

# CSIR IN MEDIA



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## NEWS BULLETIN

### 01 TO 05 JANUARY 2024





## Successive Success Stories in the Recent Times have Elevated India's Science Esteem: Dr Jitendra Singh

CSIR

05<sup>th</sup> January , 2023



Union Minister of State (Independent Charge) Science & Technology; MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr Jitendra Singh said that the successive success stories in recent times have elevated India's science esteem.

Addressing the gathering at the 40th foundation day celebration of the Department of Scientific and Industrial Research (DSIR), the Minister enumerated recent science success stories of India. He said that the Department of Scientific and Industrial Research (DSIR) and CSIR brought about the purple revolution, which originated in the North and has now captured the entire Himalayan region. The Department of Biotechnology came out with the first DNA Vaccine and a country like India, which was earlier struggling to provide curative health care, has now become a preventive healthcare leader, he said.

The Department of Space registered triple success...Chandrayaan 3, Aditya Mission and XPoSAt, said the Minister. Dr Jitendra Singh said, these success stories have made scientific research, innovation and StartUps popular like never before. Pointing out that all these successes are closely connected to Industry linkage, the Minister urged the scientific community to work towards a strong industry linkage to bring the outcomes of Research & Development to society. It will also make StartUps in the S & T field commercially more



viable, he added. Earlier, as Chief Guest, the Minister kickstarted the 40th Foundation Day Celebration of DSIR by lighting a lamp. Minister also congratulated the gathering of scientists on the momentous occasion. Dr. Vijay Kumar Saraswat, Member(S&T), NITI Aayog and Prof. Ajay Kumar Sood, PSA to the Government of India were Guests of Honour at the event.

Addressing the gathering Prof Sood said that when the focus is shifting increasingly towards Technology, DSIR would have a greater role to play in the days to come. Sh. Saraswat in his address urged DSIR and NRDC to create value addition centres to promote translational research in the country. Dr. N Kalaiselvi, Secretary DSIR and DG CSIR, Shri Surinder Pal Singh, Joint Secretary, DSIR also spoke at the event.

The Department of Scientific and Industrial Research (DSIR), under the aegis of the Ministry of Science and Technology, Government of India was set up through a Presidential Notification, dated 4th January, 1985. DSIR has a mandate to carry out the activities related to indigenous technology promotion, development, utilization and transfer with a mission to invigorate industrial research in the country and to create an enabling environment for development and utilization of innovations and enhance innovations through its resources and channelize benefits thereof, to the people.

DSIR is also the nodal department for granting recognition/ registration to the In-house R&D centres established by industry in the country, Scientific Research Foundations in the areas of medical, agriculture, natural and applied sciences and social sciences (SIROs) and Public Funded Research Institutions (PFRI), Universities, IITs, IISc and NITs. There are about 2400 In-house R&D centres, 878 SIROS and 543 PFRI with DSIR recognition. DSIR also undertakes programmes to promote R&D by the industries and to support the industrial units developing state-of-the-art globally competitive technologies of high commercial value. The department operates four sub-schemes, viz PRISM, PACE, CRTDH and A2K+ under its umbrella scheme “Industrial Research & Development” (IRD).

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[Pib](#)



## **‘Deep tech’ policy to be sent to Cabinet for approval, says scientific adviser**

CSIR

05<sup>th</sup> January, 2023

The government will be sending a note, on a new ‘deep tech’ policy for India in the coming weeks to the Union Cabinet for approval, said Prof. Ajay Kumar Sood, Principal Scientific Advisor at a public event on January 5.

In July 2023, the government unveiled a draft of the policy for public comment and following feedback from industry, a final version is reportedly ready. ‘Deep tech’ is a buzzword in tech and startup circles with no precise definition as yet.

India’s draft policy document on ‘deep tech’ cites Startup India’s database, which claims that there are 10,298 startups recognised by the Department for Promotion of Industry and Internal Trade which are classified across various sub-sectors within the larger deep tech space as of May 2023. Broadly, deep tech startups are those that have developed intellectual property that promise an outsize impact but are yet to be realised, and are premised on new scientific breakthroughs. Crucially, businesses and startups based on ideas that are easily replicable do not qualify as deep tech startups.

Dr Sood however expressed disappointment at the number of such ‘deep tech’ startups in India. “Currently only about 10% of startups are ‘deep tech’. That is not a very good sign and it will take much more effort and handholding,” he said at the event meant to commemorate 40 years since the founding of the Department of Scientific and Industrial Research (DSIR). The latter is affiliated to the Council of Scientific and Industrial Research (CSIR) and was set up to link scientific and technological developments in CSIR labs to industry.

The DSIR would in the coming days focus on transferring technology to medium and small scale industries, the CSIR would target industry at large and the National Research and Development Corporation, also a CSIR entity, would focus on startups, said N Kalaiselvi,



Director-General, CSIR. “In this way we can do justice to India’s science and technology system,” she added.

A major impediment to sprucing up ‘deep tech’ startups is funding. “Unlike startups focussed on fintech or retail software, the quantum of funds needed is vastly larger,” said VK Saraswat, Member (science), NITI Ayog, who was also present at the DSIR function.



## EIL celebrates R&D Day

CSIR-IIP. NCL

05<sup>th</sup> January , 2023

Engineers India Limited (EIL) radiated enthusiasm during its 2nd 'R&D Day' at EIL Office Complex, Gurugram on Friday. EIL's C&MD Vartika Shukla graced the inaugural session as chief guest along with functional directors with the spirited participation of senior officials and employees of EIL.



Esteemed guests including EIL's Director (CSIR-IIP) Dr Harender Singh Bisht, Indian Oil's (Director- Planning & BD) Sujoy Chaudhury, HPCL's ED (R&D) VK Maheswari, BPCL's Head (R&D) Dr Ravi Kumar, HPCL's CGM (R&D) S Shriram and CSIR-NCL Dr Thirumalaiswamy Raja among other guests from the industry graced the occasion.

The event was illuminated by inspiring words from EIL C&MD and luminaries participated in the event focusing on future perspectives.

The inaugural session was followed by a technical discussion in which esteemed guests shared their thoughts on various scenarios emerging in the wake of energy transition.

Shukla also inaugurated the newly constructed EIL's pilot facility 'Srijan Kendra.' The new building is housing pilot plants related to various technologies being developed by EIL both on its own or in collaboration with the industry and the national laboratories.

“Innovation culture and the collaborative approach shall provide momentum to our R&D efforts towards development of cost-effective technological solutions catering to the



industry's demand in the near future”, EIL C&MD said while congratulating the R&D team for their achievements in recent past. The event echoed EIL's commitment to innovation and foresight in shaping the industry's future.



## CSIR to develop indigenous standards for medical diagnosis as West-based models may not be suitable for Indian population

CSIR-IMTECH

05<sup>th</sup> January, 2023

In a novel project, the Council for Scientific and Industrial Research (CSIR) is developing indigenous standards for medical diagnosis and treatment which would be more attuned to the Indian population than the Western standards that are being presently followed.

“Our allopathic system of medicine is based on the parameters devised by the West. The view of the scientific and medical fraternity is that the genetic profile, genealogy environment, living conditions, diet and level of physical activity of the population in the sub-continent are quite different from that in the West and hence, the medical parameters devised for the Western populace may not be ideal for Indian conditions,” Dr Sanjiv Khosla, Director Institute of Microbial Studies (IMTECH), one of the participating laboratories in the project, said.

Titled Phenome India-CSIR Health Knowledgebase (PI-CHeCK), the project is being undertaken by all 37 constituent laboratories of CSIR, and in the first phase will involve a sample base of 10,000 employees, pensioners and their family members. CSIR’s Institute of Genomics and Integrative Biology, New Delhi, is the nodal laboratory for the project.

The broad aims list for the project include estimating the disease burden, identifying risk factors and development of risk prediction tools, establishing India specific normative values and enabling precision health.

“It is a five-year project to generate a database of Indian phenomes, which has been initiated recently,” Dr Khosla said. “It will be a longitudinal study where the same individuals shall be observed for 2-3 years by conducting a battery of physical and bio-chemical tests,” he added. CSIR’s pan-India presence enables it to have an employee base from all over the country, enabling sampling from different regions.



Scientists associated with the project say that for example the Western parameters that define blood pressure or sugar levels to be normal may not be correct for the population of another region due to a host of biological and environmental factors. When we look at the globe, geographically vast areas have a unique and diverse phenotype and the parameters for measuring or determining a disease could vary. Phenotype is defined as the set of observable characteristics of an individual resulting from the interaction of its genotype with the environment.

Out of proposed 10,000 sample base, 5000 will undergo deep phenotyping and 500 will be identified for very deep phenotyping. Besides physical measurements and routine examination, blood bio-chemistry, ECG, microbiome, lung spirometry and oscillometry, skin testing, transient elastography and fibroscan are the tests that will be carried out.



## Union Minister Dr. Jitendra Singh to be Chief Guest at Department of Scientific and Industrial Research Foundation Day Celebration

CSIR-NPL

04<sup>th</sup> January, 2023

Union Minister of State (Independent Charge) Science & Technology; MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space and Vice President CSIR Dr. Jitendra Singh will be Chief guest at the Foundation Day Celebration of Department of Scientific and Industrial Research to be held at CSIR-National Physical Laboratory, New Delhi on 5th January, 2024. Dr. Vijay Kumar Saraswat, Member (S&T), NITI Aayog and Prof. Ajay Kumar Sood, PSA to the Government of India will be guests of honour at the celebration.

With a mandate to promote indigenous industrial research, focusing on technology development, utilization and transfer, Department of Scientific and Industrial Research (DSIR) was established under the Ministry of Science and Technology vide Presidential Notification on January 4, 1985. The primary goal is to stimulate research and development (R&D) within industries, assisting them in creating globally competitive, commercially viable technologies. DSIR endeavors to expedite the commercialization of laboratory-scale R&D, strengthen technology transfer capabilities, increase the contribution of technology-intensive exports to overall exports, bolster industrial consultancy, and establish a user-friendly information network to facilitate scientific and industrial research nationwide.

Under its administrative purview, DSIR oversees the Council for Scientific and Industrial Research (CSIR), an autonomous organization, along with two public sector enterprises—National Research Development Corporation (NRDC) and Central Electronics Ltd (CEL). Furthermore, DSIR extends host facilities and assistance to the Asian and Pacific Centre for Transfer of Technology (APCTT), a regional institution affiliated with the United Nations Economic and Social Commission for Asia and Pacific (UN-ESCAP). This multifaceted approach underscores DSIR's commitment to fostering scientific and industrial advancements within the country. Though founded in January 4th, 1985, DSIR would be observing its Foundation Day function on January 5th, 2024 at CSIR-National Physical Laboratory, New



Delhi from 1:00 PM onwards. DSIR foundation day would highlight the Department's pivotal role in implementing various programs for like (i) granting recognition/registration to In-house Research and Development (R&D) centers established by industries in India, Scientific and Industrial Research Organizations (SIROs) and Public-funded research institutions; (ii) Implementing PRISM (Promoting Innovations in Individuals, Start-ups, and MSMEs) scheme, aligned with the inclusive development agenda by supporting individual innovators and organizations with an aim to foster innovation for inclusive development; (iii) Implementing 'Patent Acquisition and Collaborative Research and Technology Development (PACE)' scheme, by offering crucial support to industries and institutions for facilitating the development and demonstration of innovative product and process technologies. (iv) implementing Common Research and Technology Development Hubs (CRTDH) program aimed at promoting the growth of MSMEs through shared infrastructure, technology support, and access to specialized services to public-funded institutions closely linked to and in proximity with MSME clusters; and (v) implementing A2K+ scheme where Events sub-scheme fosters collaboration and insights on industrial research & technological innovation. Studies sub-scheme supports studies in emerging technology areas, while TDUPW sub-scheme aims to enhance women's technological capabilities, while setting up Skill Satellite Centres to uplift the socio-economic status of women. Foundation day would not only acknowledge the establishment but also serve as a pivotal occasion to reflect upon and celebrate the journey, accomplishments, and profound contributions of the Department to the realm of science. This momentous celebration brings together scientists, researchers, and collaborators in a spirit of camaraderie and shared purpose. The Foundation Day would serve as a testament to the unwavering commitment of the department to scientific excellence and the dissemination of knowledge. It would set the stage for future endeavors, encouraging to look ahead with optimism and determination as the nation continues to push the boundaries of scientific exploration. Foundation Day encapsulates the essence of Department's ethos and the collective passion in carrying forward the mandate of DSIR in Industrial research for indigenous technology development, promotion, utilization and transfer.

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## CSIR-CRRI's REJUPAVE technology deployed in Arunachal for high-altitude road construction

CSIR-CRRI

04<sup>th</sup> January, 2023

Arunachal Pradesh has successfully utilized an indigenous road construction technology “REJUPAVE” developed by India’s oldest and premier road research organization CSIR-Central Road Research Institute (CSIR-CRRI), Ministry of Science and Technology to construct high altitude bituminous roads at low and sub-zero temperature conditions.

Building a robust road infrastructure with faster pace on Indo-China border is one of the topmost priority areas of the Government of India to improve operational capacity of our defence forces. Construction and maintenance of high-altitude bituminous roads on China Border in state of Arunachal Pradesh under low and sub-zero temperature conditions was always a challenging task to India’s premier road construction agency Border Road Organization. Majority of bituminous road construction work’s either got halt up or delayed when the winter months roll in, as the production of hot bituminous mix for road construction requires increased heating time at elevated temp ranges i.e 160 to 170 0 C in hot mix plant.

Besides that, bituminous mix to be laid and compacted is required to be sufficiently hot at paving site for effective compaction to achieve desired durability and performance. On hill roads during subzero temp transportation of bituminous mix from Hot Mix plant to project site require increase haulage time which causes rapid cooling off the bituminous mix before reaching to paving site, thus rendering the mix inferior for paving, and rolling.

To address all these challenges Border Road Organization, project VARTAK, Arunachal Pradesh has successfully utilized an indigenous road construction technology “REJUPAVE” developed by India’s oldest and premier road research organization CSIR-Central Road Research Institute (CSIR-CRRI), Ministry of Science and Technology to construct high altitude bituminous roads at low and sub-zero temperature conditions. This technology is recently successfully implemented by BRO to build bituminous road sections at World’s



Highest Sela Road Tunnel and LGG-Damteng-Yangste (LDY Road) road section near China border at State of Arunachal Pradesh.

Construction of road section at SELA Tunnel using REJUPAVE Technology

Additional Director General (EAST), BRO, PKH Singh, VSM informed that the “REJUPAVE Technology has been successfully utilized by BRO under the technological guidance and supervision of CSIR-CRRI to produce low temperature bituminous mixes for construction of bituminous roads at Sela tunnel and LDY road site at 14000 ft and 18000 ft altitude respectively. This technology brings down the production and rolling temp of bituminous mixes by 30 to 400 C with negligible heat loss in bituminous mix during transit, despite long haulage time amid snow falls. Technology will increase the working window of Road Construction Companies of BRO thus help us to build robust road network with faster pace under challenging conditions.”

Satish Pandey, Principal Scientist CSIR-CRRI and inventor of REJUPAVE informed that the REJUAPAVE asphalt modifier is a biooil based product which significantly lower the heating requirement of bituminous mixes besides preserving the bituminous mix temperature during transit. Uses of REJUPAVE technology will not only help BRO to construct roads at subzero temperature but also bring down the greenhouse gas emissions in the pristine eco-sensitive mountainous environment of Arunachal Pradesh.

According to him the road built using REJUPAE asphalt modifier in cold climatic regions will have improved long-term durability and better resistance to thermal cracking under low temperature conditions. He further informed that the Verma Industries, industrial partner, and licensee of CSIR-CRRI technology, is carrying out the commercial production of REJUPAVE for field implementation on pan India basis.

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## State aims to increase dependence on green energy says Industries Minister

CSIR

04<sup>th</sup> January, 2023

The State aims at increasing its dependence on green energy to 75% from 50%, Minister for Industries, Investment Promotion and Commerce T.R.B. Rajaa said here on Thursday.

At the inauguration of the two-day energy conference EnVision at the IIT Madras Research Park here, the Minister said, “Tamil Nadu is 50% green, with 40% solar energy and 50% wind energy. We are now pushing ourselves to go up to 75%. Green hydrogen is something that is extremely promising. Pump storage is a key part of the entire green hydrogen initiative that we are taking up in Tamil Nadu,” he explained.

According to him the State was looking for 10 GW of initial deployment in the offshore wind energy sector. “People should have climate common sense,” he said, adding that the State government was trying to inculcate “in every single mind, from school to college” the significance of climate change.

The State had earmarked ₹1,000 crore as green fund to develop green products. He urged “the team here and the energy festival to come up with ideas to help the government and India reach its sustainable energy goal.”

The energy conference EnVision, India’s first energy festival, aims to set a roadmap of technologies towards a net-zero emission India. Over 500 delegates, including energy experts, industry leaders, policymakers, academia, researchers and students, are participating in the festival.

Former chairman of the Atomic Energy Commission of India Anil Kakodhar, and chairman of Axilor Ventures and co-founder of Infosys Kris Gopalakrishnan, also participated. President of the IITM RP and IITM Incubation Cell and RTBI Ashok Jhunjhunwala, said as



the country's gross domestic product grew so would our greenhouse gas emissions. The event includes a workshop focusing on CSIR labs. The conference will discuss 10 areas such as green buildings; solar manufacturing; electric mobility; energy storage; nuclear energy; climate finance; climate policy; heating and cooling; green hydrogen; waste to energy and motors and controllers.



## CSIR-NPL Marks its 78<sup>th</sup> Foundation Day

CSIR-NPL, NIScPR, TKDL

04<sup>th</sup> January , 2023



CSIR-National Physical Laboratory (CSIR-NPL) commemorated its 78th Foundation Day with a grand celebration held on Thursday, January 4th, 2024. The event was graced by esteemed dignitaries and luminaries from the scientific community, witnessed a series of impactful sessions and significant announcements. The National Physical Laboratory is one of the earliest national laboratories set up under the Council of Scientific and Industrial Research, the foundation stone of which was laid on the 4th January 1947. The celebration kicked off with the ceremonial lamp lighting, symbolizing the illumination of knowledge and innovation. Prof. Venu Gopal Achanta, Director, CSIR-NPL, extended a warm welcome, setting the tone for an insightful day. He also shed light on the recent developments and activities of CSIR NPL. The event featured distinguished guest addresses by Dr. Ranjana Aggarwal, Director, CSIR-NIScPR, New Delhi, and Dr. Viswajanani J Sattigeri, Head, CSIR-TKDL, New Delhi.

Dr. Aggarwal congratulated CSIR-NPL for its glorious 77 years of service to the nation and lab's contribution in various facets of science and technology for Atmanirbhar Bharat. She also told the most recent initiatives of national interest taken by NIScPR like the compendium of CSIR technologies based on their assessment on Technology Readiness Level (TRL) scale;



Livelihood creation for rural India through deployment of CSIR technologies by collaborating with UNNAT Bharat Abhiyan and Vijnana Bharati (VIBHA). Dr. Sattigeri emphasized the importance of Traditional Knowledge and its relevance in present time. The highlight of the foundation day celebration was the keynote address by Chief Guest, Prof. Ashutosh Sharma, President, INSA and Former Secretary, DST, GoI. Prof. Sharma spoke on Science and its various facets and interfaces like Invention, Innovation, Culture, and Society. His address was a beacon of inspiration, emphasizing the significance of scientific advancements in shaping the nation's progress. The day also witnessed pivotal moments with the release of Bharatiya Nirदेशक Dravya (BND) BND® 1041 – Conductivity Standard Solution for Drinking Water with RMP Aashvi Technology LLP (ATL), Ahmedabad and BND® 5061 – Pet Coke Standard (Chemical Parameters) with RMP National Council for Cement & Building Materials (NCCBM), Ballabgarh. A Technology Agreement Tool for Partnerships TATPAR (तत्पर) was also launched. The 78th Foundation Day celebration served as a platform to honour the rich legacy of CSIR-NPL while embracing the future with groundbreaking initiatives and collaborative endeavours. The program concluded with vote of thanks by Dr. Govind, Chief Scientist, CSIR-NPL and Coordinator, 78th Foundation day program followed with National anthem. The event was gracefully compered by Dr. Avni Khatkar, Scientist, CSIR-NPL.



CSIR-NCL

04<sup>th</sup> January, 2023

# Forbes delivers NCL foundation day talk

CSIR-National Chemical Laboratory celebrated its 74th Foundation Day on Wednesday. Naushad Forbes, co-chairman of Forbes Marshall, spoke on the role of R&D in the Indian innovation ecosystem. The event also served as a curtain-raiser for the platinum jubilee celebrations.



## One lakh litres of oily water removed from Ennore: TNPCB

CSIR-NIO

03<sup>rd</sup> January, 2023

More than one lakh litres of oily water and 393 tonnes of sludge were removed from Ennore and sent to Chennai Petroleum Corporation Limited's plant for treatment and disposal. CPCL is primarily responsible for the oil spill following cyclone Michaung,

Six different studies, involving top government institutions including IIT Madras, are in progress to ascertain the damage caused by the oil spill, the Tamil Nadu Pollution Control Board (TNPCB) has told the National Green Tribunal (NGT).

Earlier, the tribunal took suo motu cognizance of the pollution and asked the board to submit details pertaining to oil allegedly spreading all the way to the ecologically sensitive Pulicat lake. TNPCB during a recent hearing said there were no tar balls in the lake near the fish landing centre. However, it observed balls in adjoining beaches at Koraikuppam and Koonankuppam and they were cleared. CPCL in its report said that though mangroves were unaffected, oil traces were found along the outer line of the mangroves near the mouth of the Buckingham canal, which is being cleaned under the guidance of National Institute of Oceanography, Goa. It would take at least two months to finish this work.

CPCL further claimed that it had cleaned more than 1,100 houses and shops which had oil stains on walls and household items using its men and machinery. The tribunal observed that the method adopted by CPCL was not effective as oil stains can be broken only by using enzymes. It directed CPCL to adopt a different and effective cleaning method for houses and shops.

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## No north, south divide when it comes to genetic history, says CCMB researcher

CSIR-CCMB

03<sup>rd</sup> January , 2023

The highly-debated North-South divide in India is narrowing down, it seems. A recent study conducted by a team of researchers in Hyderabad exploring the history of Indian populations claims there is no distinct divide in the genetic history of North and South Indians. In the most recent genetic study published by the Centre for Cellular and Molecular Biology (CCMB) in Hyderabad, it was revealed that the traditional warrior and feudal lords of Nairs, Thiyyas and Ezhavas from Kerala, and Bunts and Hoysalas from Karnataka in the South were “genetically closer” to populations of north-west India.



This study, which was published in the journal *Genome Biology and Evolution*, also showed that the Nairs and Thiyyas not only share ancestors with ancient migrants of north-west India but also carry enhanced Iranian ancestry. This may make them closer to Gujjar populations, who are found largely spread out across the north from Jammu to Maharashtra or the Kamboj, an agricultural community from the Punjab region of India and Pakistan.

### No North vs South

According to the researchers, this finding puts an end to an ongoing "highly-debatable genetic history" of particular South Indian communities. Historians and written records had said earlier that they were related to migrants from Ahichhatra (Iron Age civilization) in the Gangetic plain, but others have said they were related to Indo-Scythian clan migrants from north-west India. Talking about the importance of these new findings, K Thangaraj, JC Bose fellow, CCMB, Hyderabad told *The Federal* that these results show that in the last 4,000 or



5,000 years, North and South populations have migrated and mingled and share genetic history. “Clearly, there is no distinct divide between North and South India in terms of their genetic history,” he asserted.

Does this mean these South populations are not completely Dravidian? “I would say very approximately these communities carry 75 per cent of Dravidian ancestry, 20 per cent of north-west Indian ancestry and 5 per cent Iranian,” said Thangaraj. “Let me point out that what they carry genetically is the real thing and cannot be disputed in any way.”

### High genetic diversity

Thangaraj and his team have been researching Indian population history since 1993. Their first study on how Andamanese were the first humans to migrate 65,000 years ago to settle in the Andaman Islands and some in South India have not been disproved till date.

For the CCMB team, India’s south-west coast region is of interest since it holds “high genetic and cultural diversity” resulting from millennia of migration, settlements and mixing of human populations. In an earlier study too, researchers found the recent migration of Jews, Parsis and Roman Catholics, led to a rich genetic heritage in this region.

Their most recent study on Nairs, Thiyyas and Ezhavas from Kerala, and Bunts and Hoysalas from Karnataka started three years ago.

The DNA of 213 individuals of traditional warriors and feudal lord communities from south-west coast of India was analysed. The researchers “looked for genome-wide autosomal markers and maternally inherited mitochondrial DNA markers”, and compared their results with ancient and contemporary Eurasian populations ranging from the Bronze age to present day groups.

### Route and age of migration

According to author Dr Lomous Kumar, the migration of these groups happened from north-



west via central india to the south-west during the late Bronze age or probably Iron age. Kumar is the first author of the study, who was a PhD student of CCMB at that time and presently is at the Birbal Sahni Institute of Palaeosciences, Lucknow.

Meanwhile, Dr Vinay K Nadicoori, CCMB Director, believes that this study suggests that these south-west coastal groups are the “remnants of very early migrations” that happened from north-west India. They had probably followed the Godavari basin route to Karnataka and Kerala, he pointed out.

Thangaraj also brought in another point that the maternal genome of these South populations reflected higher distribution of West Eurasian mitochondrial lineages. This, according to him, meant that this was a “female-mediated migration” (females from north-west also migrated), unlike most of the recent migrant groups such as Siddis, who came from Africa to India 400 years back and were predominantly males.



## Vice President to Inaugurate Mega North India StartUp Expo

CSIR-IIIM

03<sup>rd</sup> January , 2023

Vice President of India, Shri Jagdeep Dhankhar will inaugurate a Mega StartUp Expo under the theme “Emerging StartUp Trends in North India” tomorrow at Kathua, the border town sharing its boundaries with Jammu & Kashmir, Himachal Pradesh and Punjab, in the august presence of Dr. Jitendra Singh, Union Minister of State (Independent Charge) Science & Technology; MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space and Vice President CSIR.

Startup Expo on 4<sup>th</sup> January, 2024  
merging Startup Trends in North India  
at  
Biotech Park, Kathua, Jammu



Disclosing this at a press conference at the National Media Centre here in Delhi, Dr Jitendra Singh said that under the leadership of Prime Minister Shri Narendra Modi, the government is doing everything to ensure that the StartUp ecosystem in the country is sustainable.

The Minister said that from over 350 in 2014 the number of StartUps in India today is more than 1.30 lakh and number of unicorns more than 100, while India is rated at number 3 in the world in its StartUp ecosystem. He said that equal participation of all stakeholders and early industry linkage are necessary to ensure sustainable StartUps. He urged the media community to help spread awareness about the enabling StartUp ecosystem in the country.

Kathua Mega Expo scheduled tomorrow will not only boost StartUps in North India but will also promote B towns outreach as far as StartUp culture is concerned, said Dr Jitendra Singh

Referring to the back-to-back success of ISRO including Chandrayaan 3, Aditya Mission and recently launched XPoSats, the Minister said that even though talent was never lacking in the



country, the enabling environment was created in the last 10 years under the leadership of Prime Minister Modi.

Answering questions from the media, the Minister said that digitalization and monitoring systems have minimised the procedural delays and created an enabling environment for StartUps. Minister also said that the government is working on multiple levels to boost the startup ecosystem. He said that startups can become large scale entrepreneurship, making use of such schemes.

The Startup Expo under the theme, “Emerging Startup Trend in North India”, is being organized jointly by Biotechnology Industry Research Assistance Council (BIRAC), DBT, GoI and CSIR-Indian Institute of Integrative Medicine (CSIR-IIIM), Jammu, wherein a total of 25 Startup from North India, i.e. from Jammu and Kashmir, Himachal Pradesh, Punjab and Delhi would be showcasing their innovations and products.

The event is organized with the specific objective to create a convergence point for budding entrepreneurs and seasoned mentors, to foster innovation, collaboration, and growth. The event encapsulates the spirit of pushing boundaries, embracing change, creating solutions and ushering new opportunities that address real-world challenges and will witness various innovations by 25 selected startup, in varied sectors which includes, agriculture, industrial biotechnology, medical & diagnostic devices, food technology, nutraceuticals, aroma and space, etc. During the expo, StartUps will exhibit their products, prototypes, and services, providing attendees with hands-on experiences of cutting-edge technologies. The event will also offer ample networking time, allowing participants to connect with potential co-founders, investors, mentors, collaborators and industry people.

This event will also be valuable for the local youth, college and school students, budding entrepreneurs, young farmers, and women of the Jammu region to be acquainted with the government startup schemes, funding opportunities and various other initiatives that are meant to strengthen the youth. It will also encourage the youth to start a career as a StartUp



and facilitate the country to become self-reliant. After inauguration, the Vice President would also interact with the distinguished gathering of traders, academicians, technocrats and members of the civil society, including the representatives of the Panchayati Raj Institutions (PRIs) of the region.

Dr. N Kalaiselvi, Secretary, DSIR and DG, CSIR, Shri Chaitanya Murti, Joint Secretary, Department of Biotechnology and Dr Jitendra Kumar, MD BIRAC also spoke at the press meet.



## CSIR-NEERI organized Indo-US workshop on environmental public health

CSIR-NEERI, IITR, IICB

03<sup>rd</sup> January , 2023

CSIR-National Environmental Engineering Research Institute (CSIR-NEERI), NIH-National Institute of Environmental Health Sciences (NIH-NIEHS) USA and ICAR-National Institute of Occupational Health (ICAR-NIOH) Ahmedabad are jointly organizing an Indo-US Workshop on 'Emerging issues in Environmental Public Health: Dissecting Genetic and Exposome Perspectives' on 3-5 January 2024 in the NEERI Auditorium, Nagpur.



The Chief Guest Dr. Rajiv Bahl, Secretary to Govt. of India, Department of Health and Director General, Indian Council of Medical Research (ICMR) virtually inaugurated the workshop and addressed the participants. He appreciated the efforts made by CSIR-NEERI to achieve environmental sustainability. Health problems tied to global warming and climate change are on the rise, he alarmed. He stressed on developing strategies needed for adaptation and mitigation that will help the nation to cope with climate change. Collaborative research programmes and exchange of knowledge are need of the hour, he added. He advised scientists and policy makers to work together to address environment and health related issues. He urged the participants to consider 'One Health' approach for discussion in the workshop, which encompasses overall health of all living beings as well as that of the environment.

The Guest of Honour Dr. Satish R Wate, Former Director, CSIR-NEERI said that we need to set research priorities for dealing with environment and health. We need to focus on basic research to properly understand the co-relationship between environment and health. He emphasized on the need to strengthen environmental monitoring systems to get real-time



data and revisit environmental technologies. The Distinguished Guest Dr. Bhaskar Narayan, Director, CSIR-Indian Institute of Toxicology Research (CSIR-IITR) mentioned that the exposome is a concept used to describe environmental exposures that an individual encounters throughout life, and how these exposures impact our health. We can evaluate environmental exposures and health risks by measuring the exposome, he said.

Dr Santasabuj Das, Director, ICMR-National Institute of Occupational Health (ICAR-NIOH) Ahmedabad in the inaugural session expressed concern over indoor air quality and related health impacts. He emphasized on the need to study the connection between genes and the environment.

Dr. Srikanth Nadadur, NIH-NIEHS USA briefed about the partnership between India and USA to advance air pollution research, and foster exchange of expertise and scientific collaborations regarding health effects of air pollution.

Dr. Richard Woychik, Director, National Institute of Environmental Health Sciences (NIEHS) and National Toxicology Program, NIH USA delivering a key-note lecture on 'Planning Future Directions for Environmental Health Sciences' briefed about the next generation strategic plan for advancing environmental health sciences. He addressed the six emerging scientific priority areas as future directions for environmental health science, including: the exposome, climate change and health, precision environmental health, mechanistic and translational biology, environmental justice and health disparities, and computational biology and data science. Dr. Woychik pointed out that precision environmental health will help to identify individual gene and environment effects, and risks associated with health. Elaborating on the U.S. and India partnerships, he informed that it will be possible to identify especially vulnerable populations with highest risk disease and study epigenetic changes as a consequence of air pollution.

Dr. Atul Vaidya, Director, CSIR-NEERI in his welcome address urged the scientists to develop new tools for advancing human health risk assessment. More research is needed to



improve the understanding of how the environment affects people's health, he added. Dr. K. Krishnamurthi, Chief Scientist and Head, Health and Toxicity Cell (HTC), CSIR-NEERI gave an overview of the workshop. Dr. U. Mabalirajan, CSIR-IICB Kolkata proposed the vote of thanks. Dr. Amit Bafana, Principal Scientist, CSIR-NEERI conducted the proceedings.

Spread over three days, the workshop has been divided into seven technical sessions, including environmental health effects assessments, susceptibility issues in environmental and occupational health, air pollution health effects, emerging contaminants, environmental pollution and health assessment.



## Arunachal Pradesh highly prone to seismic trigger: NGRI study

CSIR-NGRI

02<sup>nd</sup> January, 2023

Hyderabad-based National Geophysical Research Institute said the Arunachal Pradesh region is extremely stressed and even tiny stresses can cause seismic triggering.

NGRI scientists, who investigated dynamic triggering in Arunachal using data of 34 significant remote and distant quakes, have identified triggered seismicity in the form of microearthquakes and non-volcanic tremors during six remote mainshocks. Arunachal Pradesh, located in north-east India, falls in the seismically active zone.

Abhey Ram Bansal, one of the authors of the study titled 'Tiny stresses are capable of triggering earthquakes and tremors in Arunachal Himalaya' published in 'Scientific Reports' journal, told TOI, "The region is highly vulnerable to seismic activities due to its location at the collision zone of Indian and Eurasian tectonic plates. The area is prone to earthquakes because of the complex structure of faults and fractures. The region is also well known for the complexity of its geological characteristics."

Tony Saini, lead researcher, told TOI that he plans to carry out a study for the whole Himalayan belt, which will help find stress thresholds and identify sensitive regions within the Himalayas. Bansal said: "Static, quasi-static and dynamic stresses are vital in triggering earthquakes in an area. We have studied seismic triggering while passing large earthquakes' surface waves, which occurred in faraway places. This triggering is known as dynamic triggering or remote triggering."



## CSIR-IITR Unveils New Miyawaki Forest: A Step towards Combating Climate Change

CSIR-IITR

02<sup>nd</sup> January, 2023

On a mission to combat climate change and biodiversity loss, CSIR-Indian Institute of Toxicology Research (CSIR-IITR) in Lucknow has inaugurated a vibrant Miyawaki forest at its CRK Campus. Marked by the planting of a thousand trees, this 100 square meter forest stands as a testament to the power of innovative reforestation methods and their potential to reshape our urban landscapes.

### Miyawaki Method: A Game-Changer in Reforestation

The Miyawaki method, employed to create this forest, is a technique that facilitates the rapid growth of dense green spaces on land previously degraded by agriculture or construction. Mimicking natural forest regeneration, it utilizes native trees, resulting in higher biodiversity. This method is globally recognized for its effectiveness, particularly in urban environments, where space is often a limiting factor.

### A Thousand Trees Mark the Beginning

The forest includes a thousand plantations of various species such as Sandalwood, Rudraksh, Amla, Mango, Guava, Jamun, Kathal, and medicinal plants like Tulsi, Aloe Vera, Lemongrass, Giloy, Methi, and Sweet Neem. These diverse species not only contribute to an increased biodiversity but also serve as a living laboratory for researchers and students.

### Addressing Climate Change and Biodiversity Loss

During the inaugural ceremony, officials underscored the relevance of the Miyawaki method in addressing climate change and biodiversity loss. The 'Namo Forest' will be open to the public, highlighting CSIR-IITR's commitment to environmental research. In addition, the institute will monitor soil quality and the environmental impact of this green initiative, ensuring its sustained contribution to the environment.

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## CSIR-NIO Celebrates 59<sup>th</sup> Foundation Day with Public Engagement

CSIR-NIO

02<sup>nd</sup> January , 2023

CSIR-National Institute of Oceanography (NIO) commemorated its 59th Foundation Day with a day filled with educational opportunities and insightful discussions, culminating in an illuminating lecture by Chief Minister of Goa Dr. Pramod Sawant.



The institute, located in Dona Paula, opened its doors to the public from 9.30 am to 11.30 am on January 1st, welcoming visitors to explore the wonders of oceanographic research. Guests were treated to an array of engaging exhibits, including a marine aquarium, models of research vessels, demonstrations of oceanographic research instruments, and displays featuring specimens of marine minerals abundant in metals such as iron, manganese, copper, nickel, and cobalt. Additionally, artifacts discovered by divers from ancient shipwrecks and marine archaeological sites were on view, captivating visitors with insights into maritime history.

The highlight of the evening was the CSIR-NIO Foundation Day Lecture, delivered by Chief Minister Dr. Pramod Sawant at the NIO Auditorium. Dr. Sawant's address focused on the vital intersection of "Oceanography and Society," highlighting the profound impact of ocean sciences on our lives and the environment. He praised CSIR-NIO for its exceptional contributions to the field, lauding the institute's efforts in addressing environmental issues and supporting Goa's initiatives in strengthening marine sector-oriented research.

During the address, Dr. Sawant expressed his anticipation for CSIR-NIO's forthcoming 60th-year celebrations and underscored the institute's increased responsibilities in disseminating



scientific knowledge among students across Goa and beyond state boundaries. Emphasizing the importance of engaging high school students in scientific programs, he advocated for inspiring the next generation to pursue careers in science and oceanography. Dr. Sawant reiterated NIO's pivotal role as a premier institute and a guiding force for the nation.

The commemorative event commenced with a warm welcome by Director of CSIR-NIO, Prof. Sunil Kumar Singh. Dr. Sanil Kumar, Chief Scientist and Chairman of the Foundation Day, delivered the vote of thanks.

The Foundation Day celebration served as a testament to the institute's commitment to advancing ocean sciences, fostering public engagement, and nurturing scientific curiosity among future generations.



## उपलब्धि

वैज्ञानिकों ने तेल और गैस की पाइपलाइन में रुकावट का हल खोजा, अब गैस भंडार का पूरा उपयोग कर सकेगा भारत

# आईआईपी की खोज ईंधन-गैस में बनाएगी आत्मनिर्भर

■ **शैलेन्द्र सेमवाल**  
देहरादून। सीएसआईआर-भारतीय पेट्रोलियम संस्थान (आईआईपी) के वैज्ञानिकों की नई खोज तेल और गैस सप्लाइ में भारत को आत्मनिर्भर बना सकती है। कार्बन उत्सर्जन घटाने में भी मदद कर सकती है। वैज्ञानिकों ने ऐसा अवरोधक विकसित किया है, जो बहुत कम मात्रा में इस्तेमाल पर भी तेल-गैस की पाइपलाइन में गैस हाइड्रेट नहीं बनने देगा और समुद्र से प्राकृतिक गैस-तेल आसानी से निकाला जा सकेगा।

दरअसल, समुद्र के नीचे मौजूद तेल-गैस के अपार भंडार के उपयोग में गैस हाइड्रेट अड़चन पैदा करता है। यह समुद्र में बिछी पाइपलाइन में जम

- आईआईपी के वैज्ञानिकों ने गैस हाइड्रेट अवरोधक का पेटेंट पाया
- समुद्र में मौजूद तेल एवं गैस के अपार भंडार पर है भारत की नजर
- भारत के केजी बेसिन में ही 134 ट्रिलियन क्यूबिक फीट है भंडार

## लागत कम आएगी, उत्पादन कई गुना बढ़ सकेगा

गैस हाइड्रेट अवरोधक बनाने के लिए केंद्र के विज्ञान और इंजीनियरिंग अनुसंधान बोर्ड (एसईआरबी) ने आईआईपी को प्रायोजित किया। इसे विकसित करने में आईआईपी वैज्ञानिक डॉ. आशीष कुमार, डॉ. सनत कुमार, डॉ. उमेश कुमार, डॉ. अविनाश वी. पालोडकर और सद्भावना दुबे ने महत्वपूर्ण योगदान दिया है। यह तकनीक क्रिस्टल जमाव की गति धीमी कर देती है। अवरोधक से समुद्र के अंदर हाइड्रेट प्रबंधन की लागत न्यूनतम होगी और उत्पादन कई गुना बढ़ेगा।

जाता है, जिससे बचने के लिए बड़ी मात्रा में विशेष केमिकल मिलाना पड़ता है। लेकिन, आईआईपी के वैज्ञानिकों ने गैस हाइड्रेट की जमावट रोकने को गैस हाइड्रेट अवरोधक (इनहिबिटर्स)

विकसित करने में सफलता पाई है। भारत को इसका पेटेंट मिल गया है। बता दें कि गैस हाइड्रेट आइस जैसे क्रिस्टल होते हैं, जो पाइपलाइन में जम जाते हैं। इससे लाइन चोक होती है।

## भारत ऊर्जा जरूरतों को पूरा कर सकेगा

भारत में 2006 में शुरू नेशनल गैस हाइड्रेट प्रोजेक्ट में भारतीय समुद्र के नीचे उपलब्ध प्राकृतिक गैस के भंडार का अनुमान लगाया गया था। लेकिन, हाइड्रेट जमावट से भारत गैस भंडार का उपयोग जरूरत के अनुसार नहीं कर पा रहा। जरूरतें पूरी करने के लिए हम विदेशों पर साठ फीसदी तक निर्भर हैं। आईआईपी की खोज से भारत की ऊर्जा समस्या कई वर्षों के लिए खत्म हो सकती है। भारत ने 2030 तक आयातित तेल-गैस की निर्भरता कम करने के साथ ऊर्जा मिश्रण में प्राकृतिक गैस की हिस्सेदारी बढ़ाने का लक्ष्य तय किया है।



## सीओटू स्टोरेज की समस्या खत्म होगी

रामानुजम फैलो और आईआईपी के वरिष्ठ वैज्ञानिक डॉ. आशीष कुमार के अनुसार, भारत इस समय कार्बन कैप्चर यूटोलाइजेशन एंड स्टोरेज प्रोजेक्ट पर भी काम कर रहा है, ताकि औद्योगिक कचरे से प्राप्त सीओटू डंप करने के रास्ते तलाशे जाएं। जियोलॉजिकल डम्पिंग में पहला तरीका है कि समुद्र के नीचे जहां प्राकृतिक गैस निकल चुकी है, वहां पर सीओटू स्टोर की जाए। दूसरे तरीके में, नेचुरल गैस हाइड्रेट की तरह ही सीओटू हाइड्रेट भी समुद्र में बनाकर ऊर्जा स्रोत विकसित किए जाएं। बता दें कि गैस हाइड्रेट जोखिम से निपटने को लेकर आईआईपी की तकनीक ईको फ्रेंडली है।



## CSIR-NGRI, GSI ink ₹99 crore pact for mineral exploration

CSIR-NGRI

01<sup>st</sup> January, 2023

The Geological Survey of India (GSI) on Monday gave the green light to a groundbreaking project in geological research and mineral exploration.

A collaboration with CSIR-National Geophysical Research Institute (NGRI), the ₹99.73-crore project focusses on a comprehensive 'Deep Seismic Reflection Survey (DSRS) and Magnetotelluric (MT) Survey', spanning 700 kilometres across Rajasthan and Madhya Pradesh, to study the intricate crustal architecture and unlock the region's latent mineral potential.

The initiative is being spearheaded by CSIR-NGRI Director Prakash Kumar and GSI Director-General Janardan Prasad, according to an official release.

The execution of the project has been entrusted to chief scientist and head of the MT division Prasanta K. Patro, senior principal scientist Biswajit Mandal and their team.

Mr. Prasad stressed the project's importance to understand the region's geological makeup. Dr. Kumar expressed optimism about its far-reaching implications on mineral resource mapping and potential extraction avenues.

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