, has identified health & wellness, urban life, and futuristic technologies as its core sectors and has set up teams to work on areas of One Health, Digital Health, Precision Agriculture, Urban Transportation, Monsoon & Climate Change, Quantum Technologies, Active Matter & Robotics and Jet Engine.

Prof. Sood explained that the BeST Cluster is envisaged as a platform of active collaboration for the entire R&D ecosystem in Bengaluru, cutting across disciplines and mandates but retaining their autonomy.

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Prof. G. Padmanabhan (former Director of the Indian Institute of Science, IISc) and Shri S Gopalakrishnan, Co-founder of Infosys, were also present during the event. (India Science Wire)



Bengaluru Science & Technology Cluster Launched

BeST is a collaboration of more than fifty organisations from Bengaluru, including industry partners, major academic institutions, start-ups, civil society organizations, and government bodies.

By Team DP On Nov 21, 2022

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IIIT जोधपुर ने वक सत की सोलर पैनल के लए सेल्फक्लिनिंग कोटिंग-

Arvind Gupta Monday, 21 November, 2022 [Leave a comment](#)

न्यूजवेव नई दिल ुली
जलवायु परिवर्तन एवं बिजली की बढ़ती माँग को देखते हुये देशभर में सौर ऊर्जा का उपयोग तेजी से बढ़ रहा है। लेकिन सोलर पैनल का रखरखाव वहीं नहीं होने पर बिजली आपूर्ति बाधत हो सकती है। आईआईटी, जोधपुर के शोधकर्ताओं ने ऐसी सेल्फक्लिनिंग कोटिंग तकनीक - वक सत की है, जो सौर पैनल्स को साफ रखने में मददगार साबित होगी। यह नव वक सत कोटिंग पारदर्शी, टिकाऊ और सुपर हाइड्रोफोबिक है। यह सोलर पैनलों पर धूल के जमाव को कम करती है और बहुत कम पानी के साथ स्वयं सफाई करने में सक्षम है। सौर पैनल निर्माण संयंत्रों में इस कोटिंग को आसानी से जोड़ा जा सकता है। आईआईटी जोधपुर के अनुसार इस तकनीक को पेटेंट अनुमोदन के लए भेजा गया है। धातुकर्म और सामग्री इंजीनियरिंग वभाग, आईआईटी जोधपुर के प्रमुख शोधकर्ता डॉके नेतृत्व में यह .आर.र व के . और प् .अध्ययन टीम में शामिल परियोजना सहायक मीनामूर्ति जीरधानमंत्री रिसर्च फेलो शप योजना के शोधार्थी मोहित सिंह द्वारा किया गया है। सौर पैनल आमतौर पर 20 से 25 वर्षों तक 80 से 90 प्रतिशत दक्षता पर काम करते हैं। लेकिन सौर पैनलों पर धूल और रेत जमा होने से

उनका प्रदर्शन कम हो जाता है। सौर ऊर्जा संयंत्र के स्थान और जलवायु व वधता के आधार पर यह प्रभाव अलग-अलग हो सकता है। लेकिन, यह स्पष्ट है कि लगातार धूल जमा होती रहे तो कुछ महीनों के भीतर सौर पैनल 10 से 40 प्रतिशत तक अपनी दक्षता खो सकते हैं। एक सत सुपर हाइड्रोफोबिक कोटिंग में उत्कृष्ट सेल्फ-क्लीनिंग गुण हैं। लैबोरेट्री टेस्ट के दौरान इस कोटिंग में पर्याप्त मैकेनिकल और पर्यावरणीय स्थायित्व देखा गया है। आसान छिड़काव और वाइप तकनीकों से लैस यह कोटिंग तकनीक मौजूदा फोटो वोल्टिक बिजली उत्पादन में प्रभावी है। पानी की कमी वाले क्षेत्रों में यह तकनीक विशेष रूप से उपयोगी हो सकती है। डॉ. र व के.आर. ने कहा कि शिक्षा वदों और उद्योग के बीच सर्फ तकनीक प्रदाता एवं प्राप्तकर्ता का संबंध ही नहीं है, बल्कि दोनों की भूमिका परस्पर सहभा गता एवं सहयोग पर आधारित है। इस लए, हमारी टीम इस कोटिंग तकनीक के बड़े पैमाने पर उत्पादन, व्यापक प्रसार एवं लाभ के लए उद्योग भागीदारों के साथ मलकर काम करना चाहती है।” भ वष्य में, शोधकर्ता देश के व भन्न क्षेत्रों, जैसे शुष्क और अर्द्ध-शुष्क, तटीय क्षेत्रों और ग्रामीण तथा शहरी क्षेत्रों में वास्त वक समय में सेल्फ-क्लीनिंग कोटिंग के स्थायित्व का अध्ययन करने की दिशा में कार्य कर रहे हैं। इसके साथ ही, उपयोग के दौरान होने वाले नुकसान के लए व भन्न री-कोटिंग वकल्पों की भी पड़ताल की जा रही है। (इंडिया साइंस वायर)



नई दिल्ली। सौर पैनल के बेहतर रखरखाव के लिए सेल्फक्लीनिंग - कोटिंग प्रौद्योगिकी।

News नवंबर 21, 2022

नई दिल्ली (इंडिया साइंस वायर): बिजली की बढ़ती माँग और जलवायु परिवर्तन की चुनौतियों को देखते हुए सौर ऊर्जा का उपयोग महत्वपूर्ण हो जाता है। लेकिन, सौर पैनल का रखरखाव न हो तो ऊर्जा आपूर्ति बाधित हो सकती है। भारतीय प्रौद्योगिकी संस्थान (आईआईटी) जोधपुर के शोधकर्ताओं ने ऐसी सेल्फ-क्लीनिंग कोटिंग प्रौद्योगिकी विकसित की है, जो सौर पैनल्स को साफ रखने में उपयोगी हो सकती है। नई विकसित कोटिंग पारदर्शी, टिकाऊ और सुपरहाइड्रोफोबिक है। यह कोटिंग सौर पैनलों पर धूल के संचय को कम करती है और बहुत कम पानी के साथ स्वयं सफाई करने में सक्षम है। सौर पैनल निर्माण संयंत्रों के साथ इस कोटिंग को आसानी से एकीकृत किया जा सकता है। आईआईटी जोधपुर के वक्तव्य के अनुसार इस प्रौद्योगिकी को पेटेंट अनुमोदन के लिए भेजा गया है। धातुकर्म और सामग्री इंजीनियरिंग विभाग, आईआईटी जोधपुर से जुड़े प्रमुख शोधकर्ता डॉ. र. व. के. आर. के नेतृत्व में यह अध्ययन उनकी टीम में शामिल परियोजना सहायक मीनानामूर्ति जी. और प्रधानमंत्री रिसर्च फेलोशिप योजना (PMRF) के शोधार्थी मोहित सिंह द्वारा किया गया है।



आईआईटी जोधपुर के शोधकर्ताओं की टीम

सौर पैनल बनाने वाले उद्योगों का दावा होता है क आमतौर पर ये पैनल 20 से 25 वर्षों तक अपनी 80 से 90 प्रतिशत दक्षता पर काम करते हैं। हालां क, यह सर्व वदित है क सौर पैनलों पर धूल और रेत जमा होने से उनका प्रदर्शन कम हो जाता है। सौर ऊर्जा संयंत्र के स्थान और जलवायु व वधता के आधार पर यह प्रभाव अलग-अलग हो सकता है। ले कन, यह तो तय है क लगातार धूल जमा होती रहे तो कुछ महीनों के भीतर सौर पैनल 10 से 40 प्रतिशत तक अपनी दक्षता खो सकते हैं।

शोधकर्ताओं का कहना है क सौर पैनल को साफ करने के लए वर्तमान में उपयोग की जाने वाली व धयाँ महंगी और अकुशल हैं। इन व धयों के निरंतर उपयोग में व भन्न व्यावहारिक समस्याएं आती हैं और सफाई के दौरान सौर पैनल को क्षति पहुँचने का खतरा रहता है। इसी लए, आईआईटी जोधपुर के शोधकर्ताओं ने सुपरहाइड्रोफोबिक सामग्री का उपयोग करके यह सेल्फ-क्लीनिंग कोटिंग व क सत की है। व क सत सुपरहाइड्रोफोबिक कोटिंग में उत्कृष्ट सेल्फ-क्लीनिंग गुण हैं और इससे पारगम्यता या बिजली रूपांतरण से दक्षता में हानि नहीं होती है। प्रयोगशाला परीक्षणों के दौरान इस कोटिंग में पर्याप्त यांत्रिक और पर्यावरणीय स्थायित्व देखा गया है। आसान छिड़काव और वाइप तकनीकों से लैस यह कोटिंग प्रौद्योगिकी मौजूदा फोटोवोल्टिक बिजली उत्पादन में प्रभावी पायी गई है। सुपरहाइड्रोफोबिक कोटिंग्स के उपयोग से सेल्फ-क्लीनिंग में अ धक पानी की आवश्यकता नहीं होती। इसके उपयोग से कम लागत में सौर पैनलों का प्रभावी रखरखाव कया जा सकता है। पानी की कमी वाले क्षेत्रों में यह प्रौद्योगिकी व शेष रूप से उपयोगी हो सकती है।



डॉ. र व के.आर. ने कहा है - "वास्तवक समय के अनुप्रयोगों में इसके उपयोग के लिए शिक्षा वर्दों और उद्योगों की भूमिका महत्वपूर्ण है। शिक्षा वर्दों और उद्योग के बीच सर्फ प्रौद्योगिकी प्रदाता एवं प्राप्तकर्ता का संबंध ही नहीं है, बल्कि इन दोनों की भूमिका परस्पर सहभागता एवं सहयोग पर आधारित है। इस लिए, हमारी टीम इस कोटिंग तकनीक के बड़े पैमाने पर उत्पादन, व्यापक प्रसार एवं लाभ के लिए उद्योग भागीदारों के साथ मलकर काम करना चाहती है।"

भ वष्य में, शोधकर्ता देश के व भन्न क्षेत्रों, जैसे शुष्क और अर्द्ध-शुष्क, तटीय क्षेत्रों और ग्रामीण तथा शहरी क्षेत्रों में वास्तवक समय में सेल्फ-क्लीनिंग कोटिंग के स्थायित्व का अध्ययन करने की दिशा में कार्य कर रहे हैं। इसके साथ ही, उपयोग के दौरान होने वाले नुकसान के लिए व भन्न री-कोटिंग तकल्पों की भी पड़ताल की जा रही है। (इंडिया साइंस वायर)



इमारतों की भूकंपीयभेद्यता आकलन की नयी - पद्धति

November 26, 2022 by Dialogue India

नई दिल्ली, 25 नवंबर (इंडिया साइंस वायर): बड़े पैमाने पर इमारतों या फर अन्य संरचनाओं की मजबूती का आकलन करने के लिए अक्सर रैपड वजुअल स्क्रीनिंग (आरवीएस) की जाती है। आरवीएस दृश्य सूचना का उपयोग यह तय करने के लिए करता है कि कोई इमारत कतनी सुरक्षित है और भूकंप सुरक्षा को बढ़ाने के लिए तत्काल इंजीनियरिंग सुधार एवं मरम्मत की कतनी आवश्यकता है।

भारतीय प्रौद्योगिकी संस्थान (आईआईटी) मंडी के शोधकर्ताओं ने हिमालय क्षेत्र में भूकंप झेलने की इमारतों की क्षमता का आकलन करने के लिए एक नया तरीका विकसित किया है। भूकंप के प्रति इमारतों की संवेदनशीलता का पता लगाने की यह पद्धति सरल है, जो भूकंप के प्रति भवनों की प्रतिरोधक क्षमता बढ़ाने के लिए आवश्यक सुदृढीकरण और मरम्मत कार्यों की प्राथमिकता तय करने में उपयोगी हो सकती है।

व्यापक क्षेत्र सर्वेक्षणों के माध्यम से, शोधकर्ताओं ने मंडी के हिमालय क्षेत्र में इमारतों के प्रकार और उनकी विशेषताओं पर आधारित डेटा एकत्र किया है, जो भूकंप के प्रति इमारतों की संवेदनशीलता से संबंधित है। पहाड़ी क्षेत्रों में इमारतों के तल की गणना के लिए दिशा-निर्देश स्थापित करने और उन इमारतों की रैपड वजुअल स्क्रीनिंग (आरवीएस) के लिए शोधकर्ताओं ने एक संख्यात्मक अध्ययन किया है।

इमारतों की स्क्रीनिंग पद्धति एक पन्ने के आरवीएस प्रपत्र पर आधारित है, जिसे भरने के लिए अधिक विशेषज्ञता की आवश्यकता नहीं होती। वह भन्न संवेदनशीलता विशेषताओं को ध्यान में रखकर यह प्रपत्र केस स्टडी क्षेत्र की इमारतों के लिए विशेष रूप से डिजाइन किया गया है। इससे प्राप्त अवलोकनों के उपयोग से की गई गणना इमारतों के लिए एक भूकंपीय भेद्यता स्कोर उत्पन्न करती है, जो कमजोर इमारतों को मजबूत संरचनाओं से अलग करती है, और

रखरखाव तथा मरम्मत के लिए बेहतर निर्णय लेने में मदद करती है। गणना प्रक्रिया को इस तरह डिजाइन किया गया है कि किसी इमारत का भूकंपीय भेद्यता स्कोर प्राप्त करने में मानव पूर्वाग्रह या निर्धारक की व्यक्तिपरकता की संभावना बेहद कम होती है।

मौजूदा आरवीएस वध्यां व भन्न देशों के डेटा पर आधारित हैं और विशेष रूप से भारतीय हिमालयी क्षेत्र पर लागू नहीं होती हैं। उदाहरण के लिए, भारत के अधिकांश भागों की तरह हिमालयी क्षेत्र में भी बड़ी संख्या में गैर-इंजीनियरिंग आधारित संरचनाएं हैं। स्थानीय निर्माण श्रमकों में जागरूकता की कमी एवं हितधारकों के खराब नियोजन के कारण इमारतों एवं बुनियादी संरचनाओं का बेतरतीब वतरण देखने को मिलता है। इस लिए, क्षेत्र-व शष्ट आरवीएस दिशानिर्देश का उपयोग आवश्यक है, जिसमें स्थानीय निर्माण प्रथाएं और टाइपोलॉजी जैसे कारक शामिल होते हैं।

डॉ संदीप कुमार साहा, सहायक प्रोफेसर, स्कूल ऑफ सवल एंड एनवायरनमेंटल इंजीनियरिंग, आईआईटी मंडी के नेतृत्व में यह अध्ययन उनके पीएच.डी. छात्र यति अग्रवाल ने किया है। यह अध्ययन, शोध पत्रिका बुलेटिन ऑफ अर्थक्वेक इंजीनियरिंग में प्रकाशित किया गया है।

डॉ संदीप कुमार साहा बताते हैं - “हमने भारतीय हिमालयी क्षेत्र में प्रबलत कंक्रीट (आरसी) इमारतों की स्क्रीनिंग के लिए एक प्रभावी तरीका तैयार किया है, ताकि इमारतों की स्थिति के अनुसार मरम्मत कार्य को प्राथमिकता दी जा सके और आसन्न भूकंप के जोखिम को कम किया जा सके।”

शोधकर्ता यति अग्रवाल कहती हैं - “हमने दिखाया है कि प्रस्तावित वध पहाड़ी क्षेत्रों में भूकंप की स्थिति में प्रबलत कंक्रीट इमारतों को होने वाले संभावित नुकसान के अनुसार अलग करने में उपयोगी है।”

भारतीय और यूरोपियन प्लेटों में टकराव के कारण हिमालय को दुनिया के सबसे अधिक भूकंप-संभावित क्षेत्रों में शामिल किया जाता है। यहाँ ऐसे भूकंप आते रहे हैं, जो जीवन और संपत्ति दोनों के नुकसान पहुँचाने के मामले में वनाशकारी रहे हैं।

हिमालयी की भूकंप भेद्यता के कारण यहाँ इमारतों का मूल्यांकन एक तत्काल आवश्यकता है। शोधकर्ताओं का कहना है कि पछली दो शताब्दियों के “भूकंपीय अंतर” के कारण इस क्षेत्र में किसी भी समय बड़े भूकंप की आशंका है। यह माना जाता है कि भूकंपीय अंतराल (बड़े भूकंप

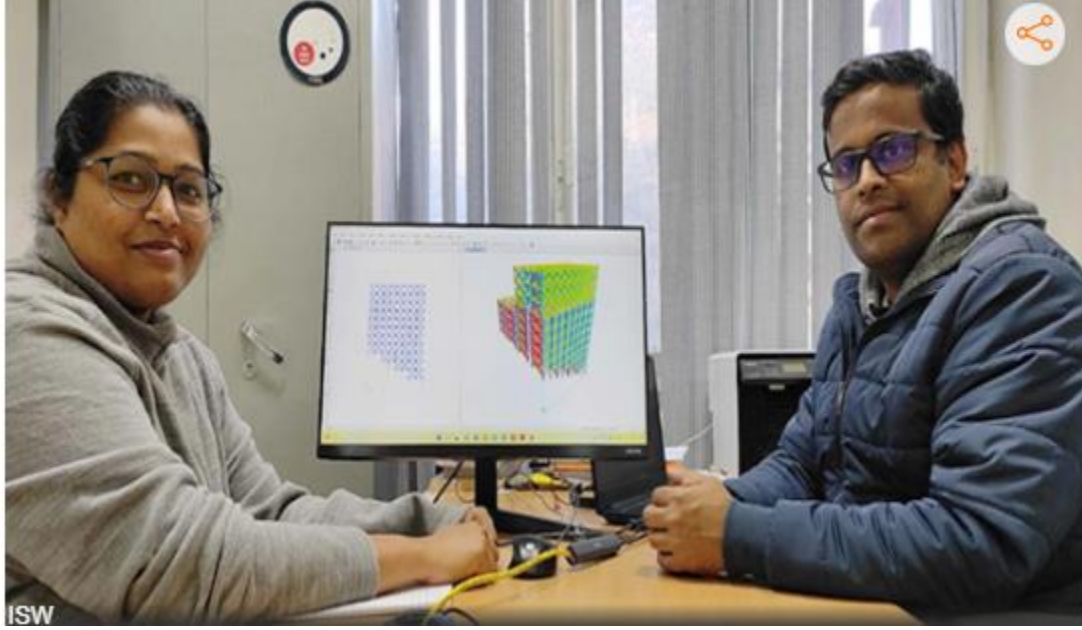


की अनुपस्थिति) तनाव को संचित करने में लगने वाले समय का प्रतिनिधित्व करता है, जो बाद में एक बड़े भूकंप के रूप में जारी होता है। शोधकर्ताओं का कहना है कि इन क्षेत्रों में मानव आवास संरचना को मजबूत करना समय की मांग है ताकि वे भविष्य में भूकंप का सामना कर सकें। (इंडिया साइंस वायर)





इमारतों की भूकंपीयभेद्यता आकलन की नयी पद्धति-



इंडिया साइंस वायर | Nov 26, 2022 5:49PM

इमारतों की स्क्रीनिंग पद्धति एक पन्ने के आरवीएस प्रपत्र पर आधारित है, जिसे भरने के लिए अधिक विशेषज्ञता की आवश्यकता नहीं होती। व भन्न संवेदनशीलता विशेषताओं को ध्यान में रखकर यह प्रपत्र केस स्टडी क्षेत्र की इमारतों के लिए विशेष रूप से डिजाइन किया गया है।

बड़े पैमाने पर इमारतों या फिर अन्य संरचनाओं की मजबूती का आकलन करने के लिए अक्सर रैपिड वजुअल स्क्रीनिंग की (आरवीएस) जाती है। आरवीएस दृश्य सूचना का उपयोग यह तय करने के लिए करता है कि कोई इमारत कतनी सुरक्षित है और भूकंप सुरक्षा को बढ़ाने के लिए तत्काल इंजीनियरिंग सुधार एवं मरम्मत की कतनी आवश्यकता है।

भारतीय प्रौद्योगिकी संस्थान मंडी के शोधकर्ताओं ने हिमालय क्षेत्र (आईआईटी) में भूकंप झेलने की इमारतों की क्षमता का आकलन करने के लिए एक नया तरीका विकसित किया है। भूकंप के



प्रति इमारतों की संवेदनशीलता का पता लगाने की यह पद्धति सरल है, जो भूकंप के प्रति भवनों की प्रतिरोधक क्षमता बढ़ाने के लिए आवश्यक सुदृढीकरण और मरम्मत कार्यों की प्राथमिकता तय करने में उपयोगी हो सकती है।

व्यापक क्षेत्र सर्वेक्षणों के माध्यम से, शोधकर्ताओं ने मंडी के हिमालय क्षेत्र में इमारतों के प्रकार और उनकी विशेषताओं पर आधारित डेटा एकत्र किया है, जो भूकंप के प्रति इमारतों की संवेदनशीलता से संबंधित है। पहाड़ी क्षेत्रों में इमारतों के तल की गणना के लिए दिशानिर्देश - के लिए शोधकर्ताओं ने (आरवीएस) स्थापित करने और उन इमारतों की रैपिड वजुअल स्क्रीनिंग एक संख्यात्मक अध्ययन किया है।

इमारतों की स्क्रीनिंग पद्धति एक पन्ने के आरवीएस प्रपत्र पर आधारित है, जिसे भरने के लिए अधिक विशेषज्ञता की आवश्यकता नहीं होती। व भन्न संवेदनशीलता विशेषताओं को ध्यान में रखकर यह प्रपत्र केस स्टडी क्षेत्र की इमारतों के लिए विशेष रूप से डिजाइन किया गया है। इससे प्राप्त अवलोकनों के उपयोग से की गई गणना इमारतों के लिए एक भूकंपीय भेद्यता स्कोर उत्पन्न करती है, जो कमजोर इमारतों को मजबूत संरचनाओं से अलग करती है, और रखरखाव तथा मरम्मत के लिए बेहतर निर्णय लेने में मदद करती है। गणना प्रक्रिया को इस तरह डिजाइन किया गया है कि किसी इमारत का भूकंपीय भेद्यता स्कोर प्राप्त करने में मानव पूर्वाग्रह या निर्धारक की व्यक्तिपरकता की संभावना बेहद कम होती है।

मौजूदा आरवीएस विधियां व भन्न देशों के डेटा पर आधारित हैं और विशेष रूप से भारतीय हिमालयी क्षेत्र पर लागू नहीं होती हैं। उदाहरण के लिए, भारत के अधिकांश भागों की तरह हिमालयी क्षेत्र में भी बड़ी संख्या में गैरइंजीनियरिंग आधारित संरचनाएं हैं। स्थानीय निर्माण श्रमकों में जागरूकता की कमी एवं हितधारकों के खराब नियोजन के कारण इमारतों एवं बुनियादी संरचनाओं का बेतरतीब वतरण देखने को मिलता है। इस लिए, क्षेत्र विशेष आरवीएस - दिशानिर्देश का उपयोग आवश्यक है, जिसमें स्थानीय निर्माण प्रथाएं और टाइपोलॉजी जैसे कारक शामिल होते हैं।

डॉ संदीप कुमार साहा, सहायक प्रोफेसर, स्कूल ऑफ सवल एंड एनवायरनमेंटल इंजीनियरिंग, आईआईटी मंडी के नेतृत्व में यह अध्ययन उनके पीएचछात्र यति अग्रवाल ने किया है। यह .डी. अध्ययन, शोध पत्रिका बुलेटिन ऑफ अर्थक्वेक इंजीनियरिंग में प्रकाशित किया गया है।

डॉ संदीप कुमार साहा बताते हैं (आरसी) हमने भारतीय हिमालयी क्षेत्र में प्रबलत कंक्रीट" - इमारतों की स्क्रीनिंग के लिए एक प्रभावी तरीका तैयार किया है, ताकि इमारतों की स्थिति के



अनुसार मरम्मत कार्य को प्राथमिकता दी जा सके और आसन्न भूकंप के जोखिम को कम किया जा सके।”

शोधकर्ता यती अग्रवाल कहती हैं -“हमने दिखाया है कि प्रस्तावित वृद्ध पहाड़ी क्षेत्रों में भूकंप की स्थिति में प्रबलत कंक्रीट इमारतों को होने वाले संभावित नुकसान के अनुसार अलग करने में उपयोगी है।”

भारतीय और यूरोपियन प्लेटों में टकराव के कारण हिमालय को दुनिया के सबसे अधिक भूकंप-संभावित क्षेत्रों में शामिल किया जाता है। यहाँ ऐसे भूकंप आते रहे हैं, जो जीवन और संपत्ति दोनों के नुकसान पहुँचाने के मामले में वनाशकारी रहे हैं।

हिमालयी की भूकंप भेद्यता के कारण वहाँ इमारतों का मूल्यांकन एक तत्काल आवश्यकता है। शोधकर्ताओं का कहना है कि पछली दो शताब्दियों के कारण इस क्षेत्र में "भूकंपीय अंतर" बड़े भूकंप) कभी भी समय बड़े भूकंप की आशंका है। यह माना जाता है कि भूकंपीय अंतराल तनाव को संचित करने में लगने (की अनुपस्थिति वाले समय का प्रतिनिधित्व करता है, जो बाद में एक बड़े भूकंप के रूप में जारी होता है। शोधकर्ताओं का कहना है कि इन क्षेत्रों में मानव आवास संरचना को मजबूत करना समय की माँग है ताकि वे भविष्य में भूकंप का सामना कर सकें।

(इंडिया साइंस वायर)



New Delhi | New method to assess seismic vulnerabilities of buildings

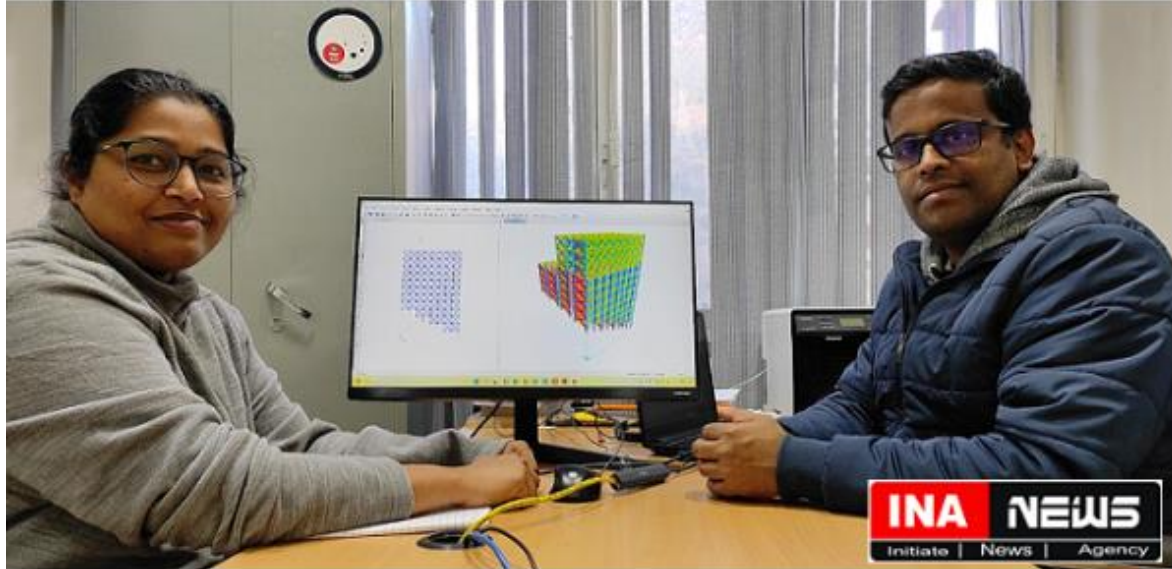
News नवंबर 28, 2022

New Delhi | Researchers at the Indian Institute of Technology Mandi have developed a method to assess the ability of buildings in the Himalayan region to withstand earthquakes. The method is simple and allows decision-makers to prioritize strengthening and repair work that must be undertaken for enhanced building's resistance to earthquakes.

Rapid Visual Screening (RVS) of buildings is often performed to assess building vulnerabilities at a large scale. RVS uses visual information to decide if a building is safe to occupy or requires immediate engineering work to enhance earthquake safety.

Through extensive field surveys, researchers have collected a large amount of data on the types of buildings present in the Mandi region of the Himalayas and the typical attributes of these buildings connected to their earthquake vulnerability. A numerical study was also carried out to establish guidelines for counting the number of stories in hilly buildings for their RVS. Further, based on the vulnerable characteristics present in buildings, an improved RVS method was proposed.





Dr Sandip Kumar Saha and Ms Yati Aggarwal from IIT Mandi

The methodology developed for screening buildings is a simple single-page RVS form that does not require much expertise to fill. It considers the various vulnerability attributes unique to the buildings in the case study region.

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“It’s time that human habitats in these areas are bolstered so that they can withstand any mild or severe earthquakes that may occur in the future,” researchers cautioned.

(India Science Wire)

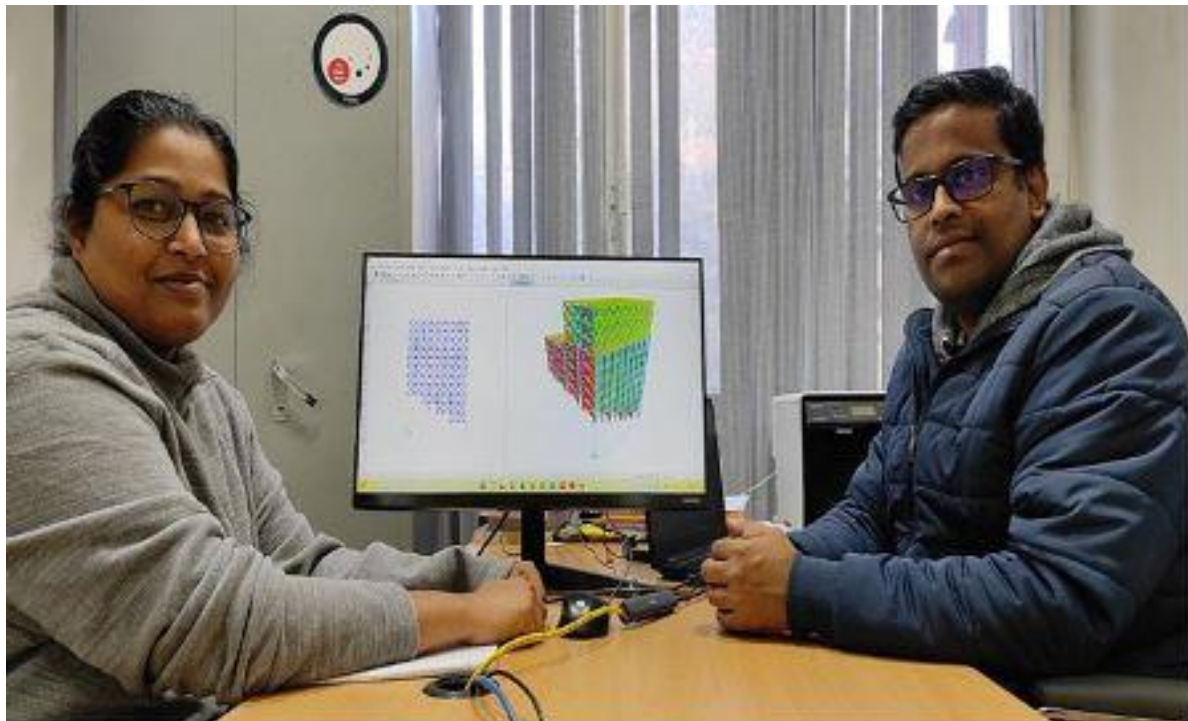


New Method to Assess Vulnerabilities of Buildings

The assessment of buildings in the Himalayan region is urgently needed because of the region's earthquake vulnerability.

By ISW Desk On Nov 26, 2022

Researchers at the Indian Institute of Technology Mandi have developed a method to assess the ability of buildings in the Himalayan region to withstand earthquakes. The method is simple and allows decision-makers to prioritize strengthening and repair work that must be undertaken for enhanced building resistance to earthquakes.



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Rapid Visual Screening (RVS) of buildings is often performed to assess building vulnerabilities at a large scale. RVS uses visual information to decide if a building is safe to occupy or requires immediate engineering work to enhance earthquake safety.

Through extensive field surveys, researchers have collected a large amount of data on the types of buildings present in the Mandi region of the Himalayas and the typical attributes of these buildings connected to their earthquake vulnerability. A numerical study was also carried out to establish guidelines for counting the number of stories in hilly buildings for their RVS. Further, based on the vulnerable characteristics present in buildings, an improved RVS method was proposed.

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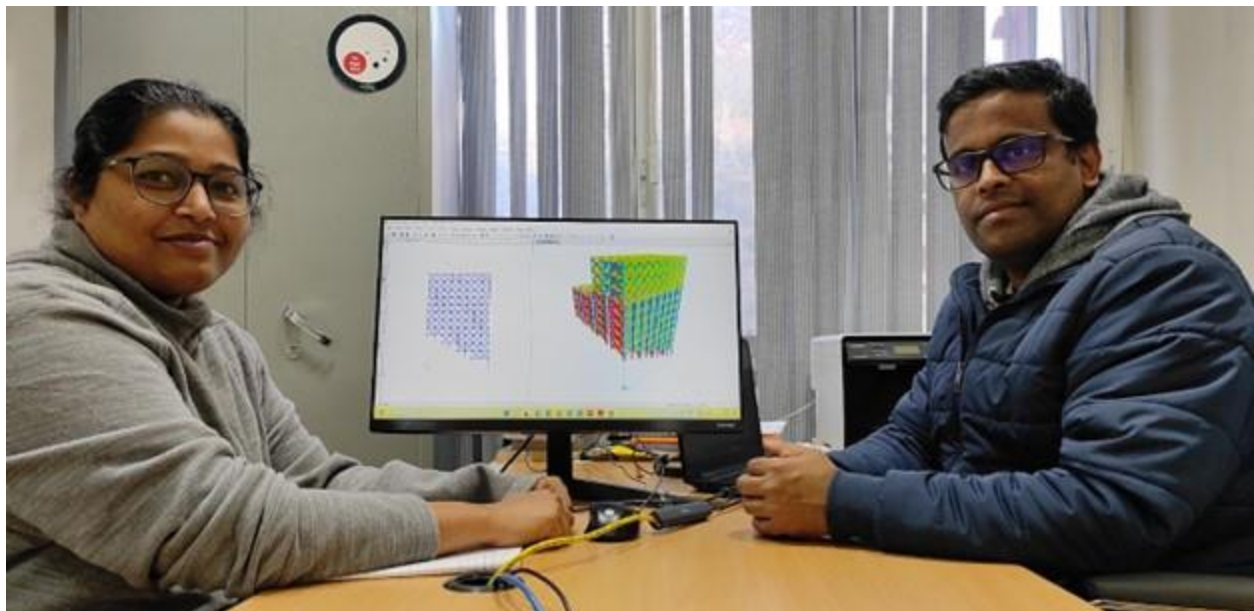


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India Science Wire

6:30 AM, 27 November, 2022 Updated 2:27 PM, 26 November, 2022



Dr. Sandip Kumar Saha and Yati Aggarwal from IIT Mandi | Pic: India Science Wire

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Glorious 13th Year

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New Delhi: New Catalytic materials to produce high purity hydrogen.

News नवंबर 28, 2022

New Delhi (India Science Wire): Hydrogen-based energy is created using renewable energy instead of fossil fuels. It is seen as a viable source for a green and sustainable future. But nearly 90% source of the hydrogen sources are from petroleum feedstock, making it expensive. In a new study organised by the Indian Institute of Technology (IIT) Jodhpur, researchers have developed a series of catalysts capable of efficiently producing hydrogen under ambient conditions. The end application of this research lies in the industries, automobile, and energy sectors, says the statement issued by IIT Jodhpur.

The developed catalysts are lanthanides-based perovskite nanocomposite materials for artificial photosynthesis. In the patented method, the researchers have used natural sunlight to convert water into hydrogen and oxygen, using a recyclable catalyst based on low-cost, simple transition metal. The research team screened over 100 catalyst combinations to develop five sets of catalysts that gave high hydrogen production under sunlight. The catalysts work for wastewater, saline water and brackish water. They are recyclable and can be used multiple times. Lanthanide-based catalytic systems gave the best results and were found effective in continuous pure hydrogen production for 7.5 hours.





Team of researchers at IIT Jodhpur

“Indigenous sustainable catalyst for large scale green hydrogen production is benchmark innovation for next generation happiness”, said, Dr Rakesh K. Sharma, Principal Investigator and Associate Professor at the Department of Chemistry, IIT Jodhpur.

The process is simple and works on a broad spectrum of sunlight, and requires no energy source to produce hydrogen. Low cost and high purity could be an essential step towards using hydrogen as a fuel directly in vehicles avoiding fossil fuels and reducing pollution. This novel research is jointly funded by the Department of Science and Technology (DST) and IIT Jodhpur. Further, the researchers aim to develop a prototype followed by a scale-up for large-scale hydrogen production for end-user applications.

Apart from Dr Rakesh K. Sharma, the research team involves a bunch of PhD and post-doctoral fellows, including Dr Kiran Shejale, Dr Devika Laishram, Mr Bhagirath Saini and Dr Krishnapriya. **(India Science Wire)**





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भारत में चहिनत कये हीरा-युक्त Kimberlites के नये संभावत क्षेत्र

By [admin](#) December 4, 2022



नयी दिल्ली। चेन्नई के उत्तरपश्चिम और हैदराबाद के दक्षिण में गहरे रंग के चट्टानी टीलों में - हीरा हो सकते हैं। भूगर्भशास्त्र की दृष्टि से ये चट्टानी टीले भारत के पूर्वी धारवाड़क्रेटन क्षेत्र में आते हैं। सीएसआईआर) राष्ट्रीय भूभौतिकीय अनुसंधान संस्थान-NGRI), हैदराबाद द्वारा जारी जानकारी के अनुसार मैं फक चट्टानों के इन टीलों की आयुनिर्धारण के क्रम में संस्थान के -) वैज्ञानिकों ने हीरे वाले कम्बरलाइट्स(Kimberlites) के नये संभावत स्थलों की पहचान की है। इससे सतह से कई किलोमीटर नीचे हीरे पाये जाने की संभावना को बल मला है। फर भी हीरा-खनन के उपयुक्त स्थानों को खोजने के लए आगे कई और वैज्ञानिक अध्ययनों की

कर्नाटकआंध्र में भी स्थलों की पहचान-

पूर्वी धारवाड़ क्रेटन क्षेत्र के व भन्न हिस्सों में ऐसे 150 से अधिक कम्बरलाइट्स स्थलों की पहचान हो चुकी है जिनमें से कर्नाटक के रायचूर और आंध्रप्रदेश के वज्रकरूर स्थित कम्बरलाइट्स क्षेत्र हीरा युक्त पाए गए हैं। मैफक चट्टानों में सलका की मात्रा लगभग-50 प्रतिशत कम होती है और ये मैग्नीशियम तथा फेरिक यौगकों से भरपूर होते हैं। मैग्नीशियम और फेरिक शब्दों को संयुक्त और संक्षिप्त कर भूवैज्ञानिक उन्हें मैफक चट्टान कहते हैं। आमतौर पर ये चट्टानें बेहद सख्त होती हैं, जिनका खनन सड़क और भवन निर्माण में उपयोग के लिए किया जाता है।

धरती से 150 कमी नीचे मलना संभव

हीरे अधिकांशतः धरती की परत से 150 किलोमीटर से भी अधिक गहराई में निर्मित और संरक्षित होते हैं। ये हीरे कम्बरलाइट्स चट्टानों में धरती की सतह के निकट भी पाये जा सकते हैं। कम्बरलाइट्स चट्टानों का नामकरण दक्षिण अफ्रीका के कम्बरले नामक स्थान पर किया गया है, जहाँ से हीरे के खनन की शुरुआत हुई थी।

आठ अलगअलग कालखंडों की पहचान-

NGRI के शोधकर्ताओं ने कम से कम आठ अलगअलग कालखंडों की पहचान की है-, जब धरती के गर्भ से निकलने वाले खौलते लावा ने कालांतर में ठंडे होकर (मैग्मा)र पूर्वी धारवाड़ क्षेत्र में मैफक डाइक का निर्माण किया। शोधकर्ता ईएकत्र किये गए नमूनों की -नागराजू बताते हैं . डेटिंग से पता चला है कि इनमें से पहला लगभग 2367 मलयन वर्ष पहले निर्मित हुआ था। इसके बाद की आग्नेय शैलें लगभग (अन्तर्वेधी चट्टानें) 2253, 2216, 2210, 2082, 2180, 1886 तथा 1864 मलयन वर्ष पूर्व की निर्मिति बतायी जा रही हैं। टीम के सदस्य वी . -परशुरामुलु बताते हैं 1864 मलयन वर्ष पूर्व घटित होने वाली मैफक घटना, मैफक डाइक पर शोध करने वाले पूर्ववर्ती अध्ययनकर्ताओं की दृष्टि में नहीं आ पायी थी।

इंडिया साइंस वायर से साभार



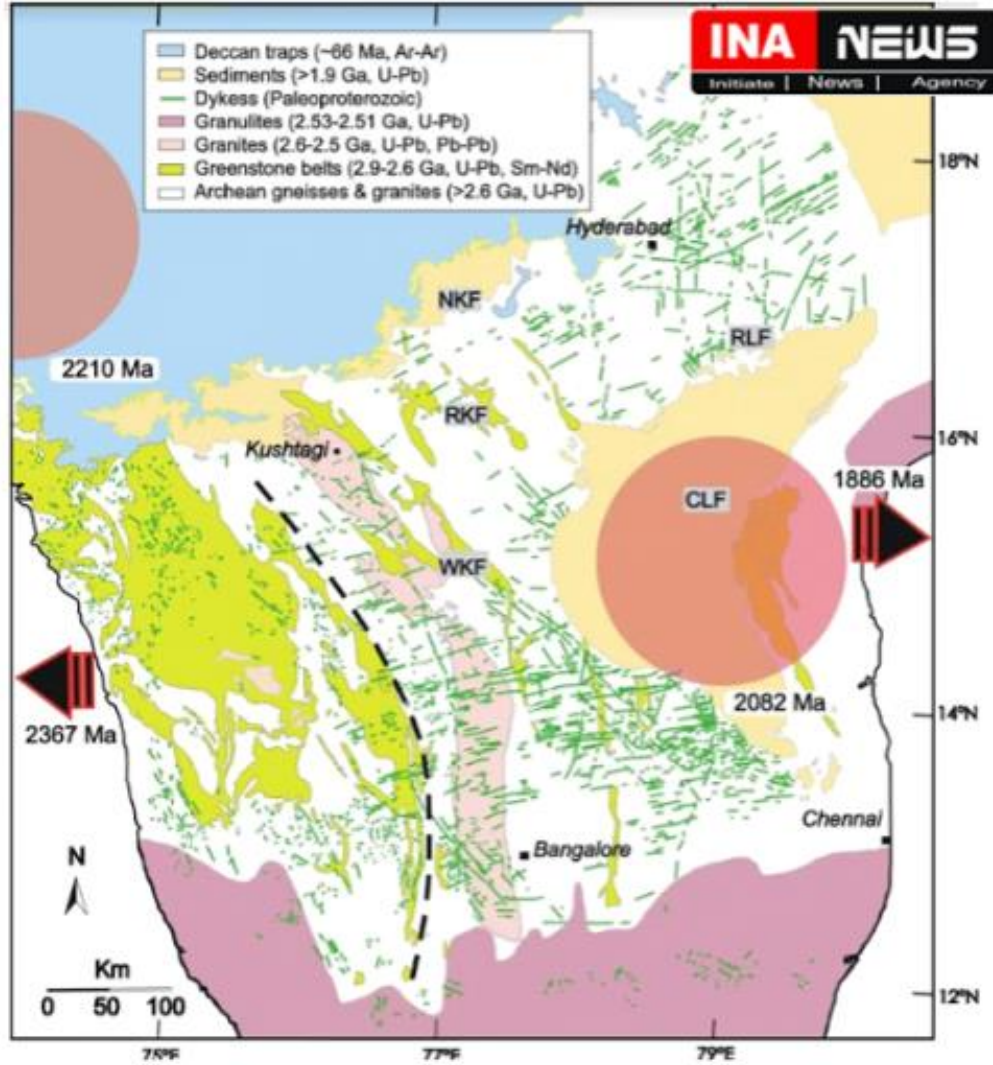
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News नवंबर 28, 2022

नई दिल्ली (इंडिया साइंस वायर(चेन्नई के उत्तरदूर तक गहरे -पश्चिम और हैदराबाद के दक्षिण में दूर-रंग के चट्टानी टीले दिखाई देते हैं। भूगर्भशास्त्र की दृष्टि से ये चट्टानी टीले भारत के पूर्वी धारवाड़ क्रेटन क्षेत्र में आते हैं। सीएसआईआर(एनजीआरआई) राष्ट्रीय भूभौतिकीय अनुसंधान संस्थान, हैदराबाद द्वारा जारी की गई जानकारी के अनुसार, मैफक चट्टानों के इन टीलों की आयुनिर्धारण - के क्रम में संस्थान के वैज्ञानिकों ने हीरे वाले कम्बरलाइट्स के नये संभावत स्थलों की पहचान की है।

मैफक चट्टानों में सलका की मात्रा लगभग 50 प्रतिशत कम होती है और ये मैग्नीशियम तथा फेरिक यौगकों से भरपूर होते हैं। मैग्नीशियम और फेरिक शब्दों को संयुक्त और संक्षिप्त कर भूवैज्ञानिक उन्हें मैफक चट्टान कहते हैं। आमतौर पर, ये चट्टानें बेहद सख्त होती हैं, जिनका खनन सड़क और भवन निर्माण में उपयोग के लिए किया जाता है।





पूर्वी धारवाड़ क्रेटन क्षेत्र के व भन्न हिस्सों में ऐसे 150 से अधिक कम्बरलाइट्स स्थलों की पहचान हो चुकी है जिनमें से कर्नाटक के रायचूर और आंध्रप्रदेश के वज्रकरूर स्थित कम्बरलाइट्स क्षेत्र हीरा युक्त पाए गए हैं। हीरे अधिकांशतः धरती की परत से-150 किलोमीटर से भी अधिक गहराई में निर्मित और संरक्षित होते हैं। ये हीरे कम्बरलाइट्स चट्टानों में, धरती की सतह के निकट भी पाये जा सकते हैं। कम्बरलाइट्स चट्टानों का नामकरण दक्षिण अफ्रीका के कम्बरले नामक स्थान पर किया गया है, जहाँ से हीरे के खनन की शुरुआत हुई थी।

एनजीआरआई के शोधकर्ताओं ने मैफक डाइक के निर्माण के पीछे उत्तरदायी भूगर्भीय गति व धरियों की पड़ताल और धारवाड़ क्रेटन के हीरायुक्त कम्बरलाइट की जड़ों पर उनके प्रभाव की (मेंटल प्लूम) पड़ताल की है। हैदराबाद के दक्षिण और चेन्नई के उत्तर पश्चिम के विशाल चट्टानी क्षेत्र के सात डाइक और तीन सीलों से उन्होंने अध्ययन के लिए नमूने एकत्र किये। पृथ्वी की सतह के नीचे,

चट्टानी दरारों में क्षैतिज अवस्था में ठंडे हो चुके मैग्मा को सील कहा जाता है। इसी प्रकार, धरातल के नीचे लंबवत् अवस्था में जमे लावा को डाइक कहते हैं।

एकत्रित नमूनों का चूरा बनाकर उसमें से बैडेलीआइट्स कणों को पृथक कर लिया गया। बैडेलीआइट्स, स लका चट्टानों में पाये जाने वाले जिरकोनियम ऑक्साइड खनिज का एक क्रस्टल है। चूं क यह अत्यंत स्थिर है, इसी लए इसका उपयोग रे डयोमेट्रिक आयु निर्धारित करने के लए कया जा सकता है।

वैज्ञानिकों ने बैडेलीआइट्स कणों से तापीय रूप से सीसा निकाला और, सीसे के व भन्न समस्थानिकों के अनुपात का निर्धारण करके, उन्होंने चट्टान के नमूनों की आयु की गणना की। इस प्रकार शोध टीम ने कम से कम आठ अलगअलग कालखंडों की पहचान की है-, जब धरती के गर्भ से निकलने वाले खौलते लावा ने कालांतर में ठंडे होकर पूर्वी धारवा (मैग्मा)इ क्षेत्र में मै फक डाइक का निर्माण कया।

एनजीआरआई के शोधकर्ता ईएकत्र कये गए नमूनों की डेटिंग से पता चला है "- नागराजू बताते हैं . क इनमें से पहला लगभग 2367 म लयन वर्ष पहले निर् मित हुआ था। इसके बाद की आग्नेय शैलें " लगभग (अन्तर्वेधी चट्टानें) 2253, 2216, 2210, 2082, 2180, 1886 तथा 1864 म लयन वर्ष पूर्व की निर् मति बतायी जा रही हैं।

एनजीआरआई की अध्ययन टीम के सदस्य वी वर्ष" - परशुरामुलु बताते हैं .1864 म लयन वर्ष पूर्व घटित होने वाली मै फक घटना, मै फक डाइक पर शोध करने वाले पूर्ववर्ती अध्ययनकर्ताओं की दृष्टि में नहीं आ पायी थी।"

इन मै फक डाइक के समूहों में दो समानांतर और छह रे डएटिंग कोटि के थे। रे डएटिंग डाइक समूह के डाइक एक ही बिंदु पर मलते पाये गए हैं, जो शायद उनके उद्गम या प्लम हेड का द्योतक है। इस अवधारणा के आधार पर, वैज्ञानिकों ने चार मेंटल प्लूम केंद्रों का पता लगाया है। मेंटल प्लूम पृथ्वी के आंतरिक केंद्र का वह स्थान है, जहाँ से गर्म चट्टानें पघलकर मैग्मा के रूप में ऊपर उठती हैं। लगभग 2367, 2210 और 2180 म लयन वर्ष पूर्व सक्रय पश्चिमी प्लूम केंद्र हीरा वहीन नारायण - पेट कम्बरलाइट क्षेत्र के नकिट है। लेकन, लगभग 2082 म लयन वर्ष पहले का प्लूम हेड वर्तमान में धारवाइ क्रेटन के कडप्पा बे सन के नीचे है, जो हीरायुक्त वज्रकरू कम्बरलाइट क्षेत्र - लगभग"1886-1864 म लयन वर्ष पहले की मैग्मैटिक हलचल के बाद, मेंटल प्लूम की कोई महत्वपूर्ण घटना नहीं हुई। लथोस्फेयर के ठंडे हो जाने से हीरे के निर्माण के अनुकूल परिस्थितियां बहाल हो



गयी होंगी। इस प्रकार, 1100 मलयन वर्ष पूर्व निर्मित कम्बरलाइट वध्वंस से बच गए और उनमे हीरा भी बचा रह गया।”

इस अध्ययन में शा मल शोधकर्ताओं में डी श्रीनिवास शर्मा, वीपरशुरामुलु और . ईनागराजू के अलावा . रमेश बाबू शा मल हैं। इस अध्ययन से संतोष तथा एन.एम, चहिनत कम्बरलाइट क्षेत्रों में पृथ्वी की सतह से कई किलोमीटर नीचे हीरे पाये जाने की संभावना को बल मला है। फर भी, हीराखनन के - उपयुक्त स्थानों को खोजने के लिए आगे कई और वैज्ञानिक अध्ययनों की आवश्यकता होगी।





भारतीय भूवैज्ञानिकों ने चहिनित कये हीरा-युक्त कम्बरलाइट्स के नये संभावित क्षेत्र



ByEditor

नवम्बर 28, 2022

हीरे वाले कम्बरलाइट्स के नये संभावित स्थलों की वैज्ञानिकों ने पहचान की है

नई दिल्ली, 25 नवंबर 2022: चेन्नई के उत्तरदूर तक -पश्चिम और हैदराबाद के दक्षिण में दूर-गहरे रंग के चट्टानी टीले दिखाई देते हैं। भूगर्भशास्त्र की दृष्टि से ये चट्टानी टीले भारत के पूर्वी धारवाड़ क्रेटन क्षेत्र (*East Dharwar Craton*) में आते हैं। सीएसआईआर राष्ट्रीय - (एनजीआरआई) भूभौतिकीय अनुसंधान संस्थान, हैदराबाद द्वारा जारी की गई जानकारी के अनुसार, मैफक चट्टानों के इन टीलों की आयुनिर्धारण के क्रम में संस्थान के वैज्ञानिकों ने हीरे - वाले कम्बरलाइट्स के नये संभावित स्थलों की पहचान की है।

मैफक चट्टानों में सलका की मात्रा लगभग 50 प्रतिशत कम होती है और ये मैग्नीशियम तथा फेरिक यौगकों से भरपूर होते हैं। मैग्नीशियम और फेरिक शब्दों को संयुक्त और संक्षिप्त कर भूवैज्ञानिक उन्हें मैफक चट्टान कहते हैं। आमतौर पर, ये चट्टानें बेहद सख्त होती हैं, जिनका खनन सड़क और भवन निर्माण में उपयोग के लिए किया जाता है।

पूर्वी धारवाड़ क्रेटन क्षेत्र के वभन्न हिस्सों में ऐसे 150 से अधिक कम्बरलाइट्स स्थलों की पहचान हो चुकी है जिनमें से कर्नाटक के रायचूर और आंध्रप्रदेश के वज्रकरूर स्थित कम्बरलाइट्स क्षेत्र हीरायुक्त पाए गए हैं।-



हीरे अधिकांशतः धरती की परत से 150 किलोमीटर से भी अधिक गहराई में निर्मित और संरक्षित होते हैं।

ये हीरे कम्बरलाइट्स चट्टानों में, धरती की सतह के निकट भी पाये जा सकते हैं। कम्बरलाइट्स चट्टानों का नामकरण दक्षिण अफ्रीका के कम्बरले नामक स्थान पर किया गया है, जहाँ से हीरे के खनन की शुरुआत हुई थी।

एनजीआरआई के शोधकर्ताओं ने मैफक डाइक के निर्माण के पीछे उत्तरदायी भूगर्भीय गति व धरियों की पड़ताल और धारवाड़ क्रेटन के हीरायुक्त कम्बरलाइट की जड़ों पर (मैटल प्लूम) उनके प्रभाव की पड़ताल की है।

हैदराबाद के दक्षिण और चेन्नई के उत्तर पश्चिम के विशाल चट्टानी क्षेत्र के सात डाइक और तीन सीलों से उन्होंने अध्ययन के लिए नमूने एकत्र किये। पृथ्वी की सतह के नीचे, चट्टानी दरारों में क्षैतिज अवस्था में ठंडे हो चुके मैग्मा को सील कहा जाता है। इसी प्रकार, धरातल के नीचे लंबवत् अवस्था में जमे लावा को डाइक कहते हैं।

एकत्रित नमूनों का चूरा बनाकर उसमें से बैडेलीआइट्स कणों को पृथक कर लिया गया।

बैडेलीआइट्स क्या होते हैं?

बैडेलीआइट्स, सलका चट्टानों में पाये जाने वाले जिरकोनियम ऑक्साइड खनिज का एक क्रिस्टल है। चूँकि यह अत्यंत स्थिर है, इसी लिए इसका उपयोग रेडियोमेट्रिक आयु निर्धारित करने के लिए किया जा सकता है।

वैज्ञानिकों ने बैडेलीआइट्स कणों से तापीय रूप से सीसा निकाला और, सीसे के विलेयन समस्थानिकों के अनुपात का निर्धारण करके, उन्होंने चट्टान के नमूनों की आयु की गणना की। इस प्रकार शोध टीम ने कम से कम आठ अलग-अलग कालखंडों की पहचान की है-, जब धरती के गर्भ से निकलने वाले खौलते लावा ने (मैग्मा)कालांतर में ठंडे होकर पूर्वी धारवाड़ क्षेत्र में मैफक डाइक का निर्माण किया।

एनजीआरआई के शोधकर्ता ई- नागराजू बताते हैं .“एकत्र किये गए नमूनों की डेटिंग से पता चला है कि इनमें से पहला लगभग 2367 मलयन वर्ष पहले निर्मित हुआ था।”



इसके बाद की आग्नेय शैलें अन्तर्वेधी चट्टानें लगभग (2253, 2216, 2210, 2082, 2180, 1886 तथा 1864 मलयन वर्ष पूर्व की निर्मिति बतायी जा रही हैं।

एनजीआरआई की अध्ययन टीम के सदस्य वी परशुरामुलु बताते हैं - “वर्ष 1864 मलयन वर्ष पूर्व घटित होने वाली मैफक घटना, मैफक डाइक पर शोध करने वाले पूर्ववर्ती अध्ययनकर्ताओं की दृष्टि में नहीं आ पायी थी।”

इन मैफक डाइक के समूहों में दो समानांतर और छह रेडएटिंग कोटि के थे। रेडएटिंग डाइक समूह के डाइक एक ही बिंदु पर मलते पाये गए हैं, जो शायद उनके उद्गम या प्लम हेड का द्योतक है। इस अवधारणा के आधार पर, वैज्ञानिकों ने चार मेंटल प्लूम केंद्रों का पता लगाया है। मेंटल प्लूम पृथ्वी के आंतरिक केंद्र का वह स्थान है, जहाँ से गर्म चट्टानें पघलकर मैग्मा के रूप में ऊपर उठती हैं। लगभग 2367, 2210 और 2180 मलयन वर्ष पूर्व सक्रय पश्चिमी प्लूम केंद्र हीरावहीन- नारायण पेट कम्बरलाइट क्षेत्र के निकट है। लेकिन, लगभग 2082 मलयन वर्ष पहले का प्लूम हेड वर्तमान में धारवाड़ क्रेटन के कडप्पा बेसन के नीचे है, जो हीरा युक्त वज्रकरूरु कम्बरलाइट क्षेत्र के-100 किलोमीटर के दायरे में स्थित है।

शोधकर्ताओं में शामल डीश्री .निवास शर्मा बताते हैं - “लगभग 1886-1864 मलयन वर्ष पहले की मैग्मैटिक हलचल के बाद, मेंटल प्लूम की कोई महत्वपूर्ण घटना नहीं हुई। लथोस्फेयर के ठंडे हो जाने से हीरे के निर्माण के अनुकूल परिस्थितियां बहाल हो गयी होंगी। इस प्रकार, 1100 मलयन वर्ष पूर्व निर्मित कम्बरलाइट वध्वंस से बच गए और उनमें हीरा भी बचा रह गया।”

इस अध्ययन में शामल शोधकर्ताओं में डी श्रीनिवास शर्मा, वीपरशुरामुलु और . ईनागराजू के . रमेश बाबू शामल हैं। इस अध्ययन से संतोष तथा एन.अलावा एम, चहिनित कम्बरलाइट क्षेत्रों में पृथ्वी की सतह से कई किलोमीटर नीचे हीरे पाये जाने की संभावना को बल मिला है। फर भी, हीराखनन के उपयुक्त स्थानों को खोजने के लए आगे कई और वैज्ञानिक अध्ययनों की - आवश्यकता होगी।

(इं डया साइंस वायर)



नई दिल्ली। समुद्री अनुसंधान और ब्लूइकोनॉमी को सशक्त - करेगा ओशनसैट।

[News नवंबर 28, 2022](#)

नई दिल्ली (इंडिया साइंस वायर): भारतीय अंतरिक्ष अनुसंधान संगठन (इसरो) ने महासागरों के अध्ययन के लिए पृथ्वी वज्ञान मंत्रालय की साझेदारी में तीसरी पीढ़ी के पृथ्वी अवलोकन उपग्रह (ओशनसैट) को सफलतापूर्वक लॉन्च कर दिया है। भू-प्रेक्षण उपग्रह-6 (ईओएस-6) नामक यह उपग्रह गत शनिवार को श्रीहरिकोटा में सतीश धवन अंतरिक्ष केंद्र (एसडीएससी) से अन्य उपग्रहों के साथ लॉन्च किया गया है।

उपग्रहों की ओशनसैट श्रृंखला महासागरों के अध्ययन से संबंधित भारत के महत्वकांक्षी मिशन का हिस्सा है। वर्ष 1999 और 2009 में लॉन्च किए गए ओशनसैट-1 और ओशनसैट-2 की कड़ी में लॉन्च किया गया ओशनसैट-3 अपनी तरह का तीसरा उपग्रह है। अंतरिक्ष विभाग के अनुसार, ओशनसैट की मदद से, समुद्री शैवाल के वृद्धि से संबंधित आंकड़े प्राप्त करने, फाइटोप्लैंक्टन निगरानी, मत्स्य संसाधन प्रबंधन, महासागरों द्वारा कार्बन अवशोषण, हानिकारक शैवाल में वृद्धि की चेतावनी और जलवायु अध्ययन सहित परिचालन और अनुसंधान संबंधी अनुप्रयोगों में सुधार हो सकेगा।





पीएसएलवी रॉकेट की एक प्रतीकात्मक तस्वीर (फोटो: क्रएटिव कॉमन्स)

ओशनसैट-3 में तीन निगरानी सेंसर यानी ओशन कलर मॉनिटर, समुद्री सतह तापमान मॉनिटर और केयू बैंड स्कैट्रोमीटर लगाए गए हैं। भारत की ब्लू इकोनॉमी से जुड़ी आकांक्षाओं को पूरा करने में इन सभी सेंसर्स का विशेष महत्व है। ओशनसैट उपग्रह से समुद्री सतह के तापमान की सटीक जानकारी भी मल सकेगी। समुद्र सतह के तापमान को मछलियों के समूह से लेकर चक्रवात उत्पत्ति और उनकी चाल सहित व भन्न पूर्वानुमानों में महत्वपूर्ण मानदंड माना जाता है। प्रवाल भूत्यों की निगरानी और प्रवाल वरंजन की चेतावनी प्रदान करने में भी तापमान एक प्रमुख मानदंड है।

इसमें एक संचार पेलोड एआरजीओएस शामिल है, जिसे फ्रांस के साथ संयुक्त रूप से विकसित किया गया है। इसका उपयोग ऊर्जा-कुशल संचार के लिए किया जाता है। इसमें समुद्र में मौजूद रोबोटिक फ्लोट्स (ऑर्ग फ्लोट्स), मछलियों पर लगने वाले टैग, ड्रिफ्टर्स और खोज तथा बचाव



कार्यों के प्रभावी संचालन में उपयोगी संकट चेतावनी उपकरण शामिल हैं। यह उपग्रह केयू-बैंड पेंसल बीम स्कैट्रोमीटर से लैस है, जो समुद्री सतह पर उच्च रिजॉल्यूशन वंड वेक्टर (गति और दिशा) की जानकारी प्रदान करता है। ऐसी जानकारी का नावकों, मछुआरों और शपंग कंपनियों के लिए विशेष महत्व है।

केंद्रीय वज्ञान और प्रौद्योगिकी एवं पृथ्वी वज्ञान राज्यमंत्री (स्वतंत्र प्रभार) और पीएमओ, कार्मक, लोक शकायत, पेंशन, परमाणु ऊर्जा और अंतरिक्ष राज्यमंत्री, डॉ. जितेंद्र सिंह ने सफल प्रक्षेपण के लिए इसरो और एमओईएस टीमों को बधाई दी है। उन्होंने बताया है कि इसरो उपग्रह की कक्षा और आंकड़े प्राप्त करने और उन्हें सुरक्षित रखने जैसी मानक प्रक्रियाओं को जारी रखेगा। इस उपग्रह के प्रमुख परिचालन उपयोगकर्ताओं में पृथ्वी वज्ञान मंत्रालय से सम्बद्ध संस्थान भारतीय राष्ट्रीय महासागर सूचना सेवा केंद्र (आईएनसीओआईएस), हैदराबाद और राष्ट्रीय मध्यम अवधि मौसम पूर्वानुमान केंद्र, नोएडा शामिल हैं।

पृथ्वी वज्ञान मंत्रालय के सचिव डॉ. एम. रवचंद्रन ने कहा है कि इस उपग्रह में महासागर के रंग, एसएसटी और समुद्री सतह की हवाओं का समवर्ती मापन करने की क्षमता होगी, और उम्मीद है कि यह दुनियाभर के वैज्ञानिकों और परिचालन समुदायों की सागर को समझने की उनकी क्षमता वृद्धि में सहायक होगा। लगभग 1100 किलोग्राम वजनी ओशनसैट-3 को समुद्र तल से करीब 740 किलोमीटर की ऊंचाई पर ध्रुवीय कक्षा में स्थापित किया गया है। भारतीय अंतरिक्ष एजेंसी इसरो के भरोसेमंद प्रक्षेपण यान ध्रुवीय उपग्रह प्रक्षेपण यान (पीएसएलवी) ने ओशनसैट को सफलतापूर्वक ध्रुवीय कक्षा (सन-संक्रोनस ऑर्बिट) में स्थापित किया है।

इसरो के अध्यक्ष एस. सोमनाथ ने कहा है कि पीएसएलवी-सी54 ने पृथ्वी अवलोकन उपग्रह को सफलतापूर्वक उसकी कक्षा में स्थापित कर दिया है। पीएसएलवी-सी54 पृथ्वी अवलोकन उपग्रह के साथ ही आठ अन्य उपग्रहों को भी साथ लेकर गया है। इसरो प्रमुख ने कहा है कि 44.4 मीटर लंबा रॉकेट सतीश धवन अंतरिक्ष केंद्र से निर्धारित समय पर अपने अभियान पर रवाना हुआ। पीएसएलवी-सी54 के प्रक्षेपण के 17 मिनट बाद निर्धारित कक्षा में पहुँचने पर ओशनसैट सफलतापूर्वक रॉकेट से अलग हो गया और उसे कक्षा में स्थापित कर दिया गया। (इंडिया साइंस वायर)





समुद्री अनुसंधान और ब्लूडिकोनाॅमी को सशक्त करेगा - ओशनसैट

29/11/2022 [V3news India](#)



नई दिल्ली, 28 नवंबर ने (इसरो) भारतीय अंतरिक्ष अनुसंधान संगठन : (इंडिया साइंस वायर) महासागरों के अध्ययन के लिए पृथ्वी विज्ञान मंत्रालय की साझेदारी में तीसरी पीढ़ी के पृथ्वी अवलोकन उपग्रह -प्रेक्षण उपग्रह-को सफलतापूर्वक लॉन्च कर दिया है। भू (ओशनसैट)6



(ईओएस-6) नामक यह उपग्रह गत शनिवार को श्रीहरिकोटा में सतीश धवन अंतरिक्ष केंद्र से अन्य उपग्रह (एसडीएससी)ों के साथ लॉन्च किया गया है।

उपग्रहों की ओशनसैट श्रृंखला महासागरों के अध्ययन से संबंधित भारत के महत्वकांक्षी मिशन का हिस्सा है। वर्ष 1999 और 2009 में लॉन्च किए गए ओशनसैट-1 और ओशनसैट-2 की कड़ी में लॉन्च किया गया ओशनसैट-3 अपनी तरह का तीसरा उपग्रह है। अंतरिक्ष विभाग के अनुसार, ओशनसैट की मदद से, समुद्री शैवाल के वतरण से संबंधित आंकड़े प्राप्त करने, फाइटोप्लैंकटन निगरानी, मत्स्य संसाधन प्रबंधन, महासागरों द्वारा कार्बन अवशोषण, हानिकारक शैवाल में वृद्धि की चेतावनी और जलवायु अध्ययन सहित परिचालन और अनुसंधान संबंधी अनुप्रयोगों में सुधार हो सकेगा।

ओशनसैट-3 में तीन निगरानी सेंसर यानी ओशन कलर मॉनिटर, समुद्री सतह तापमान मॉनिटर और केयू बैंड स्कैट्रोमीटर लगाए गए हैं। भारत की ब्लू इकोनॉमी से जुड़ी आकांक्षाओं को पूरा करने में इन सभी सेंसरों का विशेष महत्व है। ओशनसैट उपग्रह से समुद्री सतह के तापमान की सटीक जानकारी भी मिल सकेगी। समुद्र सतह के तापमान को मछलियों के समूह से लेकर चक्रवात उत्पत्ति और उनकी चाल सहित विभिन्न पूर्वानुमानों में महत्वपूर्ण मानदंड माना जाता है। प्रवाल भित्तियों की निगरानी और प्रवाल वरंजन की चेतावनी प्रदान करने में भी तापमान एक प्रमुख मानदंड है।

इसमें एक संचार पेलोड एआरजीओएस शामिल है, जिसे फ्रांस के साथ संयुक्त रूप से विकसित किया गया है। इसका उपयोग ऊर्जाकुशल संचार के लिए किया जाता है। इसमें समुद्र में मौजूद - (ऑर्गेन फ्लोट्स) रोबोटिक फ्लोट्स, मछलियों पर लगने वाले टैग, ड्रिफ्टर्स और खोज तथा बचाव कार्यों के प्रभावी संचालन में उपयोगी संकट चेतावनी उपकरण शामिल हैं। यह उपग्रह केयूबैंड - पेंसिल बीम स्कैट्रोमीटर से लैस है, जो समुद्री सतह पर उच्च रिजॉल्यूशन वंड वेक्टर गति और) की जानकारी प्रदान करता है। ऐसी ज (दिशा-निर्देश) का नावकों, मछुआरों और शपंग कंपनियों के लिए विशेष महत्व है।

केंद्रीय विज्ञान और प्रौद्योगिकी एवं पृथ्वी विज्ञान राज्यमंत्री और पीएमओ (स्वतंत्र प्रभार), कार्मक, लोक शकायत, पेंशन, परमाणु ऊर्जा और अंतरिक्ष राज्यमंत्री, डॉ जितेंद्र सिंह ने सफल प्रक्षेपण के लिए इसरो और एमओईएस टीमों को बधाई दी है। उन्होंने बताया है कि इसरो उपग्रह की कक्षा और आंकड़े प्राप्त करने और उन्हें सुरक्षित रखने जैसी मानक प्रक्रियाओं को जारी रखेगा। इस उपग्रह के प्रमुख परिचालन उपयोगकर्ताओं में पृथ्वी विज्ञान मंत्रालय से सम्बद्ध



संस्थान भारतीय राष्ट्रीय महासागर सूचना सेवा केंद्र (आईएनसीओआईएस), हैदराबाद और राष्ट्रीय मध्यम अवध मौसम पूर्वानुमान केंद्र, नोएडा शामिल हैं।

पृथ्वी विज्ञान मंत्रालय के सचिव डॉ. एम. वचंद्रन ने कहा है कि इस उपग्रह में महासागर के रंग, एसएसटी और समुद्री सतह की हवाओं का समवर्ती मापन करने की क्षमता होगी, और उम्मीद है कि यह दुनिया भर के वैज्ञानिकों और परिचालन समुदायों की सागर को समझने की उनकी क्षमता वृद्धि में सहायक होगा। लगभग 1100 किलोग्राम वजनी ओशनसैट-3 को समुद्र तल से करीब 740 किलोमीटर की ऊंचाई पर ध्रुवीय कक्षा में स्थापित किया गया है। भारतीय अंतरिक्ष एजेंसी इसरो के भरोसेमंद प्रक्षेपण यान ध्रुवीय उपग्रह प्रक्षेपण यान ने (पीएसएलवी) में स्थापित किया है। (संक्रान्त ऑर्बिट-सन) ओशनसैट को सफलतापूर्वक ध्रुवीय कक्षा

इसरो के अध्यक्ष एस. सोमनाथ ने कहा है कि पीएसएलवी-54 ने पृथ्वी अवलोकन उपग्रह को सफलतापूर्वक उसकी कक्षा में स्थापित कर दिया है। पीएसएलवीसी-54 पृथ्वी अवलोकन उपग्रह के साथ ही आठ अन्य उपग्रहों को भी साथ लेकर गया है। इसरो प्रमुख ने कहा है कि 44.4 मीटर लंबा रॉकेट सतीश धवन अंतरिक्ष केंद्र से निर्धारित समय पर अपने अभियान पर रवाना हुआ। पीएसएलवीसी-54 के प्रक्षेपण के 17 मिनट बाद निर्धारित कक्षा में पहुँचने पर ओशनसैट सफलतापूर्वक रॉकेट से अलग हो गया और उसे कक्षा में स्थापित कर दिया गया।





समुद्री अनुसंधान और ब्लू-इकोनॉमी को सशक्त करेगा ओशनसैट



[इंडिया साइंस वायर](#) | Nov 29, 2022 6:41PM

उपग्रहों की ओशनसैट श्रृंखला महासागरों के अध्ययन से संबंधित भारत के महत्वकांक्षी मिशन का हिस्सा है। वर्ष 1999 और 2009 में लॉन्च किए गए ओशनसैट-1 और ओशनसैट-2 की कड़ी में लॉन्च किया गया ओशनसैट-3 अपनी तरह का तीसरा उपग्रह है।

भारतीय अंतरिक्ष अनुसंधान संगठन ने महासागरों के अध्ययन के लिए पृथ्वी विज्ञान (इसरो) को सफलतापूर्वक (ओशनसैट) मंत्रालय की साझेदारी में तीसरी पीढ़ी के पृथ्वी अवलोकन उपग्रह प-लॉन्च कर दिया है। भू-रक्षण उपग्रह-6 (ईओएस-6) नामक यह उपग्रह गत शनिवार को श्रीहरिकोटा में सतीश धवन अंतरिक्ष केंद्र से अन्य उपग्रहों के साथ लॉन्च किया (एसडीएससी) गया है।

उपग्रहों की ओशनसैट श्रृंखला महासागरों के अध्ययन से संबंधित भारत के महत्वकांक्षी मशन का हिस्सा है। वर्ष 1999 और 2009 में लॉन्च किए गए ओशनसैट-1 और ओशनसैट-2 की कड़ी में लॉन्च किया गया ओशनसैट-3 अपनी तरह का तीसरा उपग्रह है। अंतरिक्ष विभाग के अनुसार, ओशनसैट की मदद से, समुद्री शैवाल के वतरण से संबंधित आंकड़े प्राप्त करने, फाइटोप्लांकटन निगरानी, मत्स्य संसाधन प्रबंधन, महासागरों द्वारा कार्बन अवशोषण, हानिकारक शैवाल में वृद्धि की चेतावनी और जलवायु अध्ययन सहित परिचालन और अनुसंधान संबंधी अनुप्रयोगों में सुधार हो सकेगा।

ओशनसैट-3 में तीन निगरानी सेंसर यानी ओशन कलर मॉनिटर, समुद्री सतह तापमान मॉनिटर और केयू बैंड स्कैट्रोमीटर लगाए गए हैं। भारत की ब्लू इकोनॉमी से जुड़ी आकांक्षाओं को पूरा करने में इन सभी सेंसरों का विशेष महत्व है। ओशनसैट उपग्रह से समुद्री सतह के तापमान की सटीक जानकारी भी मिल सकेगी। समुद्र सतह के तापमान को मछलियों के समूह से लेकर चक्रवात उत्पत्ति और उनकी चाल सहित विभिन्न पूर्वानुमानों में महत्वपूर्ण मानदंड माना जाता है। प्रवाल भित्तियों की निगरानी और प्रवाल वरंजन की चेतावनी प्रदान करने में भी तापमान एक प्रमुख मानदंड है।

इसमें एक संचार पेलोड एआरजीओएस शामिल है, जिसे फ्रांस के साथ संयुक्त रूप से विकसित किया गया है। इसका उपयोग ऊर्जाकुशल संचार के लिए किया जाता है। इसमें समुद्र में मौजूद - (ऑर्गेनॉट्स) रोबोटिक फ्लोट्स, मछलियों पर लगने वाले टैग, ड्रिफ्टर्स और खोज तथा बचाव कार्यों के प्रभावी संचालन में उपयोगी संकट चेतावनी उपकरण शामिल हैं। यह उपग्रह केयूबैंड - पेंसिल बीम स्कैट्रोमीटर से लैस है, जो समुद्री सतह पर उच्च रिजॉल्यूशन वंड वेक्टर गति की जानकारी प्रदान करता है। ऐसी जानकारी का नावकों (और दिशा, मछुआरों और शपिंग कंपनियों के लिए विशेष महत्व है।

केंद्रीय विज्ञान और प्रौद्योगिकी एवं पृथ्वी विज्ञान राज्यमंत्री स्वतंत्र प्रभार और पीएमओ (कार्मक, लोक शकायत, पेंशन, परमाणु ऊर्जा और अंतरिक्ष राज्यमंत्री, डॉ. जितेंद्र सिंह) ने सफल प्रक्षेपण के लिए इसरो और एमओईएस टीमों को बधाई दी है। उन्होंने बताया है कि इसरो उपग्रह की कक्षा और आंकड़े प्राप्त करने और उन्हें सुरक्षित रखने जैसी मानक प्रक्रियाओं को जारी रखेगा। इस उपग्रह के प्रमुख परिचालन उपयोगकर्ताओं में पृथ्वी विज्ञान मंत्रालय से सम्बद्ध संस्थान भारतीय राष्ट्रीय महासागर सूचना सेवा केंद्र (आईएनसीओआईएस), हैदराबाद और राष्ट्रीय मध्यम अवधि मौसम पूर्वानुमान केंद्र, नोएडा शामिल हैं।



पृथ्वी वज्ञान मंत्रालय के सचिव डॉ एमर वचंद्रन ने कहा है क इस उपग्रह में महासागर के रंग, एसएसटी और समुद्री सतह की हवाओं का समवर्ती मापन करने की क्षमता होगी, और उम्मीद है क यह दुनियाभर के वैज्ञानिकों और परिचालन समुदायों की सागर को समझने की उनकी क्षमता वृद्ध में सहायक होगा। लगभग 1100 किलोग्राम वजनी ओशनसैट-3 को समुद्र तल से करीब 740 किलोमीटर की ऊंचाई पर ध्रुवीय कक्षा में स्थापित किया गया है। भारतीय अंतरिक्ष एजेंसी इसरो के भरोसेमंद प्रक्षेपण यान ध्रुवीय उपग्रह प्रक्षेपण यान ने (पीएसएलवी) ओशनसैट को सफलतापूर्वक ध्रुवीय कक्षा में स्थापित किया है। (संक्रान्त ऑर्बिट-सन)

इसरो के अध्यक्ष एससी-सोमनाथ ने कहा है क पीएसएलवी .54 ने पृथ्वी अवलोकन उपग्रह को सफलतापूर्वक उसकी कक्षा में स्थापित कर दिया है। पीएसएलवीसी-54 पृथ्वी अवलोकन उपग्रह के साथ ही आठ अन्य उपग्रहों को भी साथ लेकर गया है। इसरो प्रमुख ने कहा है क 44.4 मीटर लंबा रॉकेट सतीश धवन अंतरिक्ष केंद्र से निर्धारित समय पर अपने अभियान पर रवाना हुआ। पीएसएलवीसी-54 के प्रक्षेपण के 17 मिनट बाद निर्धारित कक्षा में पहुँचने पर ओशनसैट सफलतापूर्वक रॉकेट से अलग हो गया और उसे कक्षा में स्थापित कर दिया गया।

(इं डया साइंस वायर)



डीपटेक और ग्रासरूट इनोवेशन फेस्टिवल में दिखी - नवोन्मेषी भारत की झलक

29/11/2022 [V3news India](#)



नई दिल्ली, 29 नवंबर पंखे के : (इंडिया साइंस वायर) ब्लेड्स पर जमा होने वाले धूल कण पंखे को गन्दा करने के अलावा उसकी कार्यक्षमता को भी प्रभावित करते हैं। इनकी सफाई एक जटिल काम है। अब यह मुश्किल आसान हो गई है, और एक ऐसा फिल्टर ईजाद कर लिया गया है, जिसे पंखे के ब्लेड पर लगाया जा सकता है, जिससे धूल कण ब्लेड पर जमा न होकर फिल्टर में जमा होते रहते हैं। कुछ समय बाद फिल्टर को आसानी से हटाकर साफ किया जा सकता है।

इसी तरह, तालाबों और नदियों जैसे जलस्रोतों में जलकुंभी का प्रकोप एक चुनौती है। जलकुंभी के सरल निस्तारण का समाधान भी एक नवाचार के माध्यम से खोजा गया है। बीमारियों के बढ़ते बोझ के दौर में पर्याप्त डायग्नोस्टिक सेवाओं की पहुँच सीमांत है। इस समस्या का समाधान एक मोबाइल डायग्नोस्टिक लैब लेकर आयी है, जो बाइक पर सवार होकर गाँवगाँव तक अपनी सेवाएं देने के लिए तैयार की गई है। वैज्ञानिक, इंजीनियरिंग और प्रौद्योगिकीय नवाचारों पर केंद्रित ऐसे 100 से अधिक अनूठे उत्पादों एवं सेवाओं पर केंद्रित 'पीपुल्स फेस्टिवल ऑफ इनोवेशन' नामक प्रदर्शनी नई दिल्ली में दस दिनों तक लोगों के बीच आकर्षण का केंद्र बनी रही। भारत के डीप टेक्नोलॉजी -डीप) टेक और ग्रासरूप नवाचारों पर केंद्रित मश्रत (पारिस्थितिकी तंत्र की झलक इस प्रदर्शनी में देखने को मली। प्रदर्शनी में शामिल उत्पादों एवं सेवाओं को देखकर स्पष्ट हो जाता है कि भारत के दूरदराज हिस्सों के आम लोग और प्रतिभाशाली युवा वैज्ञानिक या इंजीनियर, रोजमर्रा की जिंदगी से जुड़ी आवश्यकताओं और चुनौतियों के आधार पर किस प्रकार प्रौद्योगिकीय समाधान और नवोन्मेषी उत्पाद ईजाद कर सकते हैं। देश के प्रमुख सांस्कृतिक संस्थानों में शामिल इंडिया इंटरनेशनल सेंटर द्वारा (आईआईसी) अपने हीरक जयंती वर्ष में इस प्रदर्शनी को आयोजित करने का उद्देश्य रोमांचक और प्रभावी नवाचारों का उत्सव उनके इनोवेटर्स के साथ मनाना और भारत के नवोन्मेषी सामाजिक पारिस्थितिक तंत्र में शामिल लोगों को एक मंच पर लाना है। गत 19 नवंबर को नई दिल्ली स्थित आईआईसी परिसर शुरू हुई यह 10 दिवसीय प्रदर्शनी मंगलवार, 29 नवंबर को संपन्न हो गई है। सेंटर फॉर सेलुलर ऐंड मॉलक्यूलर प्लेटफॉर्म (C-CAMP), बेंगलूरु और ग्रासरूट्स इनोवेशंस ऑगमेंटेशन नेटवर्क (GIAN), अहमदाबाद के सहयोग से यह प्रदर्शनी इंडिया इंटरनेशनल सेंटर (आईआईसी), नई दिल्ली द्वारा आयोजित की गई। सीसीएमपी-, बेंगलूरु के सीईओ डॉ तस्लीमारिफ सैयद ने कहा है कि "डीपटेक इनोवेशन- और ग्रासरूट इनोवेशन का समन्वय इस उत्सव को अनूठा बनाता है। एक ओर, डीपटेक इस- उत्सव को अधिक वैश्विक परिप्रेक्ष्य प्रदान करता है, तो दूसरी ओर जमीनी स्तर के नवाचार 'जनसाधारण' की भावना को स्वर देते हैं।" जीआईएन के संस्थापक प्रोफेसर अनिल गुप्ता ने कहा कि "कुछ लोग लंबे समय तक अनसुलझी समस्याओं के साथ नहीं रह सकते हैं और वे यह मानते हैं कि समाज की चुनौतियों का समाधान न करने की जड़ता उनमें नहीं है। यह उत्सव हमें ऐसे सक्रय एवं नवोन्मेषी व्यक्तियों से मिलने का मौका देता है, जो मानते हैं कि समाधान खोजने के लिए पहल जरूरी है, और ऐसी पहल से ही नवाचारों का जन्म होता है।"

डॉ रेणु स्वरूप, पूर्व सचिव, जैव प्रौद्योगिकी विभाग, भारत सरकार ने कहा है कि "सरकार



में 33 वर्षों के कार्यकाल में, 5000 से अधिक नवप्रवर्तकों की मदद करने के बाद, यह पहली बार देखने को मिला है कि डीपटेक और जमीनी स्तर के नवाचारियों के बीच यह समन्वय हुआ है। ग्रासरूट स्तर पर हों, या फिर डीपटेक-; वे सभी नवाचार हैं; और दोनों ही समाज को प्रभावित करते हैं। आमतौर पर, इन्हें अलगअलग खाँचों में रखा जाता है-; और इनका समागम नहीं हो पाता है। लेकिन, इनमें से कई ऐसे होते हैं, जो वास्तव में एक दूसरे के पूरक हो सकते हैं।”

उत्सव के दो प्रमुख विषय डीपटेक इनोवेशन और ग्रासरूट इनोवेशन-; हेल्थकेयर, कोविड-19, गैरसंचारी रोगों-; कृषि एवं पशु स्वास्थ्य, कृषि मशीनरी, प्राकृतिक संसाधन प्रबंधन, पर्यावरण एवं स्वच्छ ऊर्जा क्षेत्रों से जुड़ी जरूरतों को संबोधित करते हैं। नई पीढ़ी के इनोवेटर्स एवं जिंदगी से जुड़ी समस्याओं का समाधान खोजने वाले लोगों को प्रेरित करने के उद्देश्य से सक्षम प्रौद्योगिकी के एक स्पॉटलाइट के रूप में यह प्रदर्शनी आयोजित की गई है। फ्लोपीन्स के ‘ग्रासरूट इनोवेशन्स फॉर इन्क्लूसिव डेवलपमेंट’ का नौ सदस्यीय प्रतिनिधिमंडल भी अपने अनुभवों को साझा करने के लिए प्रदर्शनी में शामिल हुआ। आईआईसी के अध्यक्ष श्याम सरन ने कहा है कि “हमारे नवप्रवर्तकों का योगदान केंद्र सरकार के ‘आत्मनिर्भर भारत’ मिशन का एक प्रमुख आयाम है। नवोन्मेषी आइडिया, पहल एवं विचारों के आदानप्रदान के लिए प्रभावी मंच प्रदान करने के लिए आईआईसी की-महत्वपूर्ण भूमिका रही है और आगे भी इस पर हमारी प्रतिबद्धता बनी रहेगी।”



नई दिल्ली। डीपटेक और ग्रासरूट इनोवेशन फेस्टिवल में - दिखीनवोन्मेषी भारत की झलक।

News नवंबर 29, 2022

नई दिल्ली (इंडिया साइंस वायर):(पंखे के ब्लेड्स पर जमा होने वाले धूल कण पंखे को गन्दा करने के अलावा उसकी कार्यक्षमता को भी प्रभावित करते हैं। इनकी सफाई एक जटिल काम है। अब यह मुश्किल आसान हो गई है, और एक ऐसा फिल्टर ईजाद कर लिया गया है, जिसे पंखे के ब्लेड पर लगाया जा सकता है, जिससे धूल कण ब्लेड पर जमा न होकर फिल्टर में जमा होते रहते हैं। कुछ समय बाद फिल्टर को आसानी से हटाकर साफ किया जा सकता है। इसी तरह, तालाबों और नदियों जैसे जलस्रोतों में जलकुंभी का प्रकोप एक चुनौती है। जलकुंभी के सरल निस्तारण का समाधान भी एक नवाचार के माध्यम से खोजा गया है। बीमारियों के बढ़ते बोझ के दौर में पर्याप्त डायग्नोस्टिक सेवाओं की पहुँच सीमा है। इस समस्या का समाधान एक मोबाइल डायग्नोस्टिक लैब लेकर आयी है, जो बाइक पर सवार होकर गाँवगाँव तक अपनी सेवाएं देने के लिए तैयार की गई है।-



वैज्ञानिक, इंजीनियरिंग और प्रौद्योगिकीय नवाचारों पर केंद्रित ऐसे 100 से अधिक अनूठे उत्पादों एवं सेवाओं पर केंद्रित 'पीपुल्स फेस्टिवल ऑफ इनोवेशन' नामक प्रदर्शनी नई दिल्ली में दस दिनों तक लोगों के बीच आकर्षण का केंद्र बनी रही। भारत के डीप टेक्नोलॉजी और ग्रासर (टेक-डीप) रूप नवाचारों पर केंद्रित मशरत पारिस्थितिकी तंत्र की झलक इस प्रदर्शनी में देखने को मली। प्रदर्शनी में शामिल उत्पादों एवं सेवाओं को देखकर स्पष्ट हो जाता है कि भारत के दूरदराज हिस्सों के आम लोग और प्रतिभाशाली युवा वैज्ञानिक या इंजीनियर, रोजमर्रा की जिंदगी से जुड़ी आवश्यकताओं और चुनौतियों के आधार पर किस प्रकार प्रौद्योगिकीय समाधान और नवोन्मेषी उत्पाद ईजाद कर सकते हैं।

देश के प्रमुख सांस्कृतिक संस्थानों में शामिल इंडिया इंटरनेशनल सेंटर द्वारा अपने (आईआईसी) हीरक जयंती वर्ष में इस प्रदर्शनी को आयोजित करने का उद्देश्य रोमांचक और प्रभावी नवाचारों का उत्सव उनके इनोवेटर्स के साथ मनाना और भारत के नवोन्मेषी सामाजिक पारिस्थितिक तंत्र में शामिल लोगों को एक मंच पर लाना है। गत 19 नवंबर को नई दिल्ली स्थित आईआईसी परिसर शुरू हुई यह 10 दिवसीय प्रदर्शनी मंगलवार, 29 नवंबर को संपन्न हो गई है। सेंटर फॉर सेलुलर ऐंड मॉलिक्यूलर प्लेटफॉर्म (C-CAMP), बेंगलूर और ग्रासरूट्स इनोवेशंस ऑगमेंटेशन नेटवर्क (GIAN), अहमदाबाद के सहयोग से यह प्रदर्शनी इंडिया इंटरनेशनल सेंटर (आईआईसी), नई दिल्ली द्वारा आयोजित की गई।



सीसीएएमपी-, बेंगलूर के सीईओ डॉ तस्लीमारिफ़ सैयद ने कहा है कि "डीपटेक इनोवेशन और - ग्रासरूट इनोवेशन का समन्वय इस उत्सव को अनूठा बनाता है। एक ओर, डीपटेक इस उत्सव को - अधिक वैश्विक परिप्रेक्ष्य प्रदान करता है, तो दूसरी ओर जमीनी स्तर के नवाचार की "जनसाधारण"

भावना को स्वर देते हैं।” जीआईएन के संस्थापक प्रोफेसर अनिल गुप्ता ने कहा क “कुछ लोग लंबे समय तक अनसुलझी समस्याओं के साथ नहीं रह सकते हैं और वे यह मानते हैं क समाज की चुनौतियों का समाधान न करने की जड़ता उनमें नहीं है। यह उत्सव हमें ऐसे सक्रय एवं नवोन्मेषी व्यक्तियों से मलने का मौका देता है, जो मानते हैं क समाधान खोजने के लए पहल जरूरी है, और ऐसी पहल से ही नवाचारों का जन्म होता है।”

डॉ रेणु स्वरूप, पूर्व सचव, जैव प्रौद्योगकी वभाग, भारत सरकार ने कहा है क “सरकार में 33 वर्षों के कार्यकाल में, 5000 से अधिक नवप्रवर्तकों की मदद करने के बाद, यह पहली बार देखने को मला है क डीपटेक और जमीनी स्तर के नवाचारियों के बीच यह समन्वय हुआ है। ग्रासरूट स्तर पर हों, या फर डीपटेक-; वे सभी नवाचार हैं; और दोनों ही समाज को प्रभावत करते हैं। आमतौर पर, इन्हें अलगअलग खँचों में रखा जाता है-, और इनका समागम नहीं हो पाता है। ले कन, इनमें से कई ऐसे होते हैं, जो वास्तव में एक दूसरे के पूरक हो सकते हैं।”

उत्सव के दो प्रमुख वषय डीपटेक इनोवेशन और ग्रासरूट इनोवेशन-, हेल्थकेयर, को वड-19, गैरसंचारी - रोगों, कृष एवं पशु स्वास्थ्य, कृष मशीनरी, प्राकृतिक संसाधन प्रबंधन, पर्यावरण एवं स्वच्छ ऊर्जा क्षेत्रों से जुडी जरूरतों को संबोधत करते हैं। नई पीढी के इनोवेटर्स एवं जिंदगी से जुडी समस्याओं का समाधान खोजने वाले लोगों को प्रेरित करने के उद्देश्य से सक्रय प्रौद्योगकी के एक स्पॉटलाइट के रूप में यह प्रदर्शनी आयोजित की गई है। फलीपीन्स के ‘ग्रासरूट इनोवेशन्स फॉर इन्क्लूसव डेवेलपमेंट’ का नौ सदस्यीय प्रतिनिधमंडल भी अपने अनुभवों को साझा करने के लए प्रदर्शनी में शामिल हुआ।

आईआईसी के अध्यक्ष श्याम सरन ने कहा है क “हमारे नवप्रवर्तकों का योगदान केंद्र सरकार के आत्मनिर्भर भारत मशन का एक प्रमुख आयाम है। नवोन्मेषी आइडया”, पहल एवं वचारों के आदानप्रदान के लए प्रभावी मंच प्रदान करने के लए- आईआईसी की महत्वपूर्ण भूमका रही है और आगे भी इस पर हमारी प्रतिबद्धता बनी रहेगी।”

(इंडया साइंस वायर)



Workshop on disaster and climate-resilient pathways

by [India Science Wire](#) [November 30, 2022](#) in [Science](#)



The Birbal Sahni Institute of Palaeosciences (BSIP), Lucknow, an autonomous research institution under the Department of Science and Technology (DST), is organising a weeklong workshop (KARYASHALA), focused on ‘Disaster and climate-resilient pathways: adaptation, mitigation, and sustainable development’, starting December 07. The workshop is being organised under the Accelerate Vigyan Scheme of the Science and Engineering Research Board (SERB). The scheme aims to advance the research productivity of promising PG and PhD students from universities and colleges through high-end workshops on specific themes.

The workshop covers an exhaustive list of topics, including - concepts and Issues of climate change; disaster risk reduction and sustainable development; climate



change as disaster risk driver; nature-based solutions to address societal challenges; climate-resilient pathways, adaptation and mitigation; sustainable development; extreme weather disasters; and smart practices, technologies for climate resilient agriculture.

Disaster risk management in the complex Himalayan terrain; application of remote sensing and GIS in disaster management; social-ecological resilience to coastal disasters; the role of blue carbon in climate change mitigation; and women in climate change solutions would also be dealt with during the workshop.

The program offers an excellent opportunity for the students to acquire specialized research skills and strengthen mechanisms for identifying potential in various scientific research pursuits. The workshop serves as a platform to foster advanced research and education programs focusing on building climate resilience and disaster risk reduction. It also brings together young researchers, students, and disaster risk/climate change experts under one roof. The workshop presents a forum to sensitize the participants to the potential and scope of nature-based solutions, remote sensing, and GIS for holistic disaster risk reduction and climate resilience.

‘KARYASHALA’ with no registration fee, is open to postgraduate students and PhD research scholars from various institutions, colleges, and Universities. Postgraduate students in their final year or final semester in Botany, Environmental Science, Life Science, Disaster Management, and Geology can preferably be selected as participants. The PhD students, preferably pursuing the first year of their course or intend to pursue research in any aspect of climate change and disasters, are also eligible. Interested participants can register online by 01 December, 2022, through google form link (<https://forms.gle/esS4EqwgfNCQjzJw7>),” said Dr Shilpa Pandey, the workshop coordinator and scientist-D at BSIP.

The subject-specific panel of noted resource persons of the workshop comprises Prof. Anil Gupta, National Institute of Disaster Management, New Delhi; Dr Tuhin Ghosh, Jadavpur University, Kolkata; Dr CN Pandey, IIT Gandhinagar, Dr Satya



Singh, Ministry of Environment, Forest & Climate Change, Regional Office, Lucknow; Dr Sandeep Pandey, Gujarat Institute of Disaster Management, Dr Narendra Singh, Aryabhata Research Institute of Observational Sciences, Nainital; Prof. M.G. Thakkar, Kachchh University, Bhuj; and Dr Anjum Farooqui from BSIP, Lucknow.



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New method to harness energy from household LED lamps

By Pardeep Khatri -December 1, 2022



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IoT devices are required to run independently without depending on electrical grids for power supply; primary and secondary batteries are currently used to power such devices. All batteries have a limited lifespan, a high cost, and are environmentally unfriendly. Since many of IoT devices are used indoors, solar light is not an option. An alternative to this could be finding ways to harness light from indoor lighting sources to run indoor devices such as sensors, gadgets, Wi-Fi routers, RFID readers, etc.

The multi-institutional research team has developed thin-film efficient photovoltaic cells that can generate power from any light. These cells are based on perovskites - a family of crystals that can absorb sunlight and generate power. Perovskites have been studied for a long time for solar power generation. This team of researchers has explored new perovskite materials that can be used to harvest indoor artificial light and not just sunlight.

The study, published in the journal *Solar Energy*, has been co-authored by Dr Ranbir Singh, Ramanujam Fellow faculty, and Prof. Satinder Kumar Sharma, School of Computing & Electrical Engineering from IIT Mandi, along with Dr Vikrant Sharma, National Institute of Solar Energy (NISE), Gurugram; Dr Vivek Kumar Shukla, Gautam Buddha University, Greater Noida; and Mritunjaya Parashar, University of North Texas, Denton, USA.

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“The light absorption, morphology, charge transport, and electron trap states of the perovskites were examined and the device physics under indoor lighting conditions has been explored in detail. The fabricated PVs demonstrated a photoelectric conversion efficiency of 34.07% within indoor illumination conditions,” Dr Singh added.

Indoor light-induced power generation will be increasingly sought in the near future due to the exponential growth in the use of smart devices in applications



such as wellness and health monitoring, smart homes, logistics, smart manufacturing, etc. The photoelectric conversion efficiency values are on par with the best-in-class perovskites for indoor applications. This work presents a potential candidate for developing photovoltaic material to capture the energy of indoor light using quasi-cubic perovskites, researchers said in a statement.



New Delhi: New method to harness energy from household LED lamps

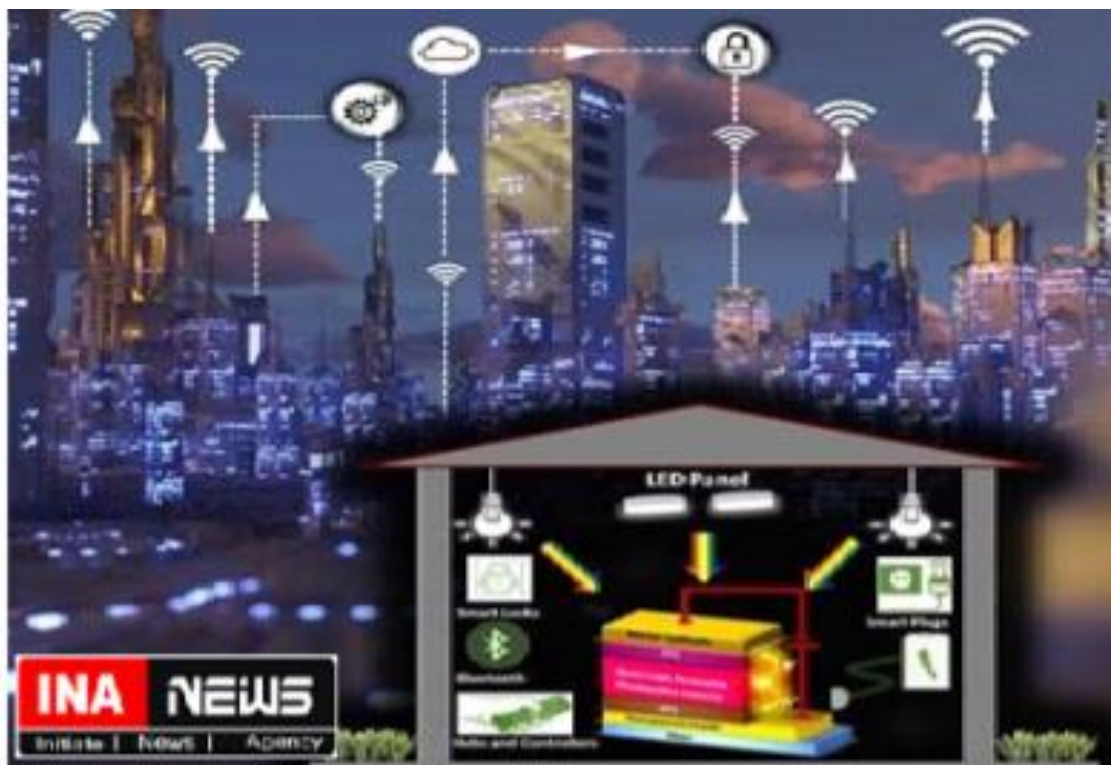
News दिसंबर 01, 2022

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(India Science Wire)



BISinfotech

New Method to Harness Energy from Household LED Lamps

 **Nitisha Dubey** November 30, 2022

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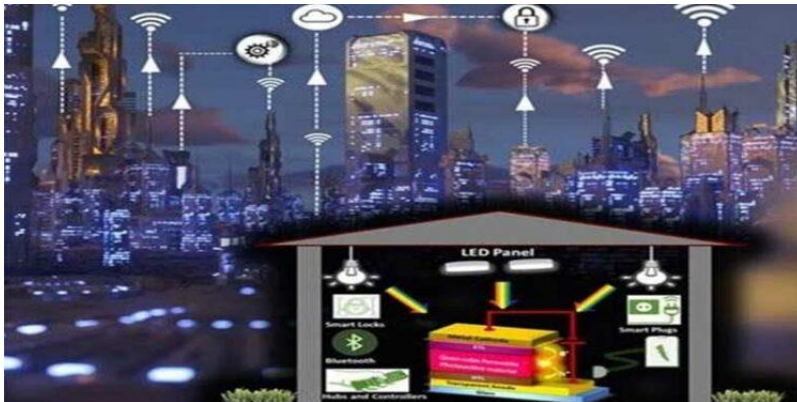
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O [WEB DESK](#) Dec 1, 2022, 04:00 pm IST in [Sci & Tech](#)



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By ISW Desk On Dec 1, 2022

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Article By: India Science Wire

Category: Energy 2022-12-02



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