চি এছ আই আৰ-উত্তৰ পূৰ বিজ্ঞান আৰু প্ৰযুক্তিবিদ্যা প্ৰতিষ্ঠান, যোৰহাটঃ অসম
सीएसआईआर-उत्तर पूर्व विज्ञान तथा प्रौद्योगिकी संस्थान, जोरहाटः असम
CSIR-North East Institute of Science and Technology, Jorhat: Assam

# INFOWATCH

An In-house Monthly Communication (June, 2026)

## CSIR-NEIST demonstrates OP-12 Biofertilizer production using indigenous bioreactor to stakeholders

Participants of the demonstration programme along with Dr V M Tiwari, Director, CSIR-NEIST and other officials of CSIR-NEIST.

On 02 June 2026, CSIR-NEIST organized a demonstration programme on the production of OP-12 Biofertilizer using an indigenously developed bioreactor, highlighting its potential for sustainable agriculture across the North Eastern region. The programme was conducted by Dr Ratul Saikia, inventor of the OP-12 Biofertilizer technology supported by team members namely, Dr Dipankar Neog, Dr Kalyani Medhi and Mr Madhujya Saikia. The programme was attended by farmers and representatives from different districts of Assam, including more than 30 beneficiaries from Sivasagar and Charaideo, under the Krishi Vigyan Kendra (KVK), Sivasagar, along with the officials of KVK. Representatives from print and media organizations were also present at the programme.


Demonstration programme in progress.

Addressing the gathering, Dr Virendra M Tiwari, Director, CSIR-NEIST, outlined the institute's research and technological capabilities and emphasized its commitment to supporting farmers, entrepreneurs, and rural stakeholders through science driven solutions. During the programme, Dr Ratul Saikia delivered a presentation on the development and applications of the biofertilizer. Dr Saikia explained that OP-12 is based on selected rhizobacterial strains that promote plant growth through mechanisms such as nitrogen fixation and phosphate solubilization, while improving soil health and crop productivity. A major attraction of the event was the live demonstration of the fertilizer production process at the pilot plant facility. Scientists demonstrated the operation of the indigenous 100-litre-capacity bioreactor and explained various stages of OP-12 production, quality control, and scale-up procedures. According to the scientists, OP-12 biofertilizer is suitable for a wide range of crops, including rice, pulses, vegetables, tea, and maize. The technology is designed to improve soil fertility, enhance crop yield, and offer an environmentally sustainable and cost-effective alternative to conventional agricultural inputs. The participants also interacted with Dr Dipankar Neog, Scientist-F and developer of the indigenous bioreactor technology; and Dr Kalyani Medhi, Head of RPBD division. The discussions focused on technology transfer, large scale production prospects, and the practical application of biofertilizers in agriculture, etc. Participants were also taken to the institute's IICON facilities, where various entrepreneurial and technology-support infrastructures developed by CSIR-NEIST were showcased.

## Environment Day 2026 Observed at INSA, New Delhi: Dr V M Tiwari leads CSIR-NEIST Participation

On 05 June, 2026, the Geological Society of India (Delhi Chapter) and the IUGS National Committee, INSA, jointly organized World Environment Day at the Indian National Science Academy (INSA), New Delhi. Dr V M Tiwari, Director, CSIR-NEIST & Vice President of both INSA and the Geological Society of India, delivered the inaugural address on "Climate Change, Water, and Sustainability."

The event featured lectures by several eminent scientists, including Prof R Baskar, Chairman, GSI Delhi Chapter; Prof D M Banerjee, University of Delhi; Prof Rasik Ravindra, former Director, NCPOR, Goa; and Dr N Anandavalli, Director, CSIR-SERC. Scientists and researchers from across Delhi also participated in the programme, highlighting key environmental challenges and sustainable solutions.


Dr V M Tiwari, Director, CSIR-NEIST (second from left) felicitated during the programme.

## Farmers' Meet-cum-Quality Planting Material (QPM) Distribution Programme at Khumtai, Golaghat

CSIR-NEIST organized a Farmers' Meet-cum-Quality Planting Material (QPM) Distribution Programme at Khumtai, Golaghat on 28 June, 2026. Over 200 farmers from various parts of Golaghat district participated in the programme. Hon'ble MP Shri Kamakhya Prasad Tasa and Hon'ble MLA Shri Mrinal Saikia joined the programme where quality planting materials were distributed among the farmers and experts guided on the scientific cultivation of medicinal & aromatic crops, value addition & market opportunities. Dr V M Tiwari, Director, CSIR-NEIST, highlighted the importance of cluster based farming to enhance productivity, sustainability, and farmers' income. The interactive programme reaffirmed CSIR-NEIST's commitment to strengthening rural livelihoods through science and technology.

## NEIST-NEXUS Weekly Lecture Series 2026:

Dr Chinmoy Rajkonwar

On 05 June 2026, as a part of the NEIST-NEXUS Weekly Lecture Series 2026, Dr Chinmoy Rajkonwar, Scientist-D delivered the lecture titled *"Geoscientific Approaches to Sedimentary Systems and Environmental Assessment in Northeast India."* The lecture highlighted the application of geoscience in understanding the region's geological evolution and addressing contemporary environmental challenges. Dr Rajkonwar presented studies on the Middle Bhuban rock formations of Mizoram, demonstrating how sedimentological investigations help reconstruct depositional environments and interpret the region's palaeoenvironmental history. He also discussed sedimentation processes and basin evolution in the Dhansiri Foreland Basin, providing insights into the geological development of Northeast India. The lecture further explored environmental assessment through geochemical and statistical approaches. Seasonal variations in the water quality of the Bhogdoi River were examined using hydrochemical analyses and multivariate statistical techniques to better understand changing environmental conditions. In addition, the assessment of trace metal contamination in the surface soils of Jorhat was presented, highlighting potential ecological risks and the importance of continuous environmental monitoring. Concluding the session, Dr Rajkonwar emphasized the value of integrating geological, geochemical, and environmental studies to support sustainable resource management and informed decision-making.

Dr Twahira Begum

On 19 June, 2026, Dr Twahira Begum, Scientist-C delivered the lecture titled *"Breeding for Mankind: Accelerating Medicinal Plant Improvement for Health & Livelihoods",* the session highlighted the growing importance of scientific breeding strategies in enhancing the quality, productivity, and sustainability of medicinal and aromatic plants. Dr Begum emphasized the significant role of medicinal and aromatic plants (MAPs) in global healthcare systems and their contribution to the livelihoods of millions of people. The lecture showcased how advances in genomics, multi-omics, and artificial intelligence are transforming plant breeding by enabling the rapid development of high-yielding, climate-resilient, and

quality-rich cultivars. The presentation also addressed the need to reduce dependence on wild harvesting by promoting the cultivation of improved plant varieties. Highlighting the broader socio-economic impact of advanced breeding technologies, Dr Begum discussed their potential to improve crop productivity, enhance farmers' incomes, and strengthen bioeconomy-driven value chains.

Dr Tridip Phukan

On 25 June 2026, Dr Tridip Phukan, Scientist-D, delivered the lecture titled *"Microplastic as an Emerging Environmental Threat: Generation, Ecotoxicity, and Mitigation"* which highlighted valuable insights into the growing concern over microplastic pollution and its potential impacts on environmental and human health. Dr Phukan emphasized the implications of microplastics in agriculture, demonstrating that particles smaller than 10 micrometres can enter the root systems of tomato plants, raising concerns about their potential transfer into the food chain. Addressing possible solutions, Dr Phukan emphasized the role of microbial biodegradation as a promising and sustainable strategy for mitigating microplastic pollution. Harnessing the natural ability of microorganisms to degrade plastic residues could provide an environmentally friendly approach to reducing the accumulation of microplastics in ecosystems.

**MoU/Agreements signed**

On 18 June 2026, CSIR-NEIST signed a Tripartite License Agreement with M/s Altravia Global Pvt Ltd., Ahmedabad, through the National Research Development Corporation (NRDC), New Delhi, for the transfer of its indigenously developed technology titled "Graphene from Sub-Bituminous Indian Coal." Shri Bipinchandra K Patel, Director, M/s Altravia Global Pvt Ltd, visited the Institute for signing the agreement and undertaking hands-on training and technology demonstration.

The transfer of this technology underscores the shared commitment of CSIR-NEIST and NRDC towards promoting the commercialization of indigenous technologies and strengthening industry research partnerships. The Institute extends its heartfelt congratulations to the technology team, led by Dr B K Saikia, Scientist F, for their dedicated efforts and valuable contribution in developing this technology and successfully facilitating its transfer to industry.

Shri Bipinchandra Patel (5th from right), Director, M/s Altravia Global Pvt Ltd, Ahmedabad visited CSIR-NEIST for signing the agreement. The agreement was signed in presence of the technology team and other CSIR-NEIST officials.

**World Environment Day observed at CSIR-NEIST and its Branch Lab**

Plantation programme at CSIR-NEIST branch lab, Imphal participated by Dr H B Singh, Scientist-in-charge, branch lab and staff of branch lab.

On 05 June 2026, tree plantation programmes were organized at CSIR-NEIST Jorhat and its Branch Laboratory Imphal, Manipur on the occasion of World Environment Day 2026.

**International Day of Yoga observed at CSIR-NEIST**

On 24 June 2026, CSIR-NEIST celebrated the International Day of Yoga 2026 witnessing active participation of staff & students who performed yoga asanas & breathing exercises, highlighting importance of incorporating yoga into daily life for physical fitness, mental and holistic wellness.

## Visit abroad

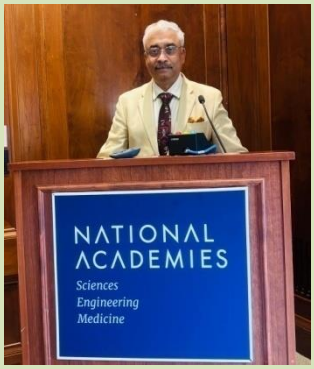
### CSIR-NEIST Director Dr V M Tiwari Delivers Seminar at NASA Goddard Space Flight Center

On June 17, 2026, Dr V M Tiwari, Director, CSIR-NEIST Jorhat, visited the NASA Goddard Space Flight Center and delivered the prestigious GSFC Terrestrial Water Cycle Seminar (G133). During his visit, Dr Tiwari engaged in scientific discussions with leading researchers of NASA's Earth Sciences Division, focusing on advancing collaborative research in hydrology, geophysics, and Earth system sciences.


Dr V M Tiwari, Director, CSIR-NEIST at the NASA Goddard Space Flight Center with Dr Matthew Rodell, Deputy Director (Hydrosphere, Biosphere, Geophysics, Earth Sciences Division).

He held interactions with Dr Matthew Rodell, Deputy Director (Hydrosphere, Biosphere, Geophysics, Earth Sciences Division), and several distinguished scientists, including Mike Croteau, Charon Birkett, Mahya Hashemi, Scott Luthcke, Sujay Kumar, Rajat Bindlish, and Pang-Wei Liu. The visit provided an important platform for strengthening scientific exchanges and exploring future opportunities for collaboration between CSIR-NEIST and NASA in areas related to terrestrial water cycle studies, climate research, and Earth observation technologies.

### Dr V M Tiwari participates in S20 Drafting Committee Meeting at U S National Academy of Sciences




Dr V M Tiwari, Director, CSIR-NEIST Jorhat, and Vice President of the Indian National Science Academy (INSA), participated as a domain-expert member in the final S20 Drafting Committee Meeting organized by the U S National Academy of Sciences (NAS), Washington, D C, USA. Representing India alongside Dr D Mitra, Vice President (International), INSA, Dr Tiwari contributed to deliberations on key global challenges and collaborative scientific solutions. The meeting focused on finalizing the joint S20 statement of the G20 member countries under the theme, “Strengthening Resilience to Natural Disasters through Emerging Technologies and International Collaboration.” The statement emphasizes the role of advanced technologies, scientific innovation, and international cooperation in enhancing preparedness, mitigation, and response to natural disasters worldwide.

During his visit, Dr Tiwari also held discussions with Dr Marcia McNutt, renowned geophysicist and President of the U S National Academy of Sciences. The interaction centered on strengthening scientific cooperation, promoting international research partnerships, and exploring opportunities for collaborative initiatives in areas of mutual interest.

### Dr Banashree Saikia, WISE-Woman Scientist participated in International Norwegian Plant Biology Conference

Dr Banashree Saikia, WISE-Woman Scientist, participated in International Norwegian Plant Biology Conference held during 18-19 June, 2026 in Norway and delivered a presentation on CRISPR/Cas-based genome editing for climate-resilient crop improvement.

## Papers Published

### In International Peer Reviewed Journals

1. Akib Ali, Aditya Sarkar, Gayatri Gogoi and Pankaj Bharali: An optimized droplet digital PCR (ddPCR)

protocol for gene expression studies in plant system and viral load estimation in waste water system. *Vegetos, 2026* https://link.springer.com/article/10.1007/s42535-026-01810-8 (**IF: 3.4**)

2. Partha Majumder and Swapnali Hazarika: A comprehensive review of thermal, chemical, and nanotechnology-based wood treatments with industrial applications. *Journal of Wood Chemistry and Technology.* https://www.tandfonline.com/doi/full/10.1080/02773813.2026.2680538 (**IF: 1.7**)

3. Akash Philip Nedumthuruthiyil, Akhil Rajendran, Dhruv Dhiman, Pavithra B, Tapas Ghatak, Biswajit Saha, Kuldeep Singh, Sreetama Ghosh and Abir Sarbajna: Divergence between activity metrics and mechanistic interpretability in anchored molecular electrocatalyst. *Journal of Materials Chemistry A* https://pubs.rsc.org/ta/article/doi/10.1039/d6ta02884e/1265405/Divergence-between-activity-metrics-and **(Highest Impact Factor Paper, IF: 9.5)**

4. Gori Sankar Borah, Sukriti Tiwari and Selvaraman Nagamani: OMNI: Optimized Multiview Network Integration with Heterogeneous Graph Attention for Biomedical Interaction Prediction, *Journal of Chemical Information and Modeling, 2026* https://pubs.acs.org/doi/10.1021/acs.jcim.6c00441 (**IF: 5.3**)

5. Niraj Kumar, L Cecilia , Archana Yadav, Saikat Haldar and Ratul Saikia: Salt stress-induced alterations in mungbean (Vigna radiata L.) root exudates facilitate the recruitment of stress-ameliorating rhizobacteria. *Rhizosphere, 2026 Volume 38, June 2026, 101389.* https://www.sciencedirect.com/science/article/pii/S2452219826001345 pes=vor&utm_source=clarivate&getft_integrator=clarivate (**IF: 3.5**)

6. Devika Maisnam, Manoj Kumar Phukan, V M Tiwari and Sarbajit Dash: Comparative assessment of ensemble machine learning models for landslide susceptibility mapping in Kohima– Mokokchung, Nagaland, India, *India Natural Hazards, 2026, Volume 122, article number 496 (2026)* https://link.springer.com/article/10.1007/s11069-026-08261-z?utm_source=getftr&utm_medium=getftr&utm_campaign=getftr_pilot&getft_integrator=clarivate (**IF: 3.7**)

7. Priyanka Gogoi, Ashutosh Thakur, Kallol Roy, Akhil Rajbongshi and Binoy K Saikia: Coal-Derived Carbon Quantum Dot-Silica Hybrid Phosphors for Single-Component White Light Emission and Low-Cost Solid-State Lighting. *ACS Applied Energy Materials*, 2026 Vol. 9, Issue 11, Page: 7212-7230. https://pubs.acs.org/doi/10.1021/acsaem.6c00876?src=getftr&utm_source=clarivate&getft_integrator=clarivate (**IF: 5.6**)

8. Debashis Sarmah, Abhishek Hazarika, Arnab Dowerah, Shreeram Pandit, Manish Dev Sharma, and Binoy K Saikia: Alkali-ion intercalation-driven low-temperature graphitization of biomass carbon toward porous 3D crumpled graphene for high-energy hybrid capacitors. *Journal of Power Sources*, 2026, Vol. 690, Pages: 240832" https://www.sciencedirect.com/science/article/pii/S037877532601582X?via%3Dihub (**IF: 7.9**)

9. Neha R Thakare, Runjun Duarah, Devpratim Koch, Pankaj Bharali and Swapnali Hazarika: Waste print paper generated cellulose-chitosan composite film for cell attachment application. *International Journal of Biological Macromolecules*, 2026, Pages: 153282 https://www.sciencedirect.com/science/article/pii/S0141813026032228?via%3Dihub (**IF: 8.5**)

**In National Journals**

1. Nibir Pran Borah, Leon Raj Jesu Arul Raj, Siva Chidambaram Rajendran, Sanjay Deoria, Dipak Basumataria, Rajib Das & Chockalingam Tamilarasu: Experimental study on comparison of equivalent concrete compressive strength of cores and rebound hammer tests with in-place and standard cubes, *Indian Journal of Engineering and Materials Sciences 2026 Vol. 33, Issue 1, page: 20-35* https://or.niscpr.res.in/index.php/IJEMS/article/view/21567 (**IF: 0.6**)

## Farewell

The following member(s) of the staff have retired from Council's service on superannuation from CSIR-NEIST w. e. f. 30 June, 2026:

1. Mr Lenti AO, Group-C (MTS).