CSIR-NEERI NEWS LETTER

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From the Director's Desk

CSIR-NEERI continues to uphold its legacy of scientific excellence and societal commitment through impactful S&T interventions, innovative research, and collaborative endeavours. In response to the recent floods in Jammu & Kashmir, CSIR-NEERI deployed water purification units to ensure access to safe drinking water in the affected regions—reaffirming our mission of science for societal good. Our eco-rejuvenation efforts also gained momentum, with large-scale bamboo plantations transforming fly ash dumpsites into thriving green zones. On the research front, CSIR-NEERI secured five major projects, published 18 high-impact research papers (Impact Factor > 5), and earned national and international recognition through prestigious awards, collaborations, patents, and global partnerships. We take pride in initiatives like 'One Day as a Scientist', which offered young students first-hand exposure to scientific research, inspiring them to become future innovators.

Dr. S. Venkata Mohan
Director, CSIR-NEERI

R&D HIGHLIGHTS

Siloxanes in beauty and personal care products: hidden risk revealed

Dr. G S Kanade
Chief Scientist

Dr. A Ramesh Kumar
Principal Scientist

The CSIR-NEERI study has, for the first time in India, investigated the presence of volatile methylsiloxanes (VMS) in 174 beauty and personal care products (PCPs) available in the market. The findings are striking—siloxanes were detected in all the products, with cyclic siloxanes (D5 and D6) being predominant and reaching concentrations as high as 7.7 lakh µg/g. Alarmingly, about 40% of the products exceeded the European Union's guideline limit (0.1%) for D4 and D5. The study further revealed that everyday use of PCPs results in significant emissions of siloxanes into water and air, with hair serums, moisturizers, deodorants, makeup removers, and shaving foams being the major contributors. Importantly, the estimated inhalation doses for D4 + D5 were found to be higher than the chronic reference dose, raising concerns about long-term health effects. This pioneering work not only provides critical scientific evidence for policymakers and regulators but also alerts consumers to make informed choices about daily-use products. The study underscores the urgent need for stricter monitoring, safer formulations, and increased public awareness regarding chemical safety in personal care products.

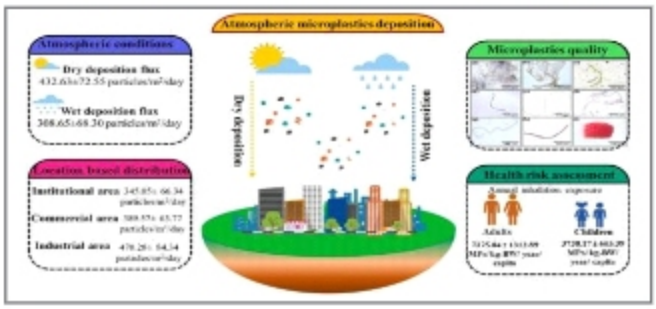
Ishan Singh, G S Kanade and A Ramesh Kumar, Volatile methylsiloxanes in beauty and personal care products sold in India and human exposure assessment, Science of the Total Environment (2025)

Atmospheric microplastics in a central Indian city

The CSIR-NEERI study published in Environmental Pollution (2025), has provided critical insights into atmospheric microplastics (AMPs) deposition in a central Indian city. The study assessed AMPs across institutional, commercial, and industrial areas over four seasons and revealed that the majority of deposited particles were fibres (87.84%), with sizes predominantly below 1000 µm (43.67%). The most common polymers identified included PET (37.39%), nylon (20.49%), and PP (10.27%).

Seasonal analysis showed that summer recorded the highest deposition flux (491.06 ± 73.37 particles/m²/day), while rainfall was found to have a cleaning effect on AMPs in the atmosphere. Industrial areas consistently exhibited higher deposition levels, pointing to significant sources such as plastic waste littering, industrial emissions, and textiles. Alarmingly, the estimated annual inhalation exposure to AMPs was found to be 7,375 MPs/kg-bw/year for children and 3,738 MPs/kg-bw/year for adults, highlighting potential risks to human health.

This study underscores the growing challenge of plastic pollution in the air we breathe, emphasizing the urgent need for effective waste management, reduced plastic littering, and stronger policy interventions. The findings are valuable not only for the scientific community but also for the general public and policymakers, as they highlight the direct impact of microplastics on urban environments and human health.



Archana Prajapati, Pradip Jadhao and A Ramesh Kumar, Atmospheric microplastics deposition in a central Indian city: Distribution, characteristics and seasonal variations, Environmental Pollution(2025)

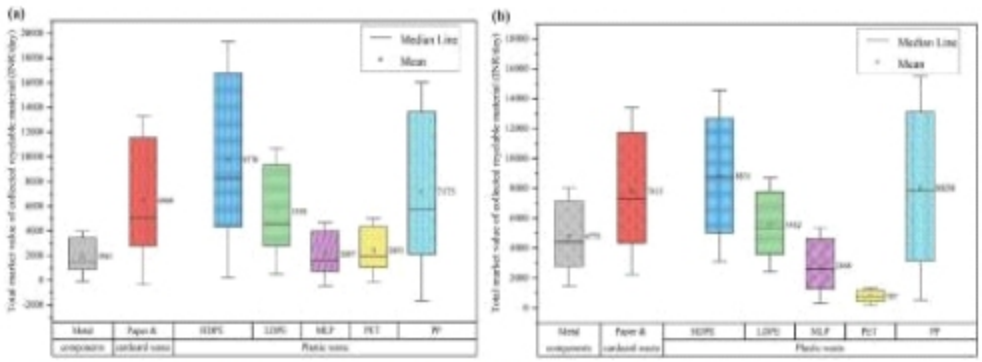
Strengthening municipal solid waste management through technical indicators

CSIR-NEERI was involved in a study on the performance analysis of municipal solid waste (MSW) management using technical indicators (TIs). The study identified 20 technical indicators to assess the effectiveness of MSW systems across four critical sectors: street cleaning and maintenance, collection and transportation, recovery and recycling, and disposal practices. Findings revealed that street cleaning coverage was highest in litter-prone areas, but underserved in less populated outskirts, highlighting the need for balanced resource allocation. The Recyclable Market Value (RMV) analysis showed that recovered materials from urban streets held the highest economic value (18.37 INR/kg), while materials from transfer stations and disposal sites had lower value due to contamination and degradation.

This study underscores the importance of reliable metrics to benchmark and improve MSW systems. By providing data-driven insights, it supports policymakers, researchers, and urban planners in designing safer disposal methods, robust recycling frameworks, and incentive-based schemes that can empower the informal sector—ultimately contributing to cleaner cities, resource recovery, and public health protection.

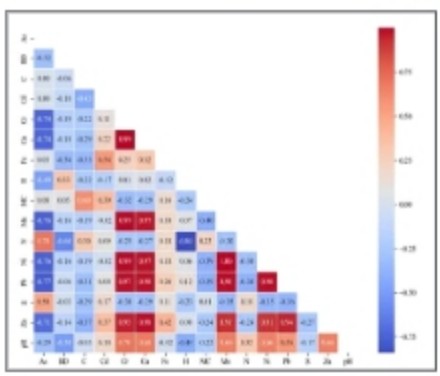
Deval Singh, Anil K. Dikshit, Mohan B. Dangi, George Tchobanoglous, and Sunil Kumar, Environmental and Sustainability Indicators(2025)

Dr. Sunil Kumar
Sr. Principal Scientist



Strata-based approach for determination of resource recovery potential from legacy waste dumpsite in India

CSIR-NEERI scientists have demonstrated a strata-based approach to evaluate the resource recovery potential of legacy waste dumpsites in India. By analyzing waste composition, physico-chemical properties, elemental characteristics, and heavy metal content across three distinct layers of old dumpsites, the study revealed valuable insights for sustainable landfill mining (LFM). Results indicated that deeper layers contained more soil-like fractions, while single-use plastics persisted across all strata. Notably, the first two layers showed higher carbon content, highlighting their potential for refuse-derived fuel (RDF), whereas the third layer was found suitable for landfill gas collection. Elemental variations suggested additional opportunities—nitrogen-rich materials for ammonia, hydrogen-rich fractions for hydrogen fuel, and sulphur-rich waste for sulphur dioxide recovery. Correlation analysis further enabled strategies to maximize recovery while reducing environmental risks.



This research underscores how legacy waste, often seen as an environmental burden, can be transformed into a valuable resource base. It provides a roadmap for municipal authorities, policymakers, researchers, industries, and the general public to adopt innovative practices in solid waste management, reduce dependence

on landfills, and move closer to a circular economy.

Vivek Ojha, Rahul Rautela, Ved Prakash Ranjan, Apurva Sharma and Sunil Kumar, Strata-based approach for determination of resource recovery potential from legacy waste dumpsite in India, Waste Management & Research(2025)

Innovative digestate valorization for a circular bioeconomy

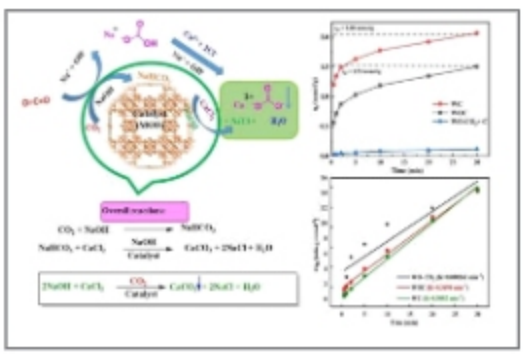
CSIR-NEERI, in collaboration with other institutes, explored innovative strategies for the valorization of digestate, a nutrient-rich by-product of anaerobic digestion, within the framework of green chemistry and circular bioeconomy. The study emphasizes sustainable reuse pathways such as biofertilizer production, enzyme synthesis, algal cultivation, hydroponics, and the generation of high-value products including bioplastics, biochar, hydrochar, and volatile fatty acids. Advanced techniques like catalytic upgrading, microbial engineering, and nutrient recovery are explored, along with life cycle and techno-economic analyses to assess commercial viability. The research also addresses regulatory frameworks essential for safe agricultural and industrial applications, promoting environmentally sustainable solutions for organic waste management, minimizing environmental impact, enhancing resource efficiency, and contributing to net-zero emission goals.

Samuel Jacob, Debajyoti Kundu, Anjani Devi Chintagunta, Sampath Kumar N. S, Palas Samanta, Chandan Mahata, Sukhendu Dey, R. G. Shibirathna, Arun Barathi, Sunil Kumar, Zhiwu Wang, and Gaurav Goel, Anaerobic digestion-derived digestate valorization: green chemistry innovations for resource recovery and reutilization, Green Chemistry (2025)

Catalyst-mediated CO_2 sequestration for sustainable carbon capture

Dr. P. Nagababu
Principal Scientist

CSIR-NEERI has undertaken a pioneering study on "Catalyst-mediated efficient sequestration of gaseous CO_2 to solid $CaCO_3$. The study introduces an alkaline catalyst-mediated (ACM) approach using a metal–organic framework (MOF) for highly efficient CO_2 mineralization under ambient conditions, achieving an exceptional $CaCO_3$ yield of nearly 94%. The findings demonstrate that the Cu-BTC-MOF catalyst significantly enhances CO_2 conversion efficiency, with a sequestration capacity of 2210 mg/g, far outperforming control systems. The process follows pseudo-second-order kinetics, confirming accelerated reaction rates and high stability.



This breakthrough provides a sustainable, scalable, and science-driven pathway for advancing Carbon Capture, Utilization, and Storage (CCUS) technologies. Beyond its scientific impact, the work offers hope for practical solutions to mitigate rising CO_2 emissions, support circular economy initiatives, and ensure long-term climate resilience—benefiting researchers, policymakers, industries, and the general public alike.

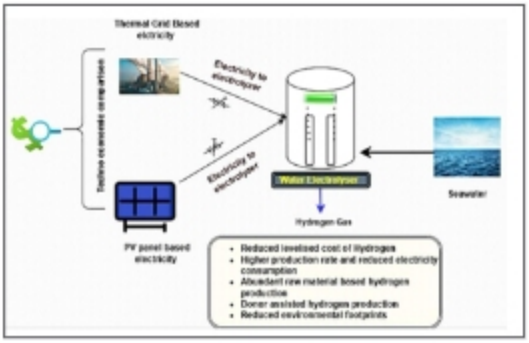
P. Nagababu, V. Palwe, U. Panbude, S. Tembhare, R. Karthik, D. Maskare, and S. Rayalu, Catalyst-Mediated Efficient Sequestration of Gaseous CO_2 to Solid $CaCO_3$, Water, Air, & Soil Pollution (2025)

Green hydrogen through donor-assisted saline water splitting

CSIR-NEERI has conducted an innovative study on optimized hydrogen production through donor-assisted saline water splitting and its techno-economic feasibility, opening new pathways toward a sustainable hydrogen economy. The research explored green hydrogen generation from seawater electrolysis powered by solar energy,

Dr. Shilpa Kumari
Senior Scientist

with hydrogen peroxide serving as a donor to enhance reaction efficiency. A key breakthrough was the replacement of costly platinum electrodes with titanium-based mixed metal oxide (Ti-MMo) electrodes, which significantly reduced costs while maintaining robust hydrogen output.



The study demonstrated an optimal hydrogen evolution rate of 80 ml/min at 4 V using a 3% NaCl and 1% H_2O_2 solution. Importantly, the levelized cost of hydrogen (LCOH) was estimated at 9.87 USD/kg using thermal electricity and as low as 3.86 USD/kg with solar electricity, underscoring the transformative role of renewable energy in reducing costs.

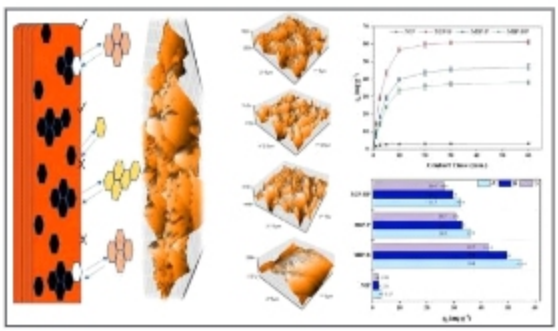
This research not only advances the science of cost-effective and clean hydrogen production but also provides actionable insights for policymakers, researchers, and investors to accelerate the transition toward sustainable energy systems. By highlighting the promise of solar-powered saline water electrolysis, the study reinforces hydrogen's potential as a key enabler of a low-carbon future for society.

Shilpa Kumari, Aniruddha Pandit, Sadhana Rayalu, Optimized hydrogen production through donor-assisted saline water splitting and its techno-economic feasibility, Sustainable Energy Technologies and Assessments (2025)

Advanced imprinted polymers for environmental carcinogen capture

Dr. R J Krupadam
Chief Scientist

CSIR-NEERI has conducted a breakthrough study on the development of highly efficient molecularly imprinted polymer (MIP) nanofilms for capturing environmental carcinogens, specifically polycyclic aromatic hydrocarbons (PAHs). This is the first report on sub-nano-scale cavity formation in hydrophobic polymers revealed through 3D atomic force microscopy (AFM), enabling visualization of template-specific cavities at the sub-micron level.



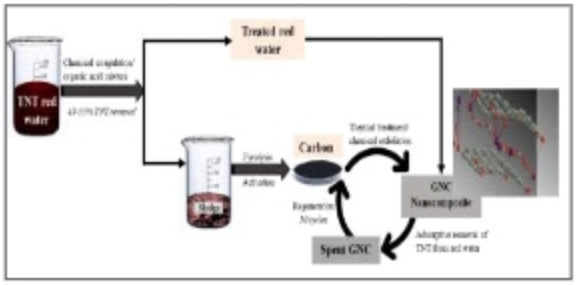
The study demonstrated that these imprinted nanofilms exhibit high selectivity and rapid adsorption kinetics, even in high total dissolved solids (TDS) water, making them highly effective for real-world environmental conditions. Adsorption assays, isotherm analysis, and Scatchard plots confirmed the uniformity and efficiency of the binding sites, with controlled microporosity enhancing the selective capture of PAHs.

This innovative research paves the way for scalable, science-driven solutions for the remediation of carcinogenic pollutants, offering significant benefits to researchers, policymakers, industries, and the general public. By advancing molecular imprinting technologies, the study highlights a promising route toward cleaner water, healthier ecosystems, and reduced human exposure to hazardous environmental contaminants.

Anshika Yadav and R.J. Krupadam, Highly efficient imprinted polymers for capture of environmental carcinogens, MRS Communications (2025)

Circular economy approach for TNT red water treatment

CSIR-NEERI has developed an innovative circular economy-based solution for the treatment of TNT red water, one of the most toxic effluents generated from explosive manufacturing industries. In this study, graphene nanocomposites (GNCs) were prepared from sludge obtained during the treatment of TNT red water and effectively used for the removal of trinitrotoluene (TNT). The GNCs exhibited high surface area and microporosity, achieving a remarkable TNT removal efficiency of up to 242.3 mg/g within 30 minutes, with excellent reusability over multiple cycles. This approach not only addresses the challenge of managing hazardous TNT red water but also transforms toxic sludge into high-value adsorbents, significantly reducing treatment costs. The work provides an eco-friendly, scalable, and economically viable pathway for achieving complete remediation of TNT red water, benefitting both industry and the environment while showcasing the potential of waste-to-resource technologies.

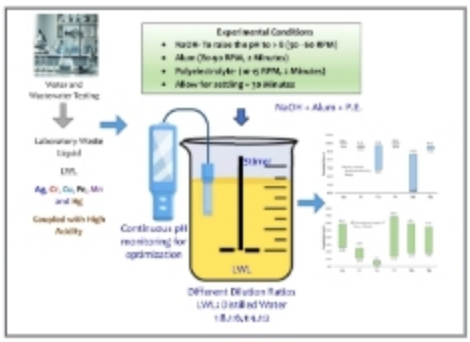


Anshika Yadav, Mahammad O Aquatar and R.J. Krupadam, Removal of traces of highly explosive trinitrotoluene from TNT red water by using graphene nanocomposites prepared from solid wastes: An example of circular economy, Environmental Science and Pollution Research (2025).

Removal of heavy metals from laboratory waste liquid (LWL)

Dr. Girish Pophali
Chief Scientist

CSIR-NEERI has developed an effective treatment strategy for the removal of heavy metals from Laboratory Waste Liquid (LWL) generated in water and wastewater testing laboratories. The study demonstrated that a combined process of neutralization with sodium hydroxide, followed by coagulation–flocculation, achieves over 90% removal efficiency for heavy metals such as silver, iron, chromium, copper, and zinc, with manganese requiring slightly higher pH for effective precipitation. Laboratory-scale results were successfully validated at the pilot scale, confirming the method's scalability and practical feasibility. This innovative approach not only ensures compliance with environmental discharge norms but also provides a science-based pathway for safer laboratory practices and regulatory frameworks, contributing to environmental protection and public health.



Swati Dhenkula, AkshayShende, Leena Deshpande and Girish Pophali, Removal of heavy metals from laboratory waste liquid (LWL) generated from water and wastewater analytical laboratories, Process Safety and Environmental Protection (2025)

Biocatalytic breakthrough for CO_2 utilization and green energy

CSIR-NEERI, along with national and international collaborators, has pioneered a novel electrofermentation platform integrating polycarbazole-based porous organic polymer (POP)-coated electrodes to enhance selective acetic acid (AA) production and biohydrogen generation by Bacillus subtilis. The tailored porosity and high surface area of POP enabled efficient intracellular CO_2 capture, improved electron transfer, and metabolic flux modulation, leading to acetic acid yields of 2.11 g/L (71% of the theoretical maximum) without genetic modifications. Additionally, the process enriched biohydrogen content to 52% in the biogas composition, offering dual benefits of sustainable chemical and clean energy production. This first-of-its-kind approach, published in Angewandte Chemie

Dr. S. Venkata Mohan
Director, CSIR-NEERI

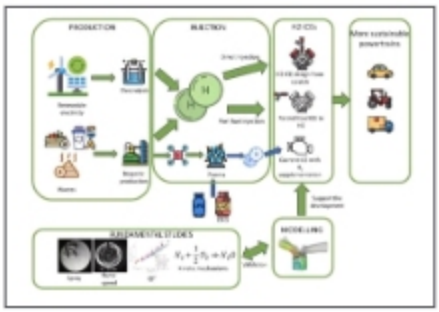
International Edition (2025), highlights a scalable and eco-friendly strategy for CO_2 valorization, bridging microbial electrochemical systems and material science. The study demonstrates how innovative science can contribute to climate action, green energy transition, and sustainable industrial practices, making the findings significant for policymakers, researchers, industries, and society at large.

Nitumani Das, Triya Mukherjee, Chitra Sarkar, Ratul Paul, Duy Quang Dao, S Venkata Mohan and John Mondal, Intracellular CO_2 capture triggered outperforming biocatalytic production of selective acetic acid & biohydrogen housing in porous-organic-nanofiber, Angewandte Chemie International Edition (2025)

Low-carbon fuels for a sustainable transport future

Dr. Nitin Labhsetwar
Chief Scientist

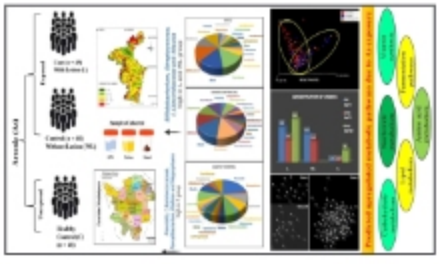
Conducted a study on the transformative potential of E-fuels and biofuels, CSIR-NEERI, in collaboration with other institutes, highlights their role in decarbonizing the transport sector while leveraging existing internal combustion (IC) engine infrastructure. The study presents advancements in adapting IC engines to efficiently operate on a range of low-carbon fuels, including hydrogen, methanol, ethanol, ammonia, and DME. These carbon-neutral drop-in fuels, produced from renewable electricity and sustainable feedstocks, can substantially reduce tailpipe and greenhouse gas (GHG) emissions. The research demonstrates the feasibility of retrofitting current engines with minimal hardware modifications, especially when combined with advanced after-treatment technologies. By providing detailed insights into fuel properties, production pathways, and engine optimization strategies, the study serves as a valuable resource for policymakers, researchers, and industry stakeholders in shaping a sustainable and climate-resilient transport future.



Avinash Kumar Agarwal, Christine Mounaïm-Rousselle, Pierre Brequigny, Atul Dhar, Camille Hespel, Chetankumar Patel, Dhananjay Kumar Srivastava, Ganesh Duraisamy, Luis LeMoyne, Nikhil Sharma, Nitin Labhasetwar, Paramvir Singh, Piyali Das, Pradipta Kumar Panigrahi, Pravesh Chandra Shukla, P. Sakthivel, S.Venkata Mohan, Snehasish Panigrahy, Swarnendu Sen and Hardikk Valera, Future of internal combustion engines using sustainable, scalable, and storable E-fuels and biofuels for decarbonizing transport and enabling advanced combustion technologies, Progress in Energy and Combustion Science (2025)

Impact of Arsenic exposure on human gutmicrobiome and sustainable digestate valorization

Dr. Sreemanta Pramanik
Chief Scientist



CSIR-NEERI, in collaboration with other Institutes, conducted a study documenting significant alterations in the human gut microbial composition of arsenic-exposed populations in West Bengal, India, through amplicon sequencing of stool metagenomic DNA. A notable reduction in α-diversity indicated decreased species richness and altered predominance. β-diversity analysis revealed prominent inter-individual differences. Among the 26 phyla detected, significant perturbations were observed in Bacteroidetes, Actinobacteria, Proteobacteria, and Firmicutes. Species-level analysis identified significant increases in Bifidobacterium adolescentis, B. longum, Blautia luti, B. wexlerae, Clostridium saudiense, Romboutsia timonensis, and Streptococcus salivarius, whereas members of Faecalibacterium prausnitzii, Megaspha eraelsdenii, Prevotella

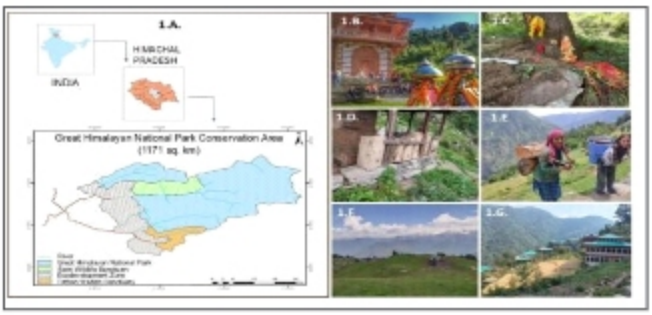
copri, and P. stercorea were markedly diminished due to arsenic stress. The major findings of this study will guide future research, including community-based metagenomics, metabolomics, and in-vitro microbial validations, aimed at designing microbial therapeutics to mitigate the harmful effects of arsenic exposure on gut health.

Soma Ghosh, Shankha Nath, Arijit Chakraborty, Subhamoy Bhowmick, KunalKanti Majumdar, Souvik Mukherjee and Sreemanta Pramanik, Long-term arsenic exposure perturbs gut microbial diversity, composition and predicts metabolic dysregulation, Journal of Hazardous Materials (2025).

Community perceptions in the Great Himalayan National Park

Dr. Shalini Dhyani
Principal Scientist

CSIR-NEERI conducted a study assessing the relationship between community perceptions of Nature's Contributions to People (NCP), drivers of change, and landscape values in the Great Himalayan National Park Conservation Area, a Biocultural Landscape in Himachal Pradesh. The study quantified public perceptions of NCP across diverse landscapes, revealing significant variations across forest, grassland, and other ecosystems. Forests were particularly valued for their contributions to people, while non-material contributions—such as those supporting cultural identity—were especially important in forest and grassland areas. Sociodemographic and environmental factors, including unpredictable weather changes and rural development schemes, influenced these perceptions. Using the Analytical Hierarchy Process (AHP), the study identified 'Religious' values as the most significant criterion, followed by 'Heritage' and 'Recreational' values. The findings highlight the importance of incorporating community perspectives into conservation and development planning to effectively achieve conservation and restoration targets.



Radhika Sood, Shalini Dhyani and Somidh Saha, Relationships between nature's contribution to people, drivers of change, and landscape values in a biocultural landscape, the Himalayas, Journal of Nature Conservation (2025).

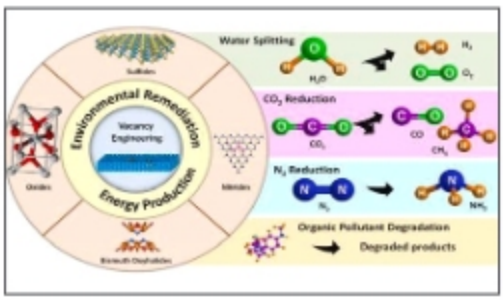
Boron nitride nanomaterials for environmental, energy, and sensing applications

Dr. Sukdeb Pal
Sr. Principal Scientist

CSIR-NEERI highlights a study on the versatile applications of boron nitride nanomaterials (BNNMs) in environmental remediation, clean energy, and sensing. The study focuses on their synthesis, functionalization, and utilization in tackling global challenges of pollution, energy shortage, and pollutant detection. BNNMs are synthesized using diverse methods such as ball milling, electrospinning, hydro/solvothermal synthesis, chemical vapor deposition, and microwave-assisted techniques, producing materials with exceptionally high surface areas (0.7–1,900 m^2/g) that are cost-effective and scalable. Their efficiency in pollutant removal has been demonstrated across a wide range—up to 2,989 mg/g for cadmium, 1,030 mg/g for methylene blue, and 100% for tetracycline. In addition, BNNMs show excellent potential in hydrogen production (31 mmol/g per hour), hydrogen storage (7.7 wt%), and highly sensitive pollutant and biomolecule detection (0.08 μM for ascorbic acid, 0.15 pg/mL for concanavalin A). These findings position BNNMs as promising next-generation materials for sustainable environmental management, renewable energy systems, and advanced sensing technologies.

Abhishek Sharma, Charu Juneja and Sukdeb Pal, Boron nitride nanomaterials for environmental remediation, energy, and sensing, Environmental Chemistry Letters (2025)

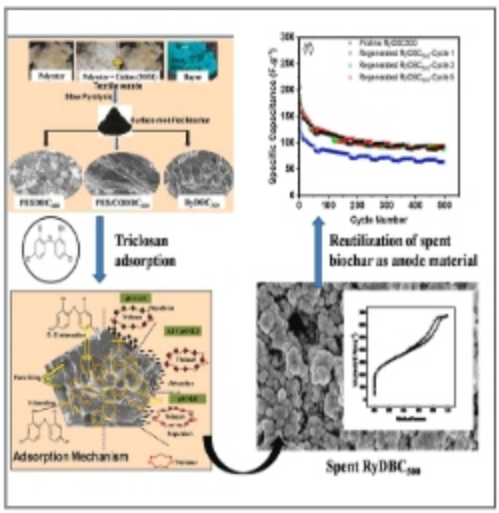
Tapping the solar spectrum through vacancy engineering



This study offers an overview of the synthesis strategies for vacancy-rich materials, focusing on their cost-effectiveness, scalability and also explores how vacancy-rich materials can revolutionize photocatalytic processes—from solar-driven hydrogen production to CO_2 reduction, nitrogen fixation, and pollutant degradation. The integration of experimental findings with density functional theory (DFT) simulations is expected to provide better applications of vacancy-induced materials. This work lays the foundation for designing next-gen materials to address clean energy and environmental challenges.

Charu Juneja, Abhishek Sharma and Sukdeb Pal, Tapping the solar spectrum through vacancy engineering: Application in environmental remediation and energy production, Materials Today Chemistry (2025).

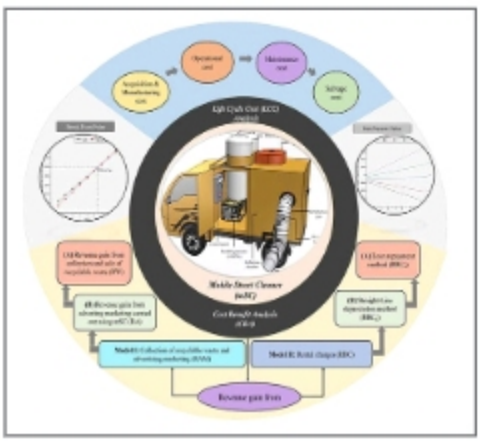
Upcycling of polyester based textile fabric waste into surface modified biochar



In this study, an innovative approach has been proposed for reuse of the pristine and spent biochar as electrode material in supercapacitor due to its porous nature and presence of several hetero atoms. The pristine biochar having high surface area exhibited specific capacitance of 312 F g^{-1} and for triclosan loaded biochar it increased from 270 to 295F.g^{-1} with increasing number of regeneration cycles. Thus, polyester based textile waste proved to be a potential feedstock for carbonaceous biochar preparation that may simultaneously serve as effective adsorbent for emerging pollutants removal from water and wastewater along with high performance electrode material in supercapacitor, reported first time.

Susmita Kar, Shoroshi Dey, Sudip Kumar Ghosh, Nilashma Ray, Jayanta Mukhopadhyay, Sunil Kumar, Sourja Ghosh and Swachchha Majumdar, Upcycling of polyester based textile fabric waste into surface modified biochar: Assessment of triclosan adsorption efficiency and utilization of used biochar as electrode in supercapacitor, Materials Chemistry and Physics (2025)

Techno-economic analysis of mobile street cleaner (mSC) for sustainable municipal solid waste litter management

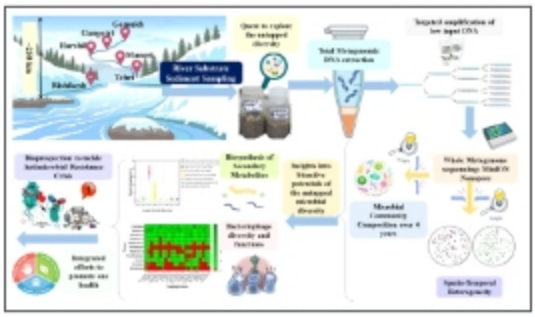


This collaborative research was jointly undertaken by Indian Institute of Technology Bombay (IIT Bombay) and CSIR-NEERI, Nagpur. The study presents a comprehensive techno-economic framework to assess the feasibility and long-term sustainability of mobile street cleaner (mSC) technology—particularly relevant for Indian cities struggling with dispersed MSW litter and limited mechanized street cleaning. This research contributes to urban waste management planning and supports India's transition toward a circular economy, aligning with the goals of Swachh Bharat Mission, Swachh Survekshan, and smart urban infrastructure. This work serves as a decision-support tool for urban planners and infrastructure consultants.

Deval Jugraj Singh, Anil K. Dikshit, Mohan B. Dangi, George Tchobanoglous and Sunil Kumar, Techno-economic analysis of mobile street cleaner (mSC) for sustainable municipal solid waste litter management, Cleaner Engineering and Technology (2025)

Glacier-fed Ganga microbiome offers new hope for one health

Dr. Krishna Khairnar
Sr. Principal Scientist



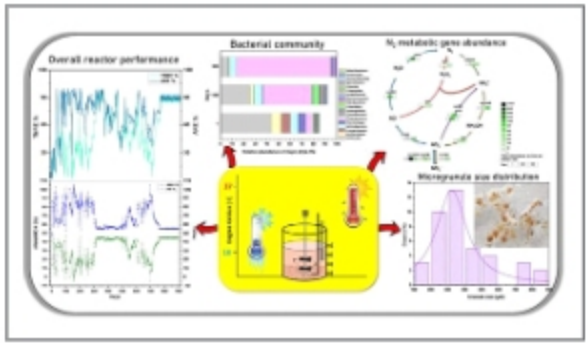
This groundbreaking study explores the microbial and phage diversity of the pristine glacier-fed stretch of the Ganges River, revealing its untapped potential for antimicrobial compound biosynthesis and contributions to the One Health framework. This publication is a fantastic example of inter-laboratory collaboration, especially between CSIR-NEERI and CSIR-NCL, demonstrating the power of cross-institutional teamwork in advancing environmental microbiome research. CSIR-NEERI gratefully acknowledges this support of the National Mission for Clean Ganga (NMCG) for sponsoring this visionary project.

Rachel Samson, Shubham Kumar, Syed Dastager, Krishna Khairnar and Mahesh Dharne, Deciphering the comprehensive microbiome of glacier-fed Ganges and functional aspects: implications for one health, Microbiology Spectrum (2025)

High-efficiency Anammox achieved from unacclimatized sludge

Dr. Rima Biswas Mondal
Sr. Principal Scientist

In this study, the influence of seasonal temperature on in-situ anammox self-enrichment in a single-stage Partial Nitrification Anammox (PN/A) process was investigated in a laboratory-scale sequential batch reactor (SBR) for 900 days. The study demonstrated that unacclimatized, anaerobic granular sludge (AGS) with a low specific anaerobic ammonia oxidation (AnAOB) activity, can be developed into a highly specialized biomass with a high nitrogen removal rate (NRR) of 0.08 ± 0.02 kg N/m^3/d, ammonia removals of >90 %, and total nitrogen removals of 88 % with a PN/A-like steady stoichiometric equilibrium. The paper presents a feasible method for in-situ anammox enrichment from AGS for use in mainstream applications in absence of acclimatized anammox biomass.



Shradhanjali Sethi, Rohan Gupta, Rojalin Sahu, Ankita Bharshankh, Nikhil Funde and Rima Biswas, Temperature variations help in-situ anammox self-enrichment in a single-stage partial nitrification-anammox system from unacclimatized biomass, Journal of Water Process Engineering (2025).

CSIR-NEERI's first-of-its-kind sonocatalytic system featured on ACS Journal Cover

This study has introduced a first-of-its-kind acoustic cavitation-assisted heterocatalytic system for the ultra-rapid degradation of BDE-209, a persistent polybrominated diphenyl ether (PBDE) listed under the Stockholm Convention. One of the biggest challenges in degrading PBDEs lies in breaking down their highly stable, symmetric structure without relying on external oxidants or long reaction times. To address this, the researchers developed a unique urchin-like heterocatalyst, which, when integrated with acoustic cavitation, demonstrated a synergistic degradation effect. The integrated system achieved complete degradation of BDE-209 within 15 min, approximately 200-times faster than conventional approaches, without any added oxidants. This work highlights the promise of combining nanocatalysis with sonochemistry to create next-generation water treatment technologies capable of tackling persistent and emerging pollutants efficiently and sustainably. The researchers

thank the ACS team for featuring their work on the journal cover for July 18, 2025; Volume 8, Issue 28. The cover art was designed by corresponding author using AI-assisted platform (Gamma.app).

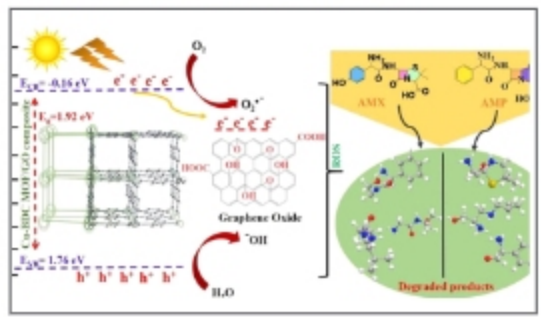
Abhishek Sharma, Deepak Panchal, Shang Jiang, Samir H. Mushrif and Sukdeb Pal, Acoustic Cavitation-Assisted Ag/Fe Bimetallic Nanoparticle-Based Integrated Heterocatalytic System Synergistically Promotes Rapid Degradation of Polybrominated Diphenyl Ethers, ACS Applied Nano Materials (2025).

This work was featured on the cover of ACS Applied Nano Materials (2025)

New light-activated material effectively cleans antibiotic-polluted water

Dr. P. Nagababu
Principal Scientist

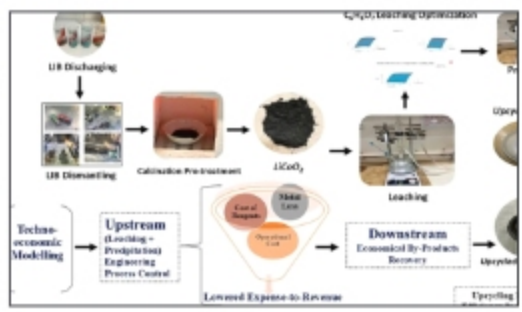
Dr. G. Hippargi
Sr. Technical Officer



A new photocatalytic material made from copper-based metal–organic frameworks combined with graphene oxide has shown excellent results in treating water contaminated with antibiotics. When exposed to visible light, this material was able to break down common antibiotics like amoxicillin and ampicillin by up to 79% and 55% within just 30 minutes. It also worked well even in real pharmaceutical wastewater, successfully reducing BOD, COD, and TOC without affecting the pH of the water. The study showed that the breakdown happens mainly due to active radicals like hydroxyl radicals and superoxide ions generated during the process. In addition to removing chemicals, the material also killed antibiotic-resistant bacteria. The catalyst remained stable and could be reused at least three times without losing much efficiency. This makes it a promising, eco-friendly solution for treating antibiotic-laden wastewater.

Vaishnavi Palwe, Uktika Panbude, Girivyankatesh Hippargi, and Penumaka Nagababu, Synergistic Visible Light-Driven Copper-Based Composite for Photocatalytic Degradation of β-Lactam Group Antibiotics, ACS Applied Engineering Materials (2025)

Smart model helps choose the best way to recycle lithium-ion batteries



Recycling old lithium-ion batteries is important for recovering valuable materials and reducing waste, but industries often struggle to choose the most cost-effective method. This study develops a new techno-economic analysis (TEA) model that helps compare different recycling routes using both technical efficiency and cost factors. The model considers metal prices, chemical and energy expenses, and even losses during processing. A new scoring system called the Upcycling Pathway Efficiency Index (PEI-Up) was introduced to clearly show which process gives the best balance between metal recovery and profit. The results showed that improving process control can significantly reduce costs—for example, lowering the expense-to-revenue ratio for lithium carbonate from 0.47 to 0.32, and for metal

oxides from 0.73 to 0.12. Interestingly, a pathway with slightly lower lithium recovery (91%) turned out to be more efficient and profitable than one with higher recovery (94%). This approach provides industries and policymakers with a practical tool to select smarter, more economical recycling strategies and accelerate battery circularity.

Digambar Chavan, Nasir Mahmood, Sunil Kumar and Nicky Eshtiaghi, A novel performance-economics framework for upcycling spent Li-ion battery cathodes to accelerate battery circularity, Journal of Cleaner Production (2025).

CSIR-NEERI establishes India's first validated firecracker emission testing facility

The paper presents the successful establishment and validation of a state-of-the-art firecracker emission testing facility, designed to evaluate emissions from both commercial and reduced-emission ("green") firecrackers. Utilizing robust statistical methods such as frequency distribution, regression analysis, and Spearman correlation the study establishes highly reliable pollutant baselines for PM10 and PM2.5 ($R^2 = 0.994$, $P < 0.05$). The study further highlights that environmental factors like humidity, moderate temperature and seasonal variations significantly influence emission levels, with higher pollutant loads recorded during winter and rainy seasons. These validated baselines facilitate accurate green cracker assessments, support replication of the testing facility, and inform policy development for sustainable festive practices.

Shilpa Kumari, Rahul Wadichar, Payal Mane, Sadhana Rayalu, and Penumaka Nagababu, Quantitative analysis to define baseline criteria for introducing reduced-emission firecrackers, Atmospheric Pollution Research (2025).

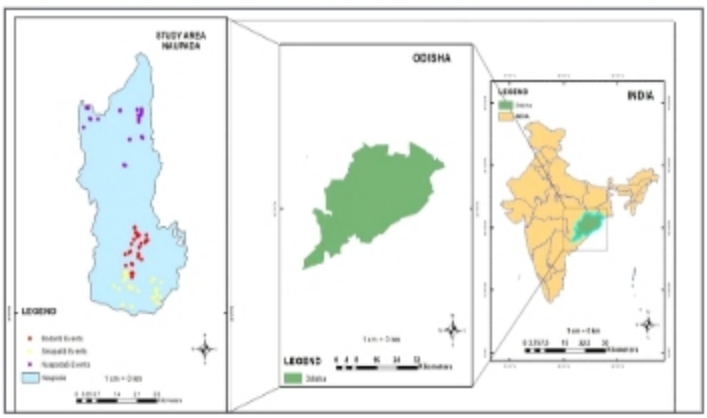
Assessing the effectiveness of handpump-attached fluoride removal units in rural India

Dr. G.S. Kanade
Chief Scientist

Dr. Atul Maldhure
Principal Scientist

Mr. V M Shinde
Sr. Technical Officer

This research evaluates the performance of handpump-attached defluoridation units installed in the Nuapada District of Odisha over a 24-month period. The assessment was conducted based on three distinct operational principles, focusing on both technical functionality and contextual suitability. The findings highlight the critical importance of an integrated approach—encompassing scientific, technical, managerial, and social dimensions—to ensure access to safe and sustainable drinking water in fluoride-affected rural areas. A key outcome of the study is the development of a targeted action plan aimed at supporting the long-term performance of these systems. Importantly, the study concludes that no single defluoridation technology proved universally superior. Rather, the long-term effectiveness of the units was largely dependent on regular operation and maintenance by trained local personnel.



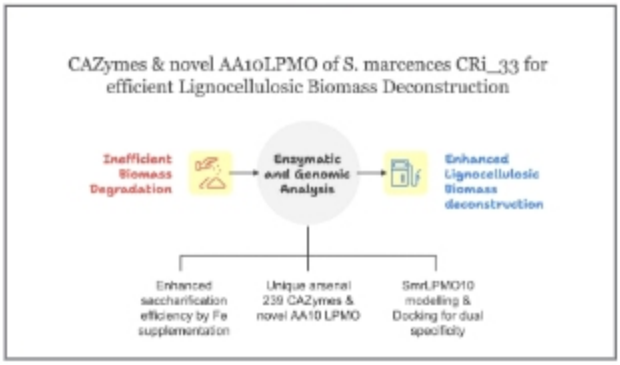
Riya Yadav, Nidhi Sahu, Kirti Virwani, Neha Wachasunder, Atul Maldhure, Vilas Shinde, Gajanan Kanade, and Pawan Labhasetwar, Assessing the Effectiveness of Handpump-Attached Fluoride Removal Units in Rural India, Water Conservation Science and Engineering (2025)

Serratia marcescens CRi_33 identified as a powerful biocatalyst for agricultural waste valorization

This study has revealed the exceptional enzymatic capabilities of the bacterium Serratia marcescens CRi_33 for sustainable lignocellulosic biomass conversion. The strain demonstrated high activity of key hemicellulose-

Dr. Nishant Dafale
Principal Scientist

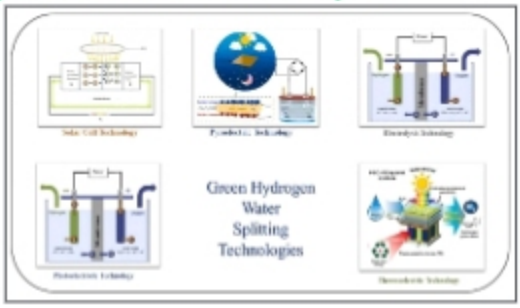
degrading enzymes and released up to 165 mg of reducing sugars per gram of pre-treated wheat straw when supplemented with Fe^{3}. Genomic analysis identified 239 carbohydrate-active enzymes, including a rare AA10 family LPMO with dual specificity towards both chitin and hemicellulose—an uncommon feature among Serratia species. Structural modeling confirmed its strong affinity for sugars like galactose and mannose, supporting its role in efficient biomass breakdown. These insights establish S. marcescens CRI_33 as a promising candidate for industrial biorefinery applications, paving the way for eco-friendly conversion of agricultural stubble into value-added products.



Chetana Akhand, Rashi Bamrotwar, Sejal Bhairam, Riddhi Singh and Nishant A. Dafale, Genomic and structural insights into CAZymes & novel AA10 lytic polysaccharide mono-oxygenase from Serratiamarcescens CRI_33 for efficient lignocellulosic biomass deconstruction, Archives of Microbiology (2025).

Advancing green hydrogen production through saline water electrolysis

This study demonstrates a sustainable approach to hydrogen production by directly using saltwater without desalination. Researchers developed a custom-built electrolyzer featuring a corrosion-resistant titanium anode coated with RuO_2–IrO_2 and a Ni–SS cathode. The system effectively suppressed chlorine evolution, enabling stable electrolysis of 3% NaCl solution and producing 140.7mmol h^{1} of hydrogen. Continuous operation for 72 hours under 5 V confirmed its durability, while optimization strategies improved efficiency. These findings highlight the potential of saline water electrolysis as a scalable and eco-friendly pathway for green hydrogen generation.



Sehba Anjum Mumtaz Ahmed, Kushagra Gabhane, Aparna Deshpande, Shilpa Kumari, Penumaka Nagababu, and Sadhana Rayalu, Advancing green hydrogen production: Technological and economic perspectives on saltwater electrolysis, Next Sustainability (2025).

Technology Transfer

GIS-enabled IoT dashboard software

As part of the Jal Jeevan Mission and a collaborative national project on "Affordable IoT-enabled Water Service Delivery Measurement and Monitoring Sensing System for Rural Deployment," CSIR-NEERI has successfully licensed and transferred a GIS-enabled IoT dashboard software to M/s Biomimicry Technologies Pvt. Ltd. This software, developed by Er. Asheesh Sharma and his team from the IT Cell at CSIR-NEERI, is a map-based system that enables real-time monitoring and assessment of potable water supply in rural communities—enhancing transparency, service delivery, and accountability, which are key goals of the Jal Jeevan Mission. This technology transfer reflects the collective efforts of five CSIR Institutes, with CSIR-CSIO as the nodal institution, under the Jal Jeevan Mission initiative "GaonKaPaniGaon Mein – HarGharKoNal Se Saph Jal". CSIR-NEERI's contribution marks a vital step toward ensuring sustainable and technology-driven water supply management across India's rural landscape.

MAJOR PROJECTS

(1) EC compliance audit of 17 mines of Singareni Collieries Company Ltd.

(2) Technical audit and characterization of legacy waste samples in Urali Devachi-Pune

(3) Development of green belt for dust mitigation in and around of fly ash dump site using bamboo diversity for UP Rajya Vidyut Utpadan Nigam Ltd, Anpara TPP, Anpara, Sonebhadra

(4) Inspection of Grossly Polluting Industries (GPIs) in Delhi National Capital Region (NCR) in main stem of River Ganga and Yamuna (2025-26)

(5) Environmental monitoring and assessment for utilization of jarofix waste in road construction at Hindustan Zinc Ltd. at Udaipur and Chittorgarh Sites

PUBLICATIONS

High-Impact SCI Publications (Impact Factor ≥ 5)

(1) Agarwal, Avinash Kumar; Mounaim-Rousselle, Christine; Brequigny, Pierre; Dhar, Atul; Hespel, Camille; Patel, Chetankumar; Srivastava, Dhananjay Kumar; Duraisamy, Ganesh; Le Moyne, Luis; Sharma, Nikhil; Labhasetwar, Nitin; Singh, Paramvir; Das, Piyali; Panigrahi, Pradipta Kumar; Shukla, Pravesh Chandra; Sakthivel, P.; Mohan, S. Venkata; Panigrahy, Snehasish; Sen, Swarnendu; Valera, Hardikk, Future of internal combustion engines using sustainable, scalable, and storable E-fuels and biofuels for decarbonizing transport and enabling advanced combustion technologies, Progress in Energy and Combustion Science (2025)

(2) Ghosh, Soma; Nath, Shankha; Chakraborty, Arijit; Bhowmick, Subhamoy; Majumdar, Kunal Kanti; Mukherjee, Souvik; Pramanik, Sreemanta, Long-term arsenic exposure perturbs gut microbial diversity, composition and predicts metabolic dysregulation, Journal of Hazardous Materials (2025)

(3) Duc, Nguyen Thanh; Montecinos, Daniel; Kumar, Jay Prakash; Sarkar, Sayantan; Wathore, Roshan; Amann, Johannes Felix; Joppich, Julian; Lawande, Sumedha; Ranjan, Rajesh Kumar; Routh, Joyanto, Tagging Emissions from Indoor Biomass Combustion with a Cost-Effective Sensor Array: From Design to Field Deployment in Rural Indian Households,Environmental Science & Technology (2025)

(4) Chavan, Digambar; Mahmood, Nasir; Kumar, Sunil; Eshtiaghi, Nicky, A novel performance-economics framework for upcycling spent Li-ion battery cathodes to accelerate battery circularity, Journal of Cleaner Production (2025)

(5) Dhiman, Devvrat; Anshul, Avneesh, Encapsulation techniques of sludge generated from wastewater treatment, Journal of Environmental Management (2025)

(6) Dhenkula, Swati P.; Shende, Akshay D.; Deshpande, Leena; Pophali, Girish R.,Removal of heavy metals from laboratory waste liquid (LWL) generated from water and wastewater analytical laboratories, Process Safety and Environmental Protection (2025)

(7) Juneja, Charu; Sharma, Abhishek; Pal, Sukdeb, Tapping the solar spectrum through vacancy engineering: Application in environmental remediation and energy production, Materials Today Chemistry (2025)

(8) Sethi, Shradhanjali; Gupta, Rohan; Sahu, Rajalin; Bharshankh, Ankita; Funde, Nikhil; Biswas, Rima, Temperature variations help in-situ anammox self-enrichment in a single-stage partial nitrification-anammox system from unacclimatized biomass, Journal of Water Process Engineering (2025)

(9) Sharma, Abhishek; Juneja, Charu; Pal, Sukdeb, Boron nitride nanomaterials for environmental remediation, energy, and sensing: a review, Environmental Chemistry Letters (2025)

(10) Das, Nitumani; Mukherjee, Triya; Sarkar, Chitra; Paul, Ratul; Dao, Duy Quang; Mohan, S. Venkata; Mondal, John, Intracellular CO2 Capture Triggered Outperforming Biocatalytic Production of Selective Acetic Acid and Biohydrogen Housing in Porous-Organic-Nanofiber, Ngewandte Chemie-International Edition (2025)

(11) Kumari, Poonam; Mohan, S. Venkata, Metabolic channelling in Rhodopseudomonas palustris for diversification and sustainability assessment of polyhydroxyalkanoates, Green Chemistry (2025)

(12) Jacob, Samuel; Kundu, Debajyoti; Chintagunta, Anjani Devi; Kumar, N. S. Sampath; Samanta, Palas; Mahata, Chandan; Dey, Sukhendu; Shibirathna, R. G.; Barathi, Arun; Kumar, Sunil; Wang, Zhiwu; Goel, Gaurav, Anaerobic digestion-derived digestate valorization: green chemistry innovations for resource recovery and reutilization, Green Chemistry (2025)

(13) Banerjee, Ayan; Singh, Shalini; Bhaskar, Thallada; Mohan, S. Venkata; Ghosh, Debashish, Anaerobic conversion of de-oiled yeast biomass fractionation waste to biomethane and biohydrogen for resource efficiency in biorefineries, Journal of Environmental Management (2025)

(14) Prajapati, Archana; Jadhao, Pradip; Kumar, Asirvatham Ramesh, Atmospheric microplastics deposition in a central Indian city: Distribution, characteristics and seasonal variations, Environmental Pollution (2025)

(15) Tiwari, Himanshu; Pophali, Girish R., Review of improved hydrodynamics in moving bed biofilm reactors (MBBRs) for wastewater treatment: A way forward, Journal of Environmental Chemical Engineering (2025)

(16) Kumari, Shilpa; Pandit, Aniruddha; Rayalu, Sadhana, Optimized hydrogen production through donor-assisted saline water splitting and its techno-economic feasibility, Sustainable Energy Technologies and Assessments (2025)

(17) Ebenezer, S. Bivin; Gandhimathi, R.; Nidheesh, P. V., Pharmaceutical and personal care product residues in Indian sewage: A review on its detection, monitoring and treatment strategies, Journal of Water Process Engineering (2025)

(18) Sharma, Abhishek; Panchal, Deepak; Jiang, Shang; Mushrif, Samir H.; Pal, Sukdeb, Acoustic Cavitation-Assisted Ag/Fe Bimetallic Nanoparticle-Based Integrated Heterocatalytic System Synergistically Promotes Rapid Degradation of Polybrominated Diphenyl Ethers, ACS Applied Nano Materials (2025)

SCI Publications (Impact Factor < 5)

(19) Yadav, Anshika; Krupadam, Reddithota J., Highly efficient imprinted polymers for capture of environmental carcinogens, MRS Communications (2025)

(20) Palwe, Vaishnavi; Panbude, Uktika; Tembhare, Shubham; Raghunathan, Karthik; Maskare, Damodar Y.; Rayalu, Sadhana; Nagababu, Penumaka, Catalyst-Mediated Efficient Sequestration of Gaseous CO2 to Solid CaCO3, Water Air and Soil Pollution (2025)

(21) Sharma, Abhishek; Juneja, Charu; Pal, Sukdeb, Boron nitride nanomaterials for environmental remediation, energy, and sensing: a review, Environmental Chemistry Letters (2025)

(22) Dwivedi, Anand Harsh; Nidheesh, P. V., Comparison of Various Low-cost Household Drinking Water Treatment Filters, Mechanisms and Applications: A Review, Water Air and Soil Pollution (2025)

(23) Ojha, Vivek; Rautela, Rahul; Ranjan, Ved Prakash; Sharma, Apurva; Kumar, Sunil, Strata-based approach for determination of resource recovery potential from legacy waste dumpsite in India, Waste Management & Research (2025)

(24) Moradeeya, Pareshkumar G.; Kumar, Madhava Anil; Sharma, Archana; Basha, Shaik, Sequential sorption-photocatalytic method using polypyrrole@TIO2 nanocomposites for the removal of agrochemicals, Indian Journal of Chemical Technology (2025)

(25) Kumar, Pradeep; Upadhyay, Era; Yadav, Anoop; Kannan, Krishnamurthi, Assessing physical and mental health impacts of solid cooking fuel emissions, Air Quality Atmosphere and Health (2025)

(26) Sakhre, Saurabh; Anil, S. Reshma; Ajantha, S.; Vijay, Ritesh; Bhaskaran, Krishnakumar, Physico-chemical characteristics of fresh faecal matter from a residential apartment: a short-term study conducted at Thiruvananthapuram, Kerala, India, Environmental Monitoring and Assessment (2025)

(27) Kumbhakar, Divya Vishambhar; Thakkar, Lucky; Akhand, Chetana; Sharaf, Shehna; Vemuganti, Geeta K., Nanomaterials targeting cancer stem cells to overcome drug resistance and tumor recurrence, Frontiers in Oncology (2025)

(28) Tawalare, P. K.; Dhale, Shruti P.; Kshetrapal, Supriya M.; Ugemuge, Nilesh S.; Belsare, Pankaj; Krupadam, R. J.; Moharil, S. V., Synthesis and Spectroscopic Analysis of NIR Emitting BiYMoO6:Ln3+ (Ln = Nd, Yb) Phosphor for Optoelectronics Applications, ECS Journal of Solid State Science and Technology (2025)

(29) Bhattacharya, Soham; Gupta, Neha; Dutta, Adrish; Khanra, Pijush Kanti; Dutta, Ritesh; Ziarovska, Jana; Tzvetkov, Nikolay T.; Severova, Lucie; Kopecka, Lenka; Milella, Luigi; Fernandez-Cusimamani, Eloy, Repurposing major metabolites of lamiaceae family as potential inhibitors of α-synuclein aggregation to alleviate neurodegenerative diseases: an in silico approach, Frontiers in Pharmacology (2025)

(30) Princelyn, Isaac; Kadaverugu, Rakesh; Nidheesh, Puthiya Veetil, Impact of Open Cast Coal Mining on Ecosystem Services: A Case Study of Bhadravati Mine Area in Central India Based on Three-Decadal Land Use Land Cover Assessment, Environmental Management (2025)

(31) Bhisikar, Sarthak A.; Gupta, Rishika; Krupadam, Reddithota J.; Thul, Sanjog T., Resource recovery from citrus and

chicken waste to develop biocomposite film and its characterization, Journal of Material Cycles And Waste Management (2025)

(32) Gulla, Sunil; Shukla, Nidhi; Goyal, S. K., Air pollution exposure from biomass burning in rural households and mitigation strategies, Clean Technologies and Environmental Policy (2025)

(33) Jain, Rachna; Chakraborty, Subhendu, Investigating the interplay of indoor microbial diversity with pollutant variables and human health profile in Indian slums: a metagenomic approach, Aerobiologia (2025)

(34) Majumdar, Deepanjan, Decadal (2012-2023) account of spatio-temporal variability in satellite-detected biomass fires on Indian landmass and their fire radiative power,Scientific Reports (2025)

(35) Chelani, Asha B., Spatiotemporal analysis of PM2.5 and its cross-multifractality with black carbon and dust aerosols in Indian cities: crop residue burning impact, Stochastic Environmental Research and Risk Assessment (2025)

(36) Nidheesh, P. V.; Kaur, Kuldeep; Anukrishna, R. G.; Prathish, K. P., From scavenger to catalyst: the emerging role of chloride in peroxymonosulfate-based advanced oxidation processes,Environmental Science-Water Research & Technology (2025)

(37) Bamrotwar, Rashi; Bhairam, Sejal; Akhand, Chetana; Dafale, Nishant A., Emerging Trends in Glycoside Hydrolases-Based Innovations for Sustainable Stubble Transformation into Biofuel, Bioenergy Research (2025)

(38) Verma, Keshar; Balbudhe, Snehal; Dhodapkar, Rita; Khan, Debishree, Towards a Greener Future: Exploring Bioplastics Environmental Impact and Biodegradability, Waste And Biomass Valorization (2025)

(39)Samson, Rachel; Kumar, Shubham; Dastager, Syed; Khairnar, Krishna; Dharne, Mahesh, Deciphering the comprehensive microbiome of glacier-fed Ganges and functional aspects: implications for one health, Microbiology Spectrum (2025)

(40) Mandal, Jayatra; Halder, Sandip; Middey, Anirban, Lightning fatalities and their correlation with geophysical factors in the Ganga Basin during the period of 2002-2021, Natural Hazards (2025)

(41) Sood, Radhika; Saha, Somidh; Dhyani, Shalini, Relationships between Nature's Contributions to People, drivers of change, and landscape values in a Biocultural Landscape, the Himalayas, Journal for Nature Conservation (2025)

INTELLECTUAL PROPERTY RIGHT (IPR)

Patents

Patents filed (India)

(1) Ritesh Vijay, Bhuvanesh Surianarayanan, Satyendra, Neelam Joharwal, A System of Self-Rotating Multi-Layered Vertical Disks (SVDs) For Wastewater Treatment (0011NF2025/IN)

(2) Sanjog Tarachand Thul, Sarthak Ashok Bhisikar, Reddithota Jasiva Krupadam, A Composition for Water Soluble Soap Strip from Citrus Waste and a Process for the Preparation Thereof (0115NF2025/IN)

Patents granted (India)

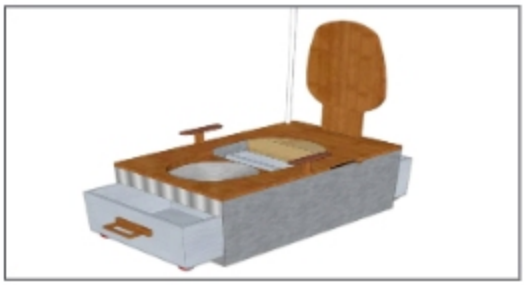
Labhasetwar Nitin Kumar, Singh Sunit Kumar, Inorganic Salts Surface Promoted Mixed Oxide Based Catalysts for Remediation of Emissions from Diesel Engine Exhaust And Process For The Preparation Thereof (567336)

Patents granted (abroad)

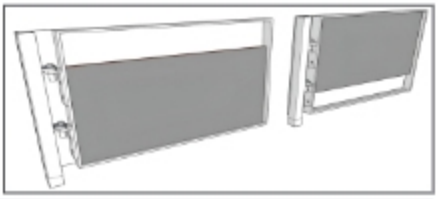
Satinder Kaur, Rakesh Kumar, Pollutant Removing Air Groove (PRAG) (GB2613301)

Certificate of Registration of Design

(1) CSIR-NEERI received the Certificate of Registration of Design from the Patent Office, Government of India for its innovation on "Compact and Portable Urine-Faeces Separation cum Treatment Toilet". This design was developed by Dr. Ritesh Vijay, Dr. Atul N. Vaidya, Dr. Rima Biswas, Er. Abhishek Bisarya, Er. Amit Kumar and Er. Adarsh Ashish Prasad. This innovation reflects CSIR-NEERI's commitment to advancing sustainable sanitation solutions for remote and resource-constrained regions.



(2) CSIR-NEERI received the Certificate of Registration of Design from the Patent Office, Government of India for its innovation on "Compact Hinged Baffle Wall for Drain Treatment". This design was developed by Dr. Ritesh Vijay, Er Saisaurabh Asoria, Er. Abhishek Bisarya, Er. Satyendra and Er. Chaitanya Thakre. This innovation reflects CSIR-NEERI's commitment towards rejuvenation of waterbodies through enhanced sedimentation.



Copyright

The copyright for 'Graphical User Interface (GUI) Tool for Assessing and Prioritizing Antimicrobial Resistance Risks from Metagenomic Datasets' has been successfully filed and registered with the Copyright Office, Govt. of India (Diary No: SW-31224/2025-CO and ROC number SW-2025021576). This novel tool, developed by the Environmental Epidemiology & Pandemic Management Division of CSIR-NEERI, during the AcSIR doctoral research work of Mr. Siddharth Singh Tomar under the supervision of Dr. Krishna Khairnar, is poised to be a game changer in AMR surveillance. It will provide a systematic framework for analyzing and prioritizing AMR risks from metagenomics datasets, thereby strengthening global efforts to combat this critical public health challenge. CSIR-NEERI will host this tool on its official website for open access use by researchers worldwide. This achievement marks a significant milestone for CSIR-NEERI, underscoring its dedication to translational research and safeguarding global health.

CSIR-NEERI IN FOCUS

Ecorejuvenation of fly ash dump sites through bamboo plantation

CSIR-NEERI has restored degraded fly ash dump sites using bamboo plantations. This initiative demonstrates how green interventions can rehabilitate industrial waste areas, improve soil health, and enhance carbon sequestration. Bamboo's rapid growth, extensive root system, and tolerance to challenging conditions make it ideal for stabilizing fly ash mounds, reducing dust emissions, and preventing leachate contamination. The project not only promotes sustainable land management and biodiversity restoration but also exemplifies CSIR-NEERI's commitment to innovative environmental solutions that benefit local communities, industries, and ecosystems.

Green miracle: Scientist turns toxic fly ash dumps into forests

Efforts underway to cleanse air around Koradi-Khaparkheda power plants

Key highlights

ईआरटी मॉडल : फ्लाई ऐश प्रदूषित भूमि को नया जीवन

देश की 1500 हेक्टेयर बंजर जमीन जंगल में तब्दील

उपराजधानी में राख के ढेर में जंगल बनाया, नागपुर के वैज्ञानिक कर रहे काम, आबोहवा साफ

विश्व पर्यावरण दिवस

Green crematoria

CSIR-NEERI, in collaboration with Gaumaya Parivar, is spearheading a project on the development of green crematoria that utilize Gaukast and Gausamhida as sustainable alternatives to conventional wood-based open pyres. A press conference was held in Jaipur recently to highlight this initiative. During the event, Dr. Padma Rao, Chief Scientist & Chair, EIA, Audit and Planning, CSIR-NEERI shared insights into the environmental impact of traditional cremation practices, particularly on surrounding air quality. She also presented the outcomes of the pilot green crematoria developed under the project, which demonstrate a significant reduction in emissions. This initiative not only supports environmental conservation but also promotes the use of indigenous, cow-based resources in line with sustainable and cultural practices.


अब प्रदेश के मोक्ष धाम बनेंगे ग्रीन मोक्ष धाम
गौमाता एवं नीरी भारत सरकार की संयुक्त पहल

Arsenic alters gut health, pose risk of obesity and ulcerative colitis, says study

A study by CSIR-NEERI found that chronic arsenic exposure alters the gut microbiome and its metabolic profiles, leading to a higher risk of obesity and ulcerative colitis. The study identified significant changes in bacterial composition and associated metabolites in human populations in West Bengal, India, suggesting a mechanistic link between arsenic exposure and the development of these diseases through gut dysbiosis.


The Telegraph online

Arsenic alters gut health, poses risk of obesity and ulcerative colitis, says study

Ph D AWARDED

(1) Mr. Deval Jugraj Singh (Enrolment No. 204180008), under the guidance of Dr. Anil Dikshit, IIT Bombay (Supervisor), and Dr. Sunil Kumar, Sr. Principal Scientist, CSIR-NEERI (Co-Supervisor), defended his viva-voce examination on April 1, 2025, for research on design, development and performance assessment of mobile street litter collector for sustainable urban waste management.

(2) Ms. Bhagyashri J. Poddar (Enrolment No. 10BB20J27010), under the guidance of Dr. Anshuman A. Khardenavis, Sr. Principal Scientist, CSIR-NEERI defended her viva-voce examination on May 07, 2025, for her research on understanding the genetic rearrangement and resilience of methanogenic microbial communities for ammonia tolerance.

(3) Mr. Rakesh Kumar Gupta (Enrolment No. 10BB18A27017), under the guidance of Dr. Anshuman A. Khardenavis, Sr. Principal Scientist, CSIR-NEERI defended his viva-voce examination on June 18, 2025, for his research on "Bioprocess Optimization for Nitrogen Removal Using Genomics Tools".

(4) Mr. Rahul Rautela (Enrollment No.: 32EE19A27005), under the guidance of Dr. Bholu Ram Yadav, Sr. Scientist and Dr. Sunil Kumar, Sr. Principal Scientist defended his viva-voce on 16th July, 2025 for his research on "An Interdisciplinary Approach towards Sustainable Methods for Metal Extraction from Lithium-ion Batteries".

(5) Mr. Rahul Bhende, a Ph.D. scholar registered at RTM Nagpur University, defended his viva-voce on 22nd July 2025 under the guidance of Dr. Nishant A. Dafale, Principal Scientist, CSIR-NEERI for his research 'Microbial Bioremediation of Commonly Used Pesticides from Contaminated Agricultural Soil'

(6) Ms. Nandini Shende (Enrollment No.: 10PC20J27017), under the guidance of Dr. A. Ramesh Kumar, Principal Scientist, defended her PhD viva-voce on 11th September, 2025 for her research on "An estimation of daily intake of phthalates in humans and health risk assessment.

MoUS

MoU between CSIR-NEERI and IPFT for collaborative research

CSIR-NEERI, Nagpur, and the Institute of Pesticide Formulation Technology (IPFT), Gurugram, entered into a Memorandum of Understanding (MoU) to strengthen joint research and scientific collaboration. The MoU focuses on critical areas such as monitoring of contaminants and their metabolites, preparation of certified reference materials, and other related scientific initiatives. The agreement was exchanged by Dr. S. Venkata Mohan, Director, CSIR-NEERI, and Dr. Mohana Krishna Reddy Mudiam, Director, IPFT, during the 35th Foundation Day of IPFT on 31st

May 2025, where Dr. Venkata Mohan was the Chief Guest. This collaboration is expected to leverage complementary expertise and contribute towards advancing research in environmental monitoring and pesticide formulation technology.

Dr. S. Venkata Mohan, Director, CSIR-NEERI and Dr. Mohana Krishna Reddy Mudiam, Director, IPFT exchanging the agreement

CSIR-NEERI and IIT Hyderabad for academic collaboration

In the spirit of intellectual cooperation and scholarly exchange, CSIR-National Environmental Engineering Research Institute (CSIR-NEERI) and Indian Institute of Technology Hyderabad (IITH) have signed a Memorandum of Understanding (MoU) to foster academic collaboration in the field of Environmental Science and Engineering. Both institutions aim to advance research and development in key areas such as climate change, civil engineering, biotechnology, materials, minerals, artificial intelligence, environmental policy and other domains of mutual interest. Prof. B. S. Murthy, Director, IIT Hyderabad, expressed that this MoU will strengthen the collaboration with CSIR-NEERI and is expected to lead to impactful research outcomes in the identified areas. Dr. S. Venkata Mohan, Director, CSIR-NEERI highlighted that the Institute looks forward to developing more sustainable solutions to environmental challenges through this association with IIT Hyderabad. He also assured CSIR-NEERI's support for IIT Hyderabad's Research Innovation Program aimed at fostering start-ups. The MoU was signed on June 6, 2025, at IIT Hyderabad by Prof. B. S. Murthy, Director, IIT Hyderabad and Dr. S. Venkata Mohan, Director, CSIR-NEERI. Present during the event were Prof. Shashidhar, Department of Civil Engineering, IIT Hyderabad; Prof. C. Malla Reddy, Dean, Innovation, Translation and Start-ups, IITH; Dr. Sheik Basha, Chief Scientist & In-charge, CSIR-NEERI Hyderabad Zonal Centre and Er. Satish Dabe, Senior Principal Scientist, Business Development, CSIR-NEERI.

CSIR-NEERI partners with IGMC Nagpur for research

CSIR-NEERI signed a Memorandum of Understanding (MoU) with Indira Gandhi Government Medical College (IGMC) and Hospital, Nagpur. The MoU is intended for collaborative research and academic purposes. The partnership will facilitate joint research activities, promote faculty and student exchange, and enable mutual guidance of postgraduate and doctoral students. Both institutions will collaborate in organizing seminars, symposia, conferences and workshops in emerging research areas. The MoU aims to advance research and development in understanding the impact of environmental pollution on human health and to explore new interdisciplinary research. From CSIR-NEERI, the following were present during the signing: Dr. Venkata Mohan, Director; Dr. Padma Rao, Chief Scientist; Dr. K. Krishnamurthi, Chief Scientist; Dr. Sunita Shastry, Senior Principal Scientist; Dr. Sangita Goel, Principal Scientist; Dr. Satish Dabe, Sr. Principal Scientist; Dr. Pradeep Salve, Sr. Principal Scientist; and Dr. Pankaj Kulurkar, Senior Technical Officer. From IGMC Nagpur, the dignitaries included: Dr. Radha Munje, Professor, Respiratory Medicine; Dr. Ravi Chavan, Dean; Dr. Bhavana Sonawane, Professor, Radiology; and Dr. Sachin Hiware, Associate Professor, Pharmacology.

CSIR-NEERI and IEM-UEM for environment and sustainability

A Memorandam of Understanding has been inked between CSIR-NEERI and IEM-UEM Group Kolkata to work in the field of Environment and Sustainability at National level in general and Eastern as well as North Eastern Region in particular. IEM- UEM is the oldest and largest group in education sector in eastern region with its presence in Jaipur, Rajasthan.

Government of Tripura engaged CSIR-NEERI as a referral laboratory

CSIR-NEERI signed an MoU with the Urban Development Department (UDD), Government of Tripura, on July 14, 2025 at Urban Bhavan, Agartala. Ms. Megha Jain, IAS, Director, Urban Development Department and Dr. S. Venkata Mohan, Director, CSIR-NEERI signed the MoU in Agartala. The Government of Tripura has engaged CSIR-NEERI as a referral laboratory for technical support on environment-related issues, with a specific focus on waste management and sustainable environmental practices in Urban Local Bodies. Ms. Megha Jain, Director, UDD expressed her gratitude for the past services rendered by CSIR-NEERI in Agartala and conveyed her appreciation and keen interest in the activities and services to be undertaken under this MoU in the future. Dr. S. Venkata Mohan, Director, CSIR-NEERI stated that the institute will leverage this initiative to extend collaborations with other states in the North Eastern Region as well.

MoU between CSIR-NEERI and BITS Pilani

Memorandum of Understanding (MoU) exchanged between CSIR-NEERI and BITS Pilani. This collaboration represents a significant step forward in our shared commitment to addressing pressing environmental and technological challenges. It opens new avenues for multidisciplinary research, innovation, and industrial partnerships in areas such as Environmental Sustainability, Waste Management, Water and Air Quality, Renewable Energy, and Eco-friendly Technologies. Through this MoU, CSIR-NEERI aims to foster joint projects, knowledge exchange, and technology transfer initiatives that will create meaningful societal and industrial impact.

MoU between CSIR-NEERI and State Institute of Health and Family Welfare

CSIR-NEERI, Nagpur and the State Institute of Health and Family Welfare, Nagpur, signed a Memorandum of Understanding (MoU) on 4th September 2025 to foster collaboration in improving public health and environmental sustainability. The MoU was signed by Dr. S. Venkata Mohan, Director, CSIR-NEERI and Dr. Ajay Dawale, Director, State Institute of Health and Family Welfare. The collaboration was facilitated by the Business Development and Project Management (BDPM) Division, CSIR-NEERI, in the presence of Dr. Sunita Shastry, Scientist & Head, BDPM and Mr. Satish Dabe, Sr. Principal Scientist, BDPM. The process was coordinated by Dr. Krishna Khairnar, Scientist & Head, Environmental Epidemiology & Pandemic Management (EE&PM) Division, CSIR-NEERI and Dr. Jasmin Mulani, Medical Officer, Health and Family Welfare Training Centre, Nagpur. Dr. Shriram Gogulwar, Principal, Health and Family Welfare Training Centre, was also present on the occasion. This partnership represents a significant step towards strengthening synergies in public health and environmental management.

MoU between CSIR-NEERI and L&T Water Technology Centre Chennai

CSIR-NEERI and L&T Water Technology Centre Chennai signed an MoU during the Stakeholders Conclave & Brainstorming on "Current Challenges & Emerging Environmental Issues in Southern Region of India" organized at CSIR Madras Complex (CMC) Chennai on September 19, 2025. The collaboration aims to promote joint R&D in water, wastewater, sludge treatment and other emerging environmental areas. The MoU was signed by Dr. S. Venkata Mohan, Director, CSIR-NEERI and Mr. K. Rajeevan, Vice President & Chief Technology Officer (CTO), Larsen & Toubro (L&T) Chennai. Dr. M.P. Patil, Dr. Padma Rao, Dr. Sunita Shastry, Dr. P. R. Salve, Er. Satish Dabe, Dr. Rima Biswas and Dr. P. Ganesh Kumar, Dr. N Ram Nandan from L&T-Water Technology Centre were present during the event. Both organizations look forward to advancing technologies in water, wastewater, sludge treatment and other emerging areas of environmental research.

COLLABORATION

Orientation for newly inducted WRD engineers of Govt. of Maharashtra

CSIR-NEERI facilitated an orientation session for seventy seven newly recruited Assistant Engineers (AE-II) and Junior Engineers (JE) of the Water Resources Department (WRD), Government of Maharashtra, introducing them to relevant R&D areas and potential collaboration opportunities for water resource-related projects across the state.

Dr. Ritesh Vijay briefing on decentralized sewage treatment

Dr. Atul Maldhure, Principal Scientist, provided valuable insights into the management, conservation, and sustainable use of water resources, while Dr. Ritesh Vijay, Senior Principal Scientist and In-Charge, Wastewater Management Sub-Vertical, emphasized the role of decentralized wastewater treatment systems in enhancing water security. This initiative strengthens the partnership between CSIR-NEERI and WRD to promote innovative solutions for sustainable water management.

Dr. Atul Maldhure explaining water resources management

CSIR-NEERI – AAN collaborative initiative

The discussions between CSIR-NEERI and Alumni Association of NEERI (AAN) led to several important decisions aimed at strengthening alumni engagement and supporting institutional development. The expertise of AAN will be leveraged for the development and revision of AcSIR teaching syllabi, as needed. Efforts will also be intensified to strengthen international networking with CSIR-NEERI's global alumni community, fostering deeper collaboration and outreach.

Dr. S. Venkata Mohan, Director, CSIR-NEERI discussing collaboration with AAN

Collaboration with Chandrapur Municipal Corporation for clean air initiative

Chandrapur Municipal Corporation involved CSIR-NEERI to conduct the audit of the City Action Plan under the National Clean Air Programme (NCAP). Er. Padma Rao, Chief Scientist and Chair, Environmental Impact Assessment, Audit and Planning Vertical, CSIR-NEERI participated on behalf of CSIR-NEERI to review the city's action plan in line with the Knowledge Network (NKN) framework and the Implementation and Outcomes Reporting (IoR) guidelines. CSIR-NEERI will help in assessing the effectiveness of the proposed interventions, identifying gaps and recommending actionable improvements for the effective implementation of NCAP objectives.

Joint initiative with NDRF Academy and disaster preparedness

CSIR-NEERI held a collaborative interaction with Senior Officers from the National Disaster Response Force Academy (NDRFA), who visited the institute to explore R&D capabilities relevant to disaster mitigation and management. Dr. S. Venkata Mohan, Director, CSIR-NEERI, highlighted critical environmental and health concerns, including Standard Operating Procedures (SOPs) and emerging pollutants such as microplastics. Dr. K. V. George, Chief Scientist, shared case studies on chemical disasters with a special focus on observations from the Vizag styrene gas leak incident. Dr. K.

Dr. S. Venkata Mohan, Director, CSIR-NEERI addressing Senior Officers from the National Disaster Response Force Academy (NDRFA)

Krishnamurthi, Chief Scientist, presented studies on occupational and environmental health risks arising from pollutant exposure and their mitigation strategies. Dr. Ritesh Vijay, Senior Principal Scientist, briefed the delegation on decentralized sewage treatment systems and the patented DToi-FUrST technology developed for hygienic sanitation in cold regions. Dr. Avneesh Anshul, Principal Scientist, discussed technological solutions addressing environmental and energy-related challenges. The visit strengthened mutual understanding and opened avenues for future collaboration in disaster response and environmental resilience.

Green fireworks stakeholders meeting

CSIR-NEERI organized a Green Fireworks Stakeholders Meeting, in which 35 representatives from firework manufacturers/associations and the Petroleum and Explosives Safety Organisation (PESO) participated to discuss advancements in green fireworks manufacturing and strategies to further reduce emissions. The meeting was chaired by Dr. S. Venkata Mohan, Director, CSIR-NEERI. Discussions focused on pollution caused by firecracker bursting and the use of alternative chemicals to reduce emissions. The associations appreciated CSIR-NEERI's efforts in developing green firecrackers. Currently, testing of fireworks—covering raw material purity, composition and emissions (both air and noise)—is being conducted at the RACE facility under the supervision of CSIR-NEERI and the Ministry of Environment, Forest and Climate Change (MoEF&CC). Scientific and technical staff involved in fireworks testing and research also participated in the meeting. The event was coordinated by Dr. R. J. Krupadam, Chief Scientist & Head, Climate Change & Green Materials Division. Dr. P. Nagababu proposed the vote of thanks.

CSIR-NEERI joins global FIRST initiative

CSIR-NEERI associate as Indian partner in the UNESCO-endorsed CityHUK's Fostering Innovation for Resilience and Sustainable Transformation (FIRST) Programme, led by City University of Hong Kong under the International Decade of Sciences for Sustainable Development (2024–2033). As part of this global initiative addressing urgent challenges like climate change, clean energy and water access, CSIR-NEERI is contributing its expertise in biomass waste-to-energy systems, scalable, low-cost solutions for sustainable waste management for underserved communities. Together, working towards a cleaner, more resilient future.

Global collaboration with UNEP

The longstanding collaboration between CSIR-NEERI and UNEP was further reinforced during a meeting between Dr. Jitendra Sharma from UNEP, Geneva — an alumnus of CSIR-NEERI and AcSIR — and Dr. S. Venkata Mohan, Director, CSIR-NEERI. Dr. Mohan recalled CSIR-NEERI's active partnership with UNEP through various initiatives under the Stockholm Convention Regional Centre. Recently, CSIR-NEERI expressed its interest in participating in the upcoming "Global Chemicals Monitoring Program" to support the implementation of the Stockholm and Minamata Conventions. Dr. Jitendra Sharma appreciated CSIR-NEERI's contributions to UNEP's focal areas and thematic projects, and discussed potential collaborations under the upcoming GEF-9 funding cycle. Dr. Mohan reaffirmed CSIR-NEERI's commitment to working with UN agencies in addressing the triple planetary crises — biodiversity loss, climate change and chemical pollution. To further strengthen this partnership, CSIR-NEERI is proposing the establishment of an international platform titled the "Global South Alliance on Environment and Sustainability."

Orientation of civil defense personnel

Continuing its collaboration with DRF Academy, twenty Civil Defense (CD) personnel from NDRF Academy, including Commandants and Commanders from Home Guard (HG) Rajasthan and Nagpur; CD & HG Meghalaya; CD Gujarat; Civil Defence Assam; Assam Police; Civil Defence Bihar; INS Shivaji; and Fire Service Telangana, were

oriented on the R&D activities and achievements of CSIR-NEERI. Dr. K. V. George, Chief Scientist, CSIR-NEERI, presented case studies on major chemical disasters, including the Port City Beirut Ammonium Nitrate Explosion, Bhopal Gas Tragedy, Yashaswi Chemical Disaster: Hydrogen Cylinder Blast, and the Styrene Gas Leak at Vizag. Dr. Ritesh Vijay, Sr. Principal Scientist, highlighted innovations such as the Dry Toilet System with Faeces-Urine Separation and Treatment (DToI-FUrST) and the Up-flow Compact Constructed Wetland (UCCW) based Sewage Treatment Plant. Dr. Piyush Kokate, Principal Scientist, CSIR-NEERI showcased advanced air and water quality monitoring and sampling devices. They were also briefed on the applications of GIS, remote sensing, artificial intelligence, and machine learning in environmental research.

Dr. K. V. George, Chief Scientist, CSIR-NEERI, presented case studies on major chemical disasters

Strengthening international collaboration on silicone research

Dr. Noor Afshan Khan and Dr. Ankit Gupta, Principal Scientists from the CSIR-NEERI Delhi Zonal Centre undertook a deputation visit to Germany and the United States to strengthen international collaborations in silicone production, research, and environmental management. At Wacker Chemie AG, Cologne and Burghausen, they gained insights into silicone polymer production and advanced practices for the removal and recycling of Cyclic Volatile Methyl Siloxanes (CVMs) in production systems and wastewater treatment, while also engaging in discussions on the environmental fate of CVMs. In Washington, D.C., they met with executives of the Global Silicon Council, supported by Ms. Tracy Guerrero, Director Technical, Silicones, Environmental, Health and Safety Centre, American Chemistry Council. They also visited Dow Chemical's R&D facilities in Midland, MI, where they explored advanced instrumentation, risk assessment tools, and trace chemical detection systems, alongside integrated wastewater treatment combining chemical and biological processes with sludge incineration. A visit to Charles River Laboratories, Ashland, OH, provided insights into analytical chemistry, bioanalysis, formulations, and safety pharmacology testing. The visit concluded with strategic discussions on strengthening R&D in India concerning CVMs, particularly their fate and risk assessment. In its next phase, CSIR-NEERI will collaborate with laboratories across India to enhance national capabilities in silicone analysis and to develop sustainable solutions for environmental safety.

Dr. Ankit Gupta briefing on R&D potential of CSIR-NEERI

Engagement with Project Varsha, Ministry of Defense

Rear Admiral Sandeep Mehta, Director General, Project Varsha, Ministry of Defence, visited the CSIR-NEERI Hyderabad Zonal Centre (HZC) on 28 August 2025. During his visit, he held a meeting and interacted with HZC scientists, focusing on areas of mutual interest and potential collaboration. The discussions highlighted CSIR-NEERI's expertise in environmental science and engineering and explored its relevance to defence-related projects.

Global dialogue on emerging environmental challenges

CSIR-NEERI coordinated a session on "Emerging Environmental Challenges – Science-Driven and Scalable Solutions" organised on September 12, 2025 as part of CSIR for Connect, Collaborate, Converge and Convert (5C) initiatives for Global Sustainable Development under # Science Summit at the 80th United Nation General Assembly (SSUNGA80). The session included initial addresses by Director, CSIR-NEERI, Director, CSIR-IICT, Director, CSIR-IIP and Director, CSIR-NIIST. Mr. Declan Kirrane, Chairman & MD, Science Summit at United Nations General

Assembly (UNGA), also shared his views and suggestions. Dr. Amit Bansiwal, Chief Scientist, CSIR-NEERI, convened the session and presented overview of the session. The session included four technical presentations by Dr. Lal Singh, CSIR-NEERI, Dr. Gangagni Rao, CSIR-IICT, Dr. Neeraj, Dr. Pankaj and Dr. Saleem from CSIR-IIP and Dr. Krishnakumar B, CSIR-NIIST. Various stakeholders including user agencies and technology licensees also shared their views. Dr. M.P. Patil, Chief Scientist, CSIR-NEERI, concluded the session by sharing summary and way forward. Dr. Rama Bansal, Head, ISTAD, CSIR, New Delhi, also thanked the presenters and participants and congratulated for the success of the session. The session got overwhelming response from across the globe and brought together researchers, industry stakeholders, and technology users to deliberate on cutting-edge innovations aligned with the UN Sustainable Development Goals (UNSDGs).

Interaction with UPSIDA for sustainable industrial development

CSIR-NEERI Delhi Zonal Centre (DZC) hosted Mr. Rajeev Tyagi, Principal General Manager, The Uttar Pradesh State Industrial Development Authority (UPSIDA) and Dr. Saurav Kr Ambastha, Environmental Expert, UPSIDA on 22 September 2025, for a meeting on ongoing and future collaborative initiatives. The discussions were led by Dr. S. K. Goyal, Chief Scientist & Chair, DZC, along with Dr. Ankit Gupta, Principal Scientist, and Dr. Sunil Gulia, Senior Scientist. The focus was on the cumulative impact assessment study of the notified industrial areas and industrial clusters in Firozabad district, being undertaken by CSIR-NEERI. This study will play a key role in assessing the carrying capacity of the region and guiding sustainable industrial growth. The UPSIDA officials also explored opportunities for long-term collaboration with CSIR-NEERI on multiple environmental fronts to support carrying capacity-based industrial and infrastructure development across Uttar Pradesh. With 174 notified industrial areas under UPSIDA, the scope for impactful joint initiatives is extensive, ensuring a balance of development, environment, ecology, and social priorities. The officials further expressed interest in formalizing this partnership through an MoU with CSIR-NEERI. As part of the visit, the officials were apprised of CSIR-NEERI's diverse environmental activities and toured the DZC Exhibition Centre. The visit provided an opportunity to strengthen collaboration between UPSIDA and CSIR-NEERI for promoting sustainable industrial development in Uttar Pradesh.

Dr. S. K. Goyal in discussion with UPSIDA officials

LECTURES DELIVERED

Dr. Dipanjali Majumdar, Principal Scientist, CSIR-NEERI delivered an invited lecture on "Environmental Concerns of Industrial Chemicals and Their Mitigation: With Special Reference to POPs" at the Symposium-cum-Industry Interaction on 'Chemical Safety and Security: Importance, Alternatives and Mitigation' organised by the Institute of Pesticide Formulation Technology (IPFT), Gurugram, on 30th May 2025, in the occasion of their 35th Foundation day. Dr. Majumdar talked about the key chemicals used in different industrial sectors that pollute the environment through various routes, stressing on both legacy and emerging pollutants. She shared her experience on the various unique challenges faced by the industries leading to critical environmental pollution and highlighted CSIR-NEERI's role in supporting industries in fighting those challenges.

As part of the World Environment Day celebrations at South East Central Railway's Motibagh Workshop, Nagpur, Dr. Poonam Shivdutt Kumar, Principal Scientist, CSIR-NEERI Nagpur was invited as the keynote speaker for a technical seminar on "Sustainable Environment." Representing CSIR-NEERI, Dr. Kumar emphasized the pivotal role of sustainable practices in maintaining ecological balance, conserving natural resources and ensuring a healthier planet for future generations. She also outlined strategies for industries to implement green policies, and stressed the importance of collaborative efforts in achieving long-term environmental sustainability.

Dr. Parag R. Gogate, Professor, Institute of Chemical Technology (ICT) Mumbai delivered an invited lecture on "Hydrodynamic cavitation for wastewater treatment" at CSIR-NEERI. Dr. Gogate discussed the prospects of hydrodynamic cavitation as a tool for wastewater treatment. He highlighted the spectacular effects of cavitation phenomena, which include the generation of highly reactive free radicals, local hotspots and liquid circulation accompanied by intense turbulence. Dr. Gogate also elaborated on the applications of cavitation process for degradation of volatile organic compounds such as dyes, pesticides and insecticides through selected treatment schemes. He highlighted synergistic action of hydrodynamic cavitation with various advanced oxidation processes which can increase the degradation efficiency of target pollutants and optimization of the process that can lead to better cost reduction required for cleaner and more sustainable environmental solutions.

Dr. Dipanjali Majumdar, Principal Scientist, CSIR-NEERI delivered a lecture in an awareness workshop on "Environmental Pollution and Possible Remedial Measures" held on 16th June 2025, organized by the Department of Chemistry (Science and Humanities), National Institute of Technology (NIT) Nagaland, Dimapur. On this occasion, Dr. Majumdar also conducted a quiz for the students of NIT Nagaland on environmental awareness and delivered a talk on water pollution, highlighting common sources of potable water contamination and relevant mitigation measures.

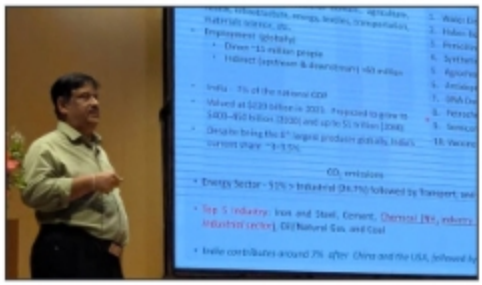
Dr. Sunil Kumar, Sr. Principal Scientist, CSIR-NEERI delivered an invited talk on "Lead Poisoning in India: Status and Challenges" in a conference on "Lead Poisoning in India: Where We Stand", organized by Toxics Link, New Delhi on 18th June 2025. The talk aligned with the CSIR-NITI Aayog 2022 report on "Assessment of Lead Impact on Humans and India's Response". Dr. Kumar was also one of the distinguished panelists to discuss on "Way Forward to Mitigation of Lead Poisoning in India". The panel discussion emphasized the need for market surveillance on Lead, massive awareness among communities and medical professionals, low-cost testing facilities in government hospitals and collaboration among government, NGOs, international partners, private stakeholders to develop a comprehensive lead exposure prevention and mitigation strategy.

Dr. S. Venkata Mohan, Director, CSIR-NEERI delivered a lecture on "Surveillance and Management of Antibiotic Resistance through Wastewater Pathways" during the World Environment Day 2025 celebrations held on 18th June

2025 at CSIR-CDRI, Lucknow. On this occasion, a 1.2 MW rooftop solar power plant and a 500 kg/day bio-compost production plant were also inaugurated by Dr. Radha Rangarajan, Director, CSIR-CDRI; Dr. S. Venkata Mohan, Director, CSIR-NEERI; and Dr. Ajit K. Shasany, Director, CSIR-NBRI.

Dr. Papiya Mandal, Principal Scientist, CSIR-NEERI delivered an invited talk at the 'Symposium on Technologies Enabling Waste to Worth Transformation', organised by CII on the occasion of World Environment Day at India Habitat Centre (IHC), New Delhi. Dr. Mandal was one of the distinguished panelists in the discussion on "Greener Tomorrow Starts with Smarter E-Waste and Battery Solutions". The panel discussion emphasized the need for market surveillance on the generation of e-waste, recovery of valuable precious metals from discarded electronic waste and safe disposal of e-waste. The Symposium was supported by various ministries and witnessed participation of stakeholders across India.

Dr. S. Venkata Mohan, Director of CSIR-NEERI, delivered a keynote lecture titled "Circular Chemistry: Enabling Inclusive and Sustainable Design" at the International Conference on Chemistry for Sustainability, held on 13th July 2025. The event was jointly organized by the Department of Chemistry, IIT Hyderabad, and the Greenko School of Sustainability. In his address, Dr. Mohan emphasized the need for integrating sustainability principles within the chemical industry. He highlighted that conventional linear approaches to chemical manufacturing and consumption need to transition towards circular models to ensure long-term environmental and economic viability. The critical role of Life Cycle Assessment (LCA) in evaluating the environmental performance of chemical products and processes across their entire lifespan—from raw material extraction to end-of-life disposal was presented. Dr. Mohan advocated for embedding circular chemistry principles in the early stages of product and process design to foster resource efficiency, waste minimization, and carbon neutrality. He further discussed how inclusive and regenerative chemical innovations can support national and global goals aligned with the United Nations Sustainable Development Goals (UN SDGs), particularly in advancing responsible consumption and production, climate action, and clean industrial growth.



Dr A Ramesh Kumar, Principal Scientist, CSIR-NEERI delivered an invited talk on 'Persistent Organic Pollutants (POPs)-A Global Challenge' at the School of Earth Sciences, Central University of Rajasthan (CUR), Ajmer. He spoke about industrial POPs, which are or were used as additives in several consumer products, and how people can come into contact with them. He stressed the need to adopt a "precautionary approach" based on hazardous properties and potential health effects of POPs, rather than relying solely on a "risk-based approach", which is often difficult to determine accurately. The lecture was attended by M. Sc. and Ph.D. students along with faculty members from the Departments of Environmental Sciences and Atmospheric Sciences at CUR, Ajmer.

Dr. Sunil Kumar, Senior Principal Scientist, CSIR-NEERI, delivered the special inaugural address at the International Conference on "Smart Materials and Sustainable Solutions for Climate Resilience (SMSSCR-2025)", held from August 2–4, 2025, at NIT Meghalaya. He also delivered a keynote address on "Waste Management and Climate Change" during the conference. In his address, Dr. Kumar highlighted CSIR-NEERI's S&T interventions for climate change mitigation and waste management.

Dr. Sunil Kumar, Senior Principal Scientist, CSIR-NEERI delivered a plenary talk on 'C&D Waste Management in India: Challenges and Prospects' at the International Conference on "Sustainable Solid Waste Management towards Achieving Circular Economy in Construction Industry" held on 7-8 August 2025 at BIT Mesra, Ranchi. Prof. Indranil Manna, Hon'ble Vice-Chancellor, BIT Mesra and Prof. Sudhir Kumar Barai, Director, BITS Pilani were also present.

Dr. S. Venkata Mohan, Director CSIR-NEERI, delivered a talk on "Surveillance and Management of Antibiotic Resistance in Wastewater" as part of the Prof. A. G. Bhole Endowment Lecture, organised by IWWA Nagpur on August 14, 2025. Dr. Venkata Mohan explained the presence of various types of microbes and viruses released into wastewater through human bodies, which are resistant to antibiotics. He further elaborated that such microbes and viruses need to be eliminated prior to ultimate disposal to prevent spread. He also spoke extensively about the surveillance of SARS-CoV-2 viruses and demonstrated the pattern of pandemic, which ultimately helped in taking precautionary measures. Nearly 200 attendees, including eminent personalities, professors and consultants, took advantage of the lecture. Dr. Girish Pophali Chief Scientist, CSIR-NEERI conducted the proceedings.

Er. Satyendra, SRF AcSIR, working in the Wastewater Management Sub-Vertical, delivered a special guest lecture at Sardar Patel Mahavidyalaya, Chandrapur, on the theme "Wastewater Analysis, Treatment Technologies and Challenges." The session, organized under the PM-USHA Scheme, witnessed active participation from students and faculty. His insightful presentation covered advanced physico-chemical analysis techniques, innovative treatment approaches, and emerging challenges in wastewater management.

Dr. Amit Bansiwal, Chief Scientist and Co-Chair, Environmental Sustainability and Green Economy, CSIR-NEERI was invited as a Guest Speaker for the Induction Program–SAGE for first-year B.Tech students on August 20, 2025, at Tulsiramji Gaikwad Patil College of Engineering & Technology, Nagpur. He delivered an inspiring talk on Global Warming and Climate Change, encouraging the newly enrolled engineers to become 'Climate Warriors' in the collective

fight against climate change. Dr. Bansiwal highlighted the vital contributions of different engineering disciplines in driving innovations and technologies essential for climate change mitigation and adaptation. He also discussed diverse career opportunities and professional growth pathways in the field of environmental sustainability.

Dr. S. K. Goyal, Chief Scientist and Chair, CSIR-NEERI Delhi Zonal Centre, was invited as a Distinguished Speaker at the International Conference on "Water Quality 360°" held from August 21–23, 2025, at Pragati Maidan, New Delhi. He participated in the panel discussion on "Reviving the Yamuna: Challenges, Diagnostics, and Pathways to Sustainable Rejuvenation", where he highlighted the key challenges faced by the River Yamuna and the activities being undertaken by CSIR-NEERI Delhi Zonal Centre to improve its water quality. He also emphasized the need to integrate and streamline the individual efforts of different departments to achieve sustainable rejuvenation. Dr. Raman Sharma, Principal Scientist, CSIR-NEERI Delhi Zonal Centre, also attended the panel discussion.

As part of a training programme on 'Environmental Management', Dr. Padma Rao, Chief Scientist & Chair, EIAAP, CSIR-NEERI, addressed officers from different Regional Offices of the Atomic Minerals Directorate (AMD) across India on the linkages between environmental impact and economic development, highlighting challenges such as soil nutrient loss, land and water degradation, rising CO_2 levels and landslides in hilly regions. She spoke on clean energy transitions, biodiversity growth in protected areas, and the National Clean Air Programme. Furthermore, she explained tools and strategies for Environmental Management Plans (EMP), Environmental Management Systems (ISO 14001, PDCA cycle), EIA/EMP approaches, as well as waste and pollution management strategies.

Dr. Paras R. Pujari, Chief Scientist and Head, Water Resources Group, CSIR-NEERI was invited as a panelist for the discussion on "Future Directions for Porous Media Research" during the National Symposium on Porous Media Research at the Indian Institute of Technology (IIT) Hyderabad. He emphasized the need for more research in unsaturated zone modelling, which is currently limited in India, and highlighted the importance of scaling up laboratory findings to the watershed level. He also stressed synergy among academic institutions, research organizations, and industries to ensure that research outcomes address societal and national needs. Dr. Pujari shared CSIR-NEERI's research on solute transport in porous media and explained how geological variability influences preferential flow and movement. The session, moderated by Prof. M. S. Mohan Kumar (former RC Member of CSIR-NEERI), was attended by academicians, researchers, and industry representatives working in porous media.

Dr. Amit Bansiwal, Chief Scientist, CSIR-NEERI was invited as Chief Guest at Department of Chemical Engineering, Priyadarshini College of Engineering for the inauguration of the Chemical Engineering Students Society (ChESS) and Indian Institute of Chemical Engineers (IIChE) Students Chapter, along with the installation of committee members for the session 2025-2026. The event also included the release of the departmental ChESS World Magazine 2024-25. He further inaugurated the celebrations marking 25 years of the establishment of Department of Chemical Engineering and shared his views on the triple planetary crisis and the role of chemical engineers in addressing climate change and environmental pollution. The event was also graced by Dr. V. M. Nanoti (Director Engineering, LTJSS,Nagpur), Dr. S.A. Dhale (Principal, PCE, Nagpur), Dr. G.M Asutkar, Dr. S.N. Rao (Dean, Academics, PCE) and Dr. V.K. Taksande (Dean, Students Affair, PCE).

Mr. Siddharth Singh Tomar, AcSIR research scholar working under the guidance of Dr. Krishna Khairnar, Sr. Principal Scientist delivered the inaugural talk of the AcSIR Student Weekly Lecture Series. He presented his published research on "Lumpy Skin Disease Virus Reads in the Human Upper Respiratory Tract Microbiome: Uncovering Potential Zoonotic Signals through Metagenomic Surveillance."

Dr. Deepanjan Majumdar, Sr. Principal Scientist & In-charge, CSIR-NEERI Kolkata Zonal Centre, delivered an invited talk on "Potential Environmental Benefits of 'First Mile Connectivity' in Coal Mines" during the Technical Session on Green Mining at Coal Log India 2025, organized by Indian Coal Forum on 10th September 2025 at the Biswa Bangla Convention Centre, Kolkata. The event was graced by the Chairman, Coal India Ltd. as Chief Guest.

Mr. Anand Harsh Dwivedi, AcSIR Research Scholar at CSIR-NEERI under the guidance of Dr. P.V. Nidheesh, Principal Scientist (EIAAPV), delivered a talk on "Drops of Change: Water Management Across India, Japan and Singapore" for the students of Narayana Vidyalayam under the British Council Project, organized by Dr. Kavita Gandhi, Sr. Principal Scientist (SEAF). He introduced students to India's traditional, medieval, and modern Water Conservation practices, while also highlighting comparative approaches to water conservation, reuse, and recycling in India, Japan, and Singapore.

Dr. Dipanjali Majumdar, Principal Scientist, CSIR-NEERI Kolkata Zonal Centre, was invited as a 'Distinguished Speaker' at the event organised by Kolkata Municipal Corporation to celebrate 'International Day of Clean Air for Blue Skies', held on 10 September 2025 at the Town Hall, Kolkata. The event was attended by the Mayor of Kolkata, State Government officials, and more than hundred school students. Dr. Majumdar delivered a talk entitled "Blue Sky and Beyond… Science, Policy, and Community Synergy for Better Air Quality."

A Guest Lecture on 'Environmental Impact Assessment (EIA) for Industries' was delivered by Er. B. Padma S. Rao, Chief Scientist and Head, EIAAP, CSIR-NEERI, Nagpur, on 16 September 2025 at the NDRF Academy, Nagpur. More than 25 officers of the Academy actively participated in the session. The lecture comprehensively covered various aspects of the EIA Notification, including policy framework, scope, methodology, and key considerations. It further highlighted the environmental impacts of industries, strategies for impact mitigation, and the importance of incorporating economic cost–benefit analysis in decision-making. Practical insights were shared through case studies, emphasizing the role of EIA in balancing industrial growth with environmental sustainability.

Dr. A Ramesh Kumar, Principal Scientist delivered an invited talk on 'Microplastics and Plastic Additives in the Environment: Is it a Cause of Concern?' during the Swachhata Pakhwada Celebration organised by Department of Chemical Engineering, Visvesvaraya National Institute of Technology, Nagpur on 16 September 2025. Dr Kumar highlighted global plastic production versus plastic waste generation, both country-wise and per capita basis. He explained the formation of microplastics from mismanaged plastic waste, additives used in plastics, and their probable adverse effects, especially alkyl phenols, flame retardants, UV/light stabilisers, and plasticisers. The event was attended by students and faculty members of VNIT, Nagpur.

CSIR-NEERI Kolkata Zonal Centre (KZC) organized an online lecture on "Observing Ethics, Roles, and Responsibilities" for scientific and research staff in the light of the Karmayogi Mission on 17 September 2025. The session was delivered by Ms. Ridhima Aneja, Programme Coordinator Consultant, Capacity Building Commission, New Delhi. The session began with an introduction of the speaker by Dr. Rachna Jain, Senior Scientist, followed by a welcome address from Dr. Deepanjan Majumdar, Senior Principal Scientist and Chair of KZC. Focusing on Mission Karmayogi, the lecture emphasized ethics as the foundation of sustainable research and highlighted the evolving roles of scientific, administrative, and research staff in fostering integrity, transparency, and efficiency. The lecture was attended by a large number of CSIR-NEERI staff and students, including Principal Scientists Dr. Dipanjali Majumdar, Dr. Kanchan Kumari, Dr. Anirban Middey, and Dr. Rajesh Lohiya, Sr. Technical Officer.

RECOGNITIONS

Excellence Award in Science and Technology

Dr. S. Venkata Mohan, Director of CSIR-NEERI, received the Excellence Award in Science and Technology from the Academy for Science, Technology and Communication and the NASI Hyderabad Chapter. The award was presented by the Hon'ble Governor of Telangana, Shri Jishnu Dev Varma, on 11th May 2025 at CSIR-IICT, Hyderabad.

Eight CSIR-NEERI scientists listed among world's top 2% by Stanford-Elsevier 2025

Eight scientists from CSIR–NEERI have been featured in the prestigious Stanford–Elsevier Global Database of Top-Cited Scientists 2025: Dr. Sukumar Devotta, Former Director, CSIR-NEERI; Dr. Asha Ashok Juwarkar, Former Chief Scientist, CSIR-NEERI; Dr. Hemant Purohit, Former Chief Scientist, CSIR-NEERI; Dr. Sadhana Rayalu, Former Chief Scientist, CSIR-NEERI; Dr. Sunil Kumar, Senior Principal Scientist, CSIR-NEERI; Dr. Amit Bafana, Senior Principal Scientist, CSIR-NEERI; Dr. P.V. Nidheesh, Principal Scientist, CSIR-NEERI; and Dr. Tanvir Arfin, Senior Scientist, CSIR-NEERI. Recognized among the top 2% worldwide in their fields, their work in environmental science & engineering, biotechnology, chemical engineering, and energy reflects CSIR-NEERI's global leadership.

Carl Storm International Diversity Award

Ms. Hanisha Mamidisetti, Senior Research Fellow and AcSIR Ph.D. Scholar received the prestigious "Carl Storm International Diversity Award" for her research work on "Spatial Assessment of Sewage Discharges along the Mumbai Coast, India: Insights from Archived Landsat OLI Images" at the Gordon Research Conference on Coastal Ocean Dynamics 2025: Exploring the Diverse Dynamics of the World's Coastal Seas, held from June 8–13, 2025, in New London, New Hampshire, USA. She is pursuing her Ph.D. under the supervision of Dr. Ritesh Vijay, Senior Principal Scientist, CSIR-NEERI, and Professor, AcSIR

Best Poster Award

Mr. Ankit Kumar, AcSIR Ph.D. Research Scholar received the Best Poster Award for his work on "Role of Black Soldier Fly Larvae in Sustainable Waste Management and Industrial Applications", co-authored by Ms. Anshika Singh and Dr. Kanchan Kumari. The poster session was organized on the occasion of World Environment Day by CSIR-CGCRI and CSIR-NEERI Kolkata Zonal Centre, as part of a One-Day Seminar on Environmental and Water Sustainability jointly hosted by the two Institutes. Mr. Ankit Kumar is pursuing his Ph.D. under the guidance of Dr. Kanchan Kumari, Principal Scientist, CSIR-NEERI and Associate Professor, AcSIR

Key Collaborator in 1st CoViNet Newsletter

CSIR-NEERI has been recognized as an important collaborator in the publication of the 1st CoViNet Newsletter, a significant milestone in strengthening global respiratory virus surveillance. The Institute has contributed its expertise in environmental surveillance and wastewater-based epidemiology to enhance early detection and response to emerging health threats.

Representation at RailIndia 2025 Leadership Panel

CSIR-NEERI was represented by Dr. Debishree Khan, Senior Scientist, at the RailIndia Conference and Expo 2025 held in New Delhi, where she served as a panelist in the Leadership Panel on "Waste Management in Indian Railways." She highlighted innovative solid waste management strategies, focusing on source segregation,

decentralized processing, and integration of circular economy principles. Dr. Khan also shared CSIR-NEERI's research on sustainable solutions for railway stations and depots, presenting a science-driven pathway toward building a cleaner and greener railway network.

Best Presentation Award

At the Hackathon 110 colloquium held on May 23, 2025, in Digha, West Bengal, to commemorate the 110th anniversary of the Zoological Survey of India (ZSI), the team comprising Dr. Kanchan Kumari, Principal Scientist, CSIR-NEERI Kolkata Zonal Centre, along with Mr. Ankit Kumar, AcSIR Ph.D. Fellow, and Ms. Komal Kushwaha, Project Associate, received high recognition for developing an innovative solution to address the urgent challenges facing our planet's biodiversity. In acknowledgment of their exceptional work, the team was honored with the Best Presentation Award and a Certificate of Merit, securing a place among the top sixteen regional-level projects advancing to the next stage of the competition.

Recognition at Recycle 2025, IIT Guwahati

CSIR-NEERI participated in the International Conference on Recycle 2025 held at IIT Guwahati on June 5–6, 2025, with Dr. Sunil Kumar, Senior Principal Scientist, as a Distinguished Panelist in the expert discussion on waste management. Representing the Institute, Dr. Kumar shared valuable insights based on CSIR-NEERI's extensive research and development achievements in sustainable waste management. The expert panel comprised representatives from academia, research institutes, Pollution Control Boards, industry, facility operators, and NGOs. The discussion highlighted various dimensions of waste management and emphasized the critical role of climate-resilient waste management systems in achieving the vision of Viksit Bharat by 2047. The session was moderated by Prof. Ajay Kalamdar of IIT Guwahati, the conference organizer.

Lead Author in Global Forest Expert Panel Report

Dr. Shalini Dhyani, Principal Scientist, CSIR-NEERI, played a pivotal role in the newly released Global Forest Expert Panel (GFEP) report titled "Forests as Pillars of Social and Economic Resilience." As a Scoping Expert and Lead Author, Dr. Dhyani collaborated with a globally selected team of 20 experts since 2024 to contribute to this landmark assessment led by IUFRO under the Collaborative Partnership on Forests (CPF). Her expertise significantly shaped the report's narrative on forest-linked resilience, particularly in the context of developing nations. CSIR-NEERI's continued commitment to sustainable development and nature-based solutions is reflected through its active engagement in such high-impact international assessments, which aim to inform global policy on achieving the UN Sustainable Development Goals (SDGs). The report warns of the irreversible "Humpty Dumpty effect" of forest loss and advocates for integrated, science-informed forest policies.

Felicitation for installation of CFSST plant at KKSU

Dr. Ritesh Vijay, Sr. Principal Scientist and In-charge, Wastewater Management Sub-Vertical, CSIR-NEERI, along with the development team, was felicitated by Dr. Hareram Tripathi, Vice Chancellor, Kavikulguru Kalidas Sanskrit University (KKSU), Ramtek, for the successful installation of CSIR-NEERI's patented Compact Faecal Sludge/Septage Separation and Treatment (CFSST) Plant in KKSU premises under the CSIR-FTC project. The installed CFSST Plant will serve as a model demonstration unit for decentralized faecal sludge management in academic institutions and rural settings.

Representation at HESCO Biodiversity discussions

Dr. Shalini Dhyani, Principal Scientist, CSIR-NEERI was invited to participate in discussions with Environmentalist, Padma Shri and Padma Bhushan Dr. Anil Joshi at Himalayan Environmental Studies and Conservation Organization (HESCO), Dehradun, along with Dr. Shekhar Mande (former DG, CSIR) and Shri Rajiv Mangal, Vice President of Tata Steel (Safety, Health and Sustainability) on Gross Environmental Product and Biodiversity Matrices. Dr. Shalini Dhyani shared insights on the relevance of developing biodiversity matrices, based on her work on natural and urban ecosystems.

CSIR-NEERI designated as SPOKE under National Critical Minerals Mission

The Ministry of Mines has officially recognized seven Centres of Excellence to lead the charge under the National Critical Minerals Mission. Among these prestigious institutions, CSIR-NEERI joins the mission as a SPOKE, while CSIR-IMMT will serve as the central HUB. CSIR-NEERI will play a pivotal role in minimization-and promoting upcycling- of critical metals and minerals, thereby contributing significantly to India's sustainable economic development and resource security.

Second Prize in AMR awareness collage competition

Ms. Prachee, AcSIR Ph.D. student (Guide: Dr. Amit Bafana, Sr. Principal Scientist); Ms. Anusha, Project Associate working on the DST CCUS project under Dr. K. Krishnamurthi, Chief Scientist; and Ms. Namita, Project Associate working with Dr. Sangita Goel, Sr. Principal Scientist and Dr. Pankaj Kulurkar from the Waste & Chemical Toxicity Assessment Sub-Vertical, CSIR-NEERI, participated in a collage competition on the theme "Be Antibiotic Smart: The Future is in Your Hands" and won the second prize. Their achievement highlights the institute's commitment to AMR awareness and public health. The event was part of the "AMR Stewardship Drive 2025 – Building Partnerships for Strengthening Our Response to AMR", organized on 11th August 2025 at Maharashtra Animal and Fishery Sciences University (MAFSU), Nagpur.

CSIR-NEERI scientist named among India's top sustainability changemakers

Dr. Lal Singh, Principal Scientist at CSIR–NEERI, has been honored as one of five "Sustainability Changemakers" across India in the "TBI

Sustainability Changemakers" category by The Better India Showcase 2025, supported by the M3M Foundation. Since 2018, Dr. Singh has been spearheading the restoration of fly-ash polluted land in the Vidarbha region using his innovative Eco-Rejuvenation Technology (ERT). By planting bamboo and indigenous tree species, his team has revitalized toxic, degraded land—significantly improving air quality, reviving biodiversity, and restoring soil fertility. Beyond the environmental impact, the project has also created meaningful employment opportunities for local women, strengthening both landscapes and livelihoods. This recognition places Dr. Singh among India's most impactful sustainability leaders and brings well-deserved visibility to his transformative work.

CSIR-NEERI Ph.D. Scholar wins national recognition at CLFMA Symposium 2025

Ms. Rashmi Thakare (Suryawanshi), an AcSIR Ph.D. student at CSIR-NEERI, received national recognition with the Certificate of Excellence at the 66th National Symposium 2025 (Hyderabad), organised by CLFMA of India, for her essay on "Innovations in Dairy Management Practices to Control Cost of Production of Milk in Various Climatic Conditions with Relevant Data," which was selected from over 140 submissions nationwide. The award was presented by Prof. S. P. Singh Baghel, Hon'ble Minister of State for Fisheries, Animal Husbandry & Dairying, and Minister of State in the Ministry of Panchayati Raj, Govt. of India, in the presence of eminent dignitaries and CLFMA leadership. Ms. Thakare is currently pursuing her research in the Waste & Chemical Toxicity Assessment Sub-vertical at CSIR-NEERI under the guidance of Dr. S. Sarvanadevi, Chief Scientist, CSIR-NEERI.

Invitation to TWAS Young Scientists' Meeting 2025

Dr. Shilpa Kumari, Senior Scientist was invited to participate in The World Academy of Sciences (TWAS) Young Scientists' Meeting – "Earth's Changing Contours: The Interplay of Forces & Time", held at the Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru, from 27–29 August 2025. The event, jointly organized under the TWAS Central and South Asia Regional Partner (CASAREP), brought together young scientists from across Central and South Asia to deliberate on contemporary scientific challenges, foster collaborations, and exchange knowledge across disciplines. Dr. Kumari's selection for in-person participation is a recognition of her contributions in environmental engineering and reflects CSIR-NEERI's continued commitment to advancing research at both national and international platforms.

CSIR-NEERI scientist represents India at PATPA Annual Retreat 2025

Dr. Debishree Khan, Senior Scientist, was nominated by the Ministry of Environment, Forest and Climate Change (MoEFCC) to represent India at the 12th Annual Partnership Retreat (APR) of the Partnership on Transparency in the Paris Agreement (PATPA), held in Bangkok, Thailand, from 28 August to 2 September 2025. The Retreat brought together representatives from across countries to exchange lessons from the first Biennial Transparency Reports (BTRs) and discuss their linkages with Nationally Determined Contributions (NDCs) and the Global Stocktake (GST). Dr.

Khan's participation, based on her work on India's waste sector greenhouse gas (GHG) inventory for the first BTR, underscores CSIR-NEERI's commitment to advancing India's Climate Transparency under the Paris Agreement and strengthening scientific inputs to national and international climate action reporting processes.

IEM Excellence Award in Research 2025

Dr. Sunil Kumar, Sr. Principal Scientist, CSIR-NEERI has been honoured with the prestigious IEM Excellence Award in Research for the year 2025 in recognition of his outstanding contributions to scientific research, innovation and sustainability. The award was presented on 12th September 2025 at Kolkata in the presence of eminent scientists, academicians, and dignitaries from across the country.
Dr. Kumar also delivered a keynote address on 'Sustainable Solid Waste Management: Academic and Research Perspectives' at the 4th International Conference on Sustainable Waste Management (ICSWM2025) held from 12-14 September 2025 at IEM Kolkata.

CSIR-NEERI scientist selected for UNEP Regional Programme

Dr. Anirban Middey, Principal Scientist, CSIR-NEERI Kolkata Zonal Centre, earned international recognition by being selected as one of only 30 experts from over 700 applicants across the Asia Pacific region to participate in the fully funded Regional Capacity Building Programme on Air Pollution Emission Inventory, held in Bangkok, Thailand (9–12 September 2025). The programme was co-organised by the United Nations Environment Programme (UNEP) and the Ministry of Environment of the Republic of Korea, in association with the Asian Institute of Technology. His selection underscores his expertise in air quality management and highlights CSIR-NEERI's global standing in advancing science-driven solutions to environmental challenges.

CSIR-NEERI scientist appointed as Coordinating Lead Author for Global IPBES Assessment

Dr. Shalini Dhyani, Principal Scientist, CSIR-NEERI has been selected by the Multidisciplinary Expert Panel of Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) as a Coordinating Lead Author (CLA) for the second global assessment of Biodiversity and Ecosystem Services of the IPBES. The second global assessment (2026-2028) will strengthen the science policy interface on biodiversity and nature's contributions to people on a range of spatial scales, by providing the knowledge and the policy support tools needed for informed decision-making. Dr. Shalini will play a leading role as a CLA in ensuring that cross-cutting scientific, technical, or socioeconomic issues of significance are addressed in a complete and coherent manner. This selection is testimony to her decades of leadership, scientific contribution, and cooperation in conserving biodiversity and ecosystems in the warming world, using people-centric, sustainability science approaches. Established in 2012, the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) is a global science-policy platform with membership from 147 countries, with UNEP, UNDP, UNESCO, and FAO as partners. IPBES is committed to strengthening the role of science in public decision-making on biodiversity and ecosystem services.

ICSWM Excellence Award 2025

Dr. Papiya Mandal, Principal Scientist, CSIR-NEERI received the ICSWM Excellence Award 2025 for the Best Paper Presentation at the 4th International Conference on Sustainable Waste Management (ICSWM-2025), organized by Institute of Engineering & Management, School of University of Engineering and Management Kolkata. Her paper, titled "Evaluation of Sludge Quality from Common Effluent Treatment Plants (CETPs) in Delhi: A Multi-Parameter Approach", was recognized for its scientific depth and practical significance in advancing sustainable waste management practices.

Third Prize for poster on sustainable plastic upcycling

Dr. Jampala Annie Modestra, working as DST-Inspire Faculty at CSIR-NEERI Hyderabad Zonal Centre (HZC), has been awarded the Third Prize with a certificate and cash prize for her poster presentation titled "Sustainable Upcycling of Plastic Waste to Biobased Products through Bioprocess Innovations using Tailored Microbiome." The recognition came during the One-Day Conference on "Advances in Chemical Engineering: A Process Systems Engineering Perspective" (ACEPS-2025), held on September 15, 2025, organized by Department of Chemical Engineering, CSIR-IICT, Hyderabad. The award was presented by Prof. Sachin Patwardhan, IIT Bombay, Prof. Kishalay Mitra, IIT Hyderabad, Dr. A. G. Rao, Chief Scientist, CSIR-IICT, and Dr. Yamuna Rani, Chief Scientist, CSIR-IICT, acknowledging her innovative contribution to sustainable waste management and bioprocess engineering.

Second Prize at International Workshop CPIMC-2025

Dr. Jampala Annie Modestra, working as DST-Inspire Faculty at CSIR-NEERI Hyderabad Zonal Centre, has been awarded the Second Prize comprising a memento and a certificate of appreciation at the International Workshop on 'Creating Profound Impact through Multidisciplinary Collaborations (CPIMC-2025)' held at CSIR-IICT in association with the Royal Melbourne Institute of Technology (RMIT), Australia on 24th September 2025. She received the award for her poster presentation on 'From Plastic Waste to Biochemicals: Sustainable Bioprocessing through Enriched Microbiome'. The award was presented by Distinguished Prof. Calum Drummond (RMIT, Australia), Distinguished Prof. Suresh K. Bhargava (RMIT), Prof. Catherine Itsiopoulos (RMIT) and Dr. S. Sridhar, Chief Scientist CSIR-IICT and Convenor, CPIMC-2025.

JIGYASA

One Day As a Scientist

CSIR-NEERI organized the 'One Day As a Scientist' programme during 21-25 July 2025, under the CSIR Jigyasa project. Aligned with the Hon'ble Prime Minister's vision to nurture scientific temper among youth, the event provided 590 students from Maharashtra, Telangana, Madhya Pradesh, and Chhattisgarh a unique opportunity to step into the role of a scientist for a day. The programme included laboratory visits, interactive sessions with scientists, and hands-on experiments in water and soil analysis, chemistry, and physics. Students explored environmental

challenges and sustainable solutions through practical demonstrations and engaging activities. The initiative successfully ignited curiosity, critical thinking, and interest in science and technology among students, motivating them to consider careers in research and development. The event witnessed the active involvement of students from rural and urban areas, including Zilla Parishad Schools, Jawahar Navodaya Vidyalayas, Kendriya Vidyalayas, Public and Private Schools, ensuring inclusive participation. Scientists and mentors at CSIR-NEERI guided students with live demonstrations, further deepening their understanding of environmental issues.

Science models competition

CSIR-NEERI organized a 'Science Models Competition' under the 'JIGYASA' project, which saw enthusiastic participation from 112 students representing 22 schools. The competition was held across two categories: Standards VIII–X and XI–XII. The event served as a platform for young minds to showcase their innovative projects in the field of environmental science and engineering. Students presented creative and practical solutions to some of today's most pressing environmental challenges. A distinguished panel of scientists from CSIR-NEERI evaluated the projects, offering valuable feedback and encouragement to the participants.

Interactive learning session

CSIR-NEERI organized an interactive learning session for 31 students of Classes 7 and 8 from Shree Convent & High School, Nagpur. The students explored air quality monitoring, water purification and conservation, and waste management through lab visits, hands-on demonstrations, and interactions with scientists. The activity provided experiential learning opportunities, inspiring young minds towards science, environment, and sustainability.

Scientist–student interaction as part of the Vigyan Jyoti Scheme

CSIR-NEERI organized a scientist–student interaction with 156 students of PM Shri Jawahar Navodaya Vidyalaya, Ghatanji, Yavatmal. The students explored CSIR-NEERI's laboratories, R&D activities, and achievements in key environmental domains such as air pollution control, water technology and management, and waste management. As part of the Vigyan Jyoti Scheme, 63 girl students from rural areas actively participated, gaining exposure to research and inspiring careers in environmental science and engineering.

One-day visit

CSIR-NEERI organized one-day visits from 2–4 September 2025 for 157 students of Classes 7 and 8 from Shree Convent & High School, Nagpur. The students explored air quality monitoring, water purification and conservation, waste management, and eco-restoration through lab and field visits, hands-on demonstrations, and interactions with scientists. The activity provided experiential learning opportunities, inspiring young minds towards science, environment, and sustainability.

R&D exposure for rural girl students through Vigyan Jyoti

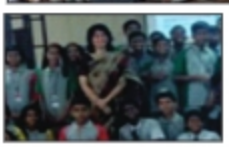
CSIR-NEERI engaged 166 students of Classes VIII, IX and XI from PM Shri Jawahar Navodaya Vidyalaya, Navegaon Bandh Gondia, under the CSIR Jigyasa Programme. The students explored laboratories and an exhibition showcasing CSIR-NEERI's S&T achievements in air pollution control, water purification & management, and waste management. Notably, 82 rural girl students participated under the Vigyan Jyoti scheme, gaining exposure to science and technology for societal benefit.

Experiential learning

159 students of 11th and 12th standard from Om Satyasai Junior College, Parsodi (Thana), Tahsil & District Bhandara, visited CSIR-NEERI under the CSIR Jigyasa project to gain first-hand exposure to environmental research. The students explored CSIR-NEERI's R&D activities and achievements through laboratory visits, interactive sessions with scientists, and practical demonstrations on air pollution control, water purification and management, waste management, and ecorestoration. CSIR-NEERI is extending its focus to rural areas to ensure that scientific developments benefit grassroots communities.

Interactive session on E-waste management for orphan girl students

CSIR-NEERI Mumbai Zonal Centre conducted an interactive session on E-waste management for 75 students of St. Catherine's School, Mumbai, under the CSIR-JIGYASA programme. The school is affiliated with St. Catherine's Home for orphan girls, and the participants also included day scholars from nearby slum communities. The programme raised awareness among young students about the environmental and health impacts of improper E-waste disposal and emphasized the importance of recycling. The session was coordinated by Dr. Shalini A. Tandon, Principal Scientist, CSIR-NEERI.



Jigyasa outreach activities

CSIR-NEERI has emerged as a key hub for student–scientist engagement, reaching over 5,000 students from more than 50 schools and colleges across Maharashtra, Tamil Nadu, Gujarat, Telangana, and Chhattisgarh. Students ranging from Classes XI–XII to undergraduate and postgraduate levels also visited CSIR-NEERI, Nagpur and its Zonal Centres to gain hands-on exposure to air and water pollution monitoring, waste management technologies, environmental biotechnology, and data-driven research applications. Through interactive laboratory visits, demonstrations, expert lectures, quiz competitions and hands-on sessions, students from engineering, science, nursing, law, and management backgrounds were introduced to environmental challenges and sustainable solutions. The programme not only strengthened scientific curiosity among young minds but also emphasized the role of interdisciplinary learning in environmental stewardship and nation building.

SKILL DEVELOPMENT / TRAINING

Awareness, documentation & internal audit course on quality management systems

As part of the skill development initiative for EIA-approved experts, a Two-Day Awareness, Documentation & Internal Audit Course on Quality Management Systems as per IS/ISO 9001:2015 was conducted by the Environmental Impact Assessment Sub-vertical, CSIR-NEERI, Nagpur on 23-24 June 2025. Dr. S. Venkata Mohan, Director, CSIR-NEERI in his inaugural address emphasized the importance of adopting quality management systems to enhance organizational performance, credibility and stakeholder trust in environmental assessments. Dr. Padma Rao, Chair, EIAAP Vertical welcomed all the participants. Faculties from the Bureau of Indian Standards Shri A.K. Bhatnagar and Shri Mahim Jain conducted the training and provided guidance on implementing and achieving ISO 9001:2015 certification for organizations. 21 Functional Area Experts (FAEs) and Team Members (TMs) from various Verticals of CSIR-NEERI, Nagpur, as well as from the Hyderabad Zonal Centre, participated in the training. The participants gained valuable insights into documentation, process standardization and auditing techniques, which will support the implementation of quality management practices in their respective domains. Dr. P.V. Nidheesh delivered the vote of thanks and formally concluded the program.

Advanced diploma in industrial safety course

CSIR-NEERI Kolkata Zonal Centre hosted twelve students of the Advanced Diploma in Industrial Safety course from the Institute of the Association of Engineers, India, who visited to gain insights into state-of-the-art instrumentation and techniques used in environmental studies, aimed at enhancing their knowledge of industrial safety practices. They were accompanied by Course Coordinator Mr. Amitava Roy and General Manager Mr. Debasish Kundu. The event began with an overview of CSIR-NEERI's industrial sector activities, followed by interactive sessions led by Dr. Dipanjali Majumdar, Dr. Srimanta Pramanik, Dr. Rachna Jain, and other scientific staff, who emphasized CSIR-NEERI's mandate on environmental safety, sustainable development, and advanced research. Dr. Chirantan Sarkar, Principal Project Associate, demonstrated key safety protocols in laboratory and industrial settings. The interactive sessions enabled students to engage with scientists and gain practical insights. The visit offered a valuable learning experience, deepening their understanding of environmental conservation in the industrial sector and highlighting CSIR-NEERI's role in promoting sustainable industrial practices.

Capacity building training programme for empanelled consultants (ECs) and functional area experts (FAEs)

As part of the initiative to obtain QCI-NABET Accreditation, CSIR-NEERI conducted a capacity building training programme for its Empanelled Consultants (ECs) and Functional Area Experts (FAEs) in collaboration with the Nuclear Power Corporation of India Limited (NPCIL). The online lectures, scheduled from 19–29 August 2025, were designed to enhance knowledge on nuclear sector safety and environmental aspects. On the opening day, two insightful lectures were delivered: "Brief Introduction to Indian Nuclear Power Programme" by Dr. Jitendra Singh, AD,

Directorate (HS&E), and "Basic Radiation Protection, Radiation Monitoring Systems, Radioactive Releases, Radiation Dosimetry" by Shri M. M. L. N. Rao, ACE (ESG). This collaboration underscores CSIR-NEERI's commitment to strengthening technical capacity in nuclear sector assessments and NPCIL's pivotal role in knowledge sharing on nuclear safety and environmental protection. This event was coordinated by Environmental Impact Assessment, Audit and Planning Vertical.

Capacity building training programme on monitoring and assessment of persistent organic pollutants in the environment

CSIR-NEERI, Nagpur, as the Stockholm Convention Regional Centre and Sophisticated Environmental Analytical Facility, jointly organized a five-day Capacity Building Training Programme on "Monitoring and Assessment of Persistent Organic Pollutants in the Environment" during 1–5 September 2025 for 25 officials of the Central and State Pollution Control Boards. The programme, conducted under the ongoing GEF–UNEP project on POPs, commenced with a welcome address by Dr. S. Venkat Mohan, Director, CSIR-NEERI, who emphasized the strategic importance of POPs and emerging contaminants monitoring in contemporary environmental research. This was followed by a programme overview by Dr. A. Ramesh Kumar, Principal Scientist, CSIR-NEERI, outlining the objectives, structure, and expected outcomes. Dr. M.P. Patil, Head, Solid and Hazardous Waste Management Division, highlighted the significance of hazardous chemicals management, including POPs, while Dr. Sanjeev Kumar Singh, Head, SEAF, explained the advanced instruments used for testing POPs and emerging contaminants.

The training included both theoretical and practical sessions, with lectures delivered by eminent experts viz. Dr. K.P. Prathish and Dr. V Ajay (CSIR-NIIST, Thiruvananthapuram), Dr. Paromita Chakraborty (SRM University, Chennai), Dr. Ramasamy (CMET, Hyderabad), Dr. D.K. Patel (CSIR-IITR), Dr. P. Sivaperumal (ICMR-NIOH), Dr. Kavitha Gandhi, Dr. S.K. Singh, Dr. A. Ramesh Kumar, Dr. R.J. Krupadam, Dr. N. N. Rao, Dr. Ronnie Rex, and Shri Ishan Singh (CSIR-NEERI). The sessions covered topics including POPs monitoring and assessment, fate of pollutants, pesticidal-POPs, PFAS group chemicals, emerging POPs, dioxins and furans, DDT and PCB inventory, hazardous chemicals in textiles, sampling of ambient air and stack monitoring, sample extraction and cleanup techniques, instrumental analysis using GCMSMS and GCHRMS, and public health implications of POPs. Participants also gained hands-on experience in analytical method development, validation, and quality assurance and control in POPs monitoring.

Green skill training program on soil quality assessment and land management

CSIR-NEERI organized Green Skill Training Program on "Soil Quality Assessment and Land Management" during September 16-17, 2025 under CSIR- Integrated Skill Initiative. Dr. S. Venkata Mohan, Director, CSIR-NEERI inaugurated the program and addressed the participants on issues related to soil health, carbon farming in degraded land, land management, etc. Dr. Sanjeev Kumar Singh, Senior Principal Scientist & In-charge, SEAF and Course Coordinator briefed about course contents. Dr. Harshvardhan Singh, Senior Principal Scientist & In-charge, Skill Development Centre (SDC) briefed about green skill development activities of the institute. Participants from rural and urban areas of Tamil Nadu, M P, Gujarat, Delhi, Maharashtra, Chhattisgarh, Telangana, U P, Bihar and Kerala belonging to different organizations participated in the program comprising technical

presentations, hands on training on soil analysis at NABL accredited Soil Testing Lab, hands on practices on organic and inorganic analysis at sophisticated analytical instruments (GC/ GCMS, ICPMS, DMA, ICPOES, TOC, CHNS, UPLC, IC, FTTR, etc.), visit to Harit Sangrahalaya of CSIR-NEERI and field excursion to degraded land restoration site (using CSIR-NEERI technology) at Manganese Mine, Gumgaon, MOIL Limited, Nagpur.

Experts (Dr. Sanjeev Kumar Singh, Sr. Principal Scientist, CSIR-NEERI; Dr. K. Karthikeyan, Principal Scientist, ICAR-NBSS&LUP, Nagpur; Dr. Yogesh Kale, Chief Controller of Mines, IBM, Nagpur and Dr. M.P. Patil, Chief Scientist, CSIR-NEERI) delivered talks / discussed with participants on the topics covering Indian soils & their characteristics, soil quality assessment for sustainable agriculture, regulations for mining industry- land management for mining waste, assessment and remediation of contaminated sites).

OUTREACH

CSIR-NEERI deploys water purifiers to flood-affected Jammu & Kashmir

Hon'ble Union Minister of Science and Technology Dr. Jitendra Singh in discussion with CSIR-NEERI scientists on the deployment of water filters in flood-affected areas

In a swift and coordinated response to the devastating floods in Jammu & Kashmir, the CSIR-National Environmental Engineering Research Institute (CSIR-NEERI), Nagpur, deployed 250 water purification units to restore access to safe drinking water in affected communities. The consignment included 50 community-level NEERI-ZAR systems and 200 household potable water filters.

Dr. Jitendra Singh, Hon'ble Union Minister of Science and Technology and Vice-President of CSIR, led CSIR's relief operations in the region. He praised CSIR-NEERI's rapid intervention and acknowledged the coordinated contributions of CSIR-NEERI, CSIR-IIIM Jammu, and the CSIR Task Force Committee in providing vital support to flood-hit populations. Highlighting the importance of clean water in disaster management, Dr. Singh noted that such efforts play a critical role in preventing the spread of waterborne diseases.

The relief operation was made possible by the tireless work of a dedicated team of CSIR-NEERI scientists Dr. Atul Maldhure, Dr. Kumar Amrit, Er. Prateek Dhar Dwivedi, and Dr. Bholu Ram Yadavalong with Project Associates Dr. Sachin Patil and Rushikesh Lokhande. Within just four days, the team fabricated 250 purification units in Jammu using locally procured materials,

CSIR-NEERI scientists fabricating water filters for deployment in flood-affected areas

ensuring their immediate availability for deployment. The initiative was strongly supported by Dr. Raman Sharma, Principal Scientist, and Dr. S.K. Goyal, Chief Scientist, who oversaw material procurement and facilitated expedited delivery from CSIR-NEERI Delhi Zonal Centre. The operation was further strengthened by the active involvement of CSIR-NEERI's administrative divisions, including Stores Purchase and Finance & Accounts, in close collaboration with CSIR-IIIM Jammu. It was executed under the guidance of the CSIR Task Force Committee and the leadership of the DG, CSIR.

At the heart of this initiative is the NEERI-ZAR system, a gravity-based, zero-energy water purifier capable of removing turbidity, bacteria, and pathogens without the need for electricity. Compact, portable, and user-friendly, it has been extensively deployed over the past decade in disaster-hit and remote locations across the country. Alongside NEERI-ZAR, CSIR-NEERI has pioneered a range of innovative technologies that continue to benefit communities nationwide, reinforcing its role as a leader in environmental engineering solutions.

Through this timely intervention, CSIR-NEERI has not only demonstrated its technological expertise but also reaffirmed CSIR's commitment to leveraging science and innovation for societal benefit, particularly during times of crisis.

CSIR-NEERI water filter units ready for deployment in flood-affected areas

CSIR-NEERI trains social workers for community environmental awareness

CSIR-NEERI imparted scientific and technical knowledge to the social workers of Anubhav Shiksha Kendra, Nagpur-Bhandara, strengthening their role in bridging education with grassroots community engagement. Through interactive sessions and demonstrations, CSIR-NEERI equipped these social workers with insights into environmental sustainability, waste management, sanitation, and water conservation. This knowledge would enable them to more effectively facilitate 'Anubhav Shiksha'—experiential education that links academic learning with social and environmental issues. Empowered with scientific understanding, the social workers to lead environmental awareness drives across rural and semi-urban areas of Nagpur and Bhandara districts.

30 nursing trainees of Sarvajanik Arogya Shushrusha Vidyalaya, Nagpur visited CSIR-NEERI as part of their academic curriculum prescribed by Maharashtra State Nursing and Paramedical Council, Mumbai and Indian Nursing Council, New Delhi. They were introduced to various environmental health challenges and the role of science and technology in addressing them. The trainees also interacted with scientists to understand applications of environmental research in public health.

Ek Ped – Ek Govansh – Maan ke Naam (एक पेड़-एक गौवंश-माँ के नाम)' is an initiative undertaken by Go Vigyan Anusandhan Kendra (GVAK), Deolapar and CSIR-NEERI, Nagpur, aimed at promoting environmental sustainability and rural livelihood. The programme was inaugurated by Dr. S. Venkata Mohan, Director, CSIR-NEERI, in the presence of GVAK officials. As part of this initiative, more than 50 trees were planted by CSIR-NEERI officials, reinforcing the institute's commitment to ecological balance and sustainable development.

EVENTS

Start-up Conclave Mumbai 2025

CSIR-NEERI participated in the Start-up Conclave Mumbai 2025 held at the NESCO Center, Mumbai on 20–21 May 2025. The event witnessed enthusiastic participation from start-ups, entrepreneurs, MSMEs, investors and policymakers.Fourteen CSIR-NEERI-associated start-ups, entrepreneurs and MSMEs showcased CSIR-NEERI's licensed technologies to budding enterprises at the conclave. Visiting start-ups, entrepreneurs and MSMEs showed keen interest in CSIR-NEERI's S&T interventions for environmental sustainability, which opened new business opportunities aligned with a start-up-driven economy.

Hon'ble Chief Minister of Maharashtra Shri Devendra Fadnavis addressing the conclave

Hon'ble Minister for Science and Technology Dr. Jitendra Singh speaking at inaugural function of the CSIR Start-up Conclave Mumbai 2025

The event emphasized the urgent need for scalable environmental start-ups in India to explore business opportunities in air pollution control, water technology and management, and waste management—sectors that also offer significant employment potential.CSIR-NEERI also exhibited its key scientific and technological interventions at the conclave, which was open to students, industry representatives, and budding entrepreneurs. The exhibition allowed visitors to observe major breakthroughs with potential for commercial exploitation.TheStart-up Conclave Mumbai 2025 was organized in collaboration with three major CSIR institutes—CSIR-NEERI (CSIR-National Environmental Engineering Research Institute), CSIR-NCL (CSIR-National Chemical Laboratory), and CSIR-NIO (CSIR-National Institute of Oceanography)—under the theme "Innovation, Collaboration, Transformation", where each institute showcased its technological achievements.The conclave was inaugurated by the Hon'ble Chief Minister of Maharashtra, Shri DevendraFadnavis, and the Hon'ble Union Minister of State for Science & Technology, Dr. Jitendra Singh. The event also saw the participation of other prominent dignitaries, including the Hon'ble Deputy Chief Minister of Maharashtra, Shri EknathShinde, and the Hon'ble Minister for Skill, Employment, Entrepreneurship and Innovation, Government of Maharashtra, Shri MangalPrabhatLodha.A Shark Tank-style session, organized by CSIR-NEERI, provided start-ups with a platform to pitch their ideas directly to investors, fostering connections and potential funding opportunities.

Ecopreneurship Contest initiative

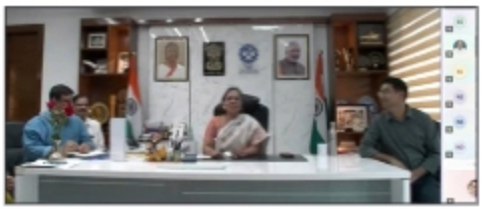
The Ecopreneurship Contest initiative - SUSTAINOVATE 2025 was inaugurated by the Hon'ble Minister for Science and Technology Dr. Jitendra Singh during the CSIR Start-up Conclave Mumbai 2025 in Mumbai. It is an open innovation challenge that invites innovators to propose science-based, scalable solutions to pressing environmental challenges. The initiative aims to empower transformative ideas that advance sustainability through peer review, expert mentorship, and industry linkages.

AcSIR Foundation Day

CSIR-NEERI celebrated AcSIR Foundation Day on 3rd April 2025. On this occasion, Science Quiz, Poster Presentation and Photography Contest were organized. Dr. S. Venkata Mohan, Director, CSIR-NEERI urged students to be ambassadors of science and to uphold the values of CSIR and AcSIR. Dr. S. Saravana Devi, Chief Scientist and AcSIR Coordinator, CSIR-NEERI, spoke about AcSIR's mission to create future leaders in environmental science and engineering. The event was organized by the AcSIR Science Club, CSIR-NEERI.


Dr. S. Venkata Mohan, Director, CSIR-NEERI speaking on the occasion of AcSIR Foundation Day

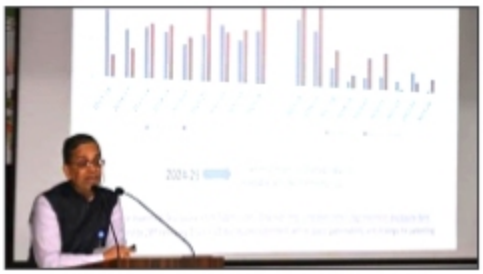
DG, CSIR inaugurated newly developed CSIR-NEERI website



Dr. N. Kalaiselvi, Director General, CSIR & Secretary, DSIR addressing CSIR-NEERI scientists after inaugurating the newly developed CSIR-NEERI website

Dr. N. Kalaiselvi, Director General, CSIR & Secretary, DSIR, inaugurated the newly developed website of CSIR-NEERI. She appreciated this as the first lab- and team-centric indigenous initiative compliant with an SSL certificate. She advised all CSIR institutes to adopt similar initiatives to ensure a well-structured and effective presentation, noting that websites serve as the gateway to CSIR institutes. Dr. Kalaiselvi stressed the need to monitor visitor time on the website and the number of repeat visitors, while also attracting a larger audience. She urged CSIR-NEERI scientists to identify their unique selling propositions (USPs) in the current context, anticipate future challenges, and develop appropriate solutions. She further encouraged scientists to contribute to policy formulation and standard operating procedures (SOPs), especially as the nation advances towards goals like net-zero emissions and efficient waste management. Dr. S. Venkata Mohan, Director, CSIR-NEERI; Dr. S. K. Goyal, Chief Scientist and Head, Delhi Zonal Centre; and Dr. Asheesh Sharma, Principal Scientist, CSIR-NEERI, were also present on the occasion.

CSIR-NEERI Foundation Day



Dr. Kannan Srinivasan, Director, CSIR-CSMCRI delivering the CSIR-NEERI Foundation Day address

Release of the CSIR-NEERI Newsletter

CSIR-NEERI celebrated its 67th Foundation Day on April 8, 2025 emphasizing the role of collaboration and innovation in addressing environmental challenges. The event was graced by Dr. Kannan Srinivasan, Director, CSIR-Central Salt & Marine Chemicals Research Institute (CSIR-CSMCRI) as the Chief Guest, who delivered the Foundation Day address on "Importance of Collaboration & Partnerships in Science & Technology." Dr. Srinivasan underscored the growing importance of translational research and highlighted that today's challenges demand a harmonious blend of scientific brilliance and technological collaboration. Reflecting on the paradigm shift from growth-centric approaches of the 20th century to sustainability-driven growth in the 21st century, he called for a renewed focus on public-private partnerships and data-driven innovation. Dr. S. Venkata Mohan, Director, CSIR-NEERI shared key milestones and recent accomplishments of the institute, and also shed light on upcoming ventures. CSIR-NEERI released its Newsletter and a brochure showcasing its scientific contributions. The programme witnessed enthusiastic participation from around 1500 students from various schools and colleges, who explored the institute's laboratories and engaged with scientists during practical demonstrations.

Side event on POPs management at BRS COP 2025

CSIR-NEERI as the Stockholm Convention Regional Centre (SCRC-India), organized a pivotal side event at the BRS COP 2025 held at the Geneva International Conference Centre, Geneva. The event focused on "Management of Persistent Organic Pollutants (POPs) in India: Findings of India NIP Update Project" and presented key outcomes of India's efforts under the Stockholm Convention to phase out hazardous chemicals, manage POPs waste, and reduce emissions of unintentional POPs such as dioxins and furans. Dr. S. Venkata Mohan, Director, CSIR-NEERI welcomed the participants, and the event was chaired by Mr. Amit Raj, Director, MoEFCC. It showcased India's commitment to implementing the Stockholm Convention through initiatives such as the

discontinuation of DDT use for vector control, reduction in emissions of dioxins and furans through improved waste management rules, and the Swachh Bharat Mission. The event also highlighted recent policy changes aimed at reducing non-essential additives in plastics and consumer products. Distinguished speakers included Er. Bharat Sharma, Member Secretary, CPCB; Dr. A. Ramesh Kumar, CSIR-NEERI; Dr. Rajendra Thapar, HIL (India) Ltd.; Ms. Mihaela Paun, UNEP; and Dr. K. P. Prathish, NIIST.

Brainstorming workshop on "Energy Dialogues: Clean. Viable. Inclusive."

CSIR-NEERI organized a brainstorming workshop on "Energy Dialogues: Clean. Viable. Inclusive." bringing together a diverse group of experts, policymakers, researchers, and industry stakeholders. The event was inaugurated by Prof. Avinash Kumar Agarwal, Director, IIT Jodhpur, with plenary talks from Dr. G. Sridhar, Director General, SSS-NIBE, and Dr. Thallada Bhaskar, Director, CSIR-AMPRI. Prof. Agarwal emphasized the urgency of enhancing energy efficiency and incorporating renewables and biomass-based solutions to meet India's climate targets. Dr. Bhaskar called for root cause analysis and effective policy interventions to mitigate emissions in energy-intensive sectors. Dr. Sridhar highlighted the immense potential of biomass and bioenergy in boosting the rural economy, fostering rural entrepreneurship, and supporting clean fuel production, including green hydrogen. Dr. S. Venkata Mohan, Director, CSIR-NEERI, outlined the institute's efforts in waste-to-energy, carbon utilization, and green hydrogen innovation. Two panel discussions explored biomass-based energy options and strategies to minimize environmental impacts during energy transitions. Panelists underscored the need for awareness, robust supply chains, policy support, and technology development. The workshop concluded with the valedictory address by Dr. Atul Vaidya, Vice-Chancellor, LITU Nagpur, who stressed a gradual, lifecycle-based approach to energy transition. The event set the stage for actionable policy recommendations and collaborative innovations toward a cleaner and more inclusive energy future.

Dr. S. Venkata Mohan, Director, CSIR-NEERI, outlined the institute's efforts in waste-to-energy

Brainstorming meeting on the proposed Centre of Excellence (CoE) in Water, Wastewater, Sludge and Energy Recovery

A brainstorming meeting on the proposed Centre of Excellence (CoE) in Water, Wastewater, Sludge and Energy Recovery was held on 27th May 2025 at CSIR-NEERI, chaired by Dr. S. Venkata Mohan, Director, CSIR-NEERI. Mr. Sven Östberg, H.E. Consul General of Sweden, Mumbai; Ms. Rupali Deshmukh, Country Manager (India), Business Development and Marketing, IVL Swedish Environmental Research Institute & CEO, IVL India Environmental R&D Pvt. Ltd; and Ms. Saloni Zaveri, Senior Advisor, Trade and Investment Promotion, Consulate General of Sweden, Mumbai, were present for discussions on the proposed CoE. The CSIR-NEERI team included Dr. Sunil Kumar, Dr. M. Karthik, Dr. Bholu Ram Yadav, and Mr. Durgesh Burde. The discussions outlined avenues for impactful collaboration between Sweden and India in building a sustainable future. The initial focus areas of the CoE will be water and wastewater management, reuse and energy recovery. A pre-feasibility study has identified Nagpur as one of the preferred locations for the CoE, owing to its central location, robust infrastructure, skilled talent pool and vibrant innovation ecosystem. CSIR-NEERI's domain expertise strongly aligns with the CoE's objectives, positioning it as a valuable partner in the initiative. Future collaborative efforts in other areas of environment and energy were also discussed to further sustainability goals. CSIR-NEERI has already signed a Memorandum of Understanding (MoU) with IVL, Sweden, to formalize this partnership.

ICT-based solid waste management system

A meeting on ICT-based solid waste management system was conducted at CSIR-NEERI. The team and stakeholders from ITI Limited and Big V Telecom, including Mr. Naresh Landge, Mr. Rodricks Morris, Ms. Nupur Maini, and Mr. Rahul Bhalerao, attended the meeting. From CSIR-NEERI, Dr. Sunil Kumar (Senior Principal Scientist) and Dr. Bholu Ram Yadav (Senior Scientist) were present, along with Ms. Rathika K. (Ph.D. Scholar) and Ms. Bhagyashree Nannore (Project Associate). Mr. Bhalerao presented the implementation of ICT-based technology for solid waste management in Latur city. The technology leverages AI and machine learning algorithms to enable real-time monitoring of collection, transportation, and handling of municipal solid waste. Key features of the presentation included IoT-based waste identification and classification, GIS-based collection monitoring, and forecasting of waste generation and carbon footprint. The meeting concluded with closing remarks by Dr. Sunil Kumar.

Dr. Sunil Kumar, Sr. Principal Scientist addressing the meeting

Intellectual Property Rights (IPR) awareness cum interactive programme

As part of the Rashtriya Boudhik Sampada Mahotsav celebrated across CSIR laboratories from April 15 to May 30, 2025, and in observance of World IP Day 2025 themed "Music and IP", CSIR-NEERI, Nagpur organized an Intellectual Property Rights (IPR) Awareness cum Interactive Programme on May 28, 2025. The event aimed to raise awareness about intellectual property rights among Scientists, Technical Staff, Researchers, and AcSIR Students, and had around 110 participants. Dr. S. Venkata Mohan, Director, CSIR-NEERI inaugurated the training programme and welcomed the invited speakers and participants. In his welcome address, Dr. Mohan emphasized the importance of filing patents before publishing research, underscoring the strategic value of securing IPR. He encouraged researchers to seek guidance from the IPR Cell of CSIR-NEERI and recommended organizing regular training programmes on IPR. Dr. Sushant B. Wath, Senior Principal Scientist and IPR Coordinator, presented an overview of CSIR-NEERI's IPR portfolio, key IP milestones, the institute's IPR status, IP policy, and filing procedures. Dr. Shikha Rastogi, Senior Principal Scientist, CSIR-Innovation Protection Unit (IPU), New Delhi shared details on the basics of IPR, patentability criteria, strategic planning, types of intellectual property, patent drafting, and an overview of CSIR's IPR portfolio. Dr. Nishad Deshpande, Principal Scientist, CSIR-URDIP, Pune shared insights into prior art and patent searches, patentability assessments, and classification codes, highlighting their importance in IP protection and research planning. Aligning with the year's theme "Music and IP", Dr. Anil Bhanarkar, Chief Scientist, CSIR-NEERI, performed a musical piece on the Santoor, which was greatly appreciated by the audience. Dr. Debishree Khan, Senior Scientist, CSIR-NEERI, conducted the proceedings of the event. The programme concluded with a vote of thanks by Er. Sandeep Jain, Senior Technical Officer, CSIR-NEERI, followed by the National Anthem.

Dr. Shikha Rastogi, Senior Principal Scientist, CSIR-Innovation Protection Unit (IPU), New Delhi sharing details on the basics of IPR

Dr. Sushant B. Wath, Senior Principal Scientist and IPR Coordinator, presented an overview of CSIR-NEERI's IPR portfolio including IPR status, IP policy, and filing procedures

World Environment Day 2025

CSIR-NEERI celebrated World Environment Day 2025 with Shri K. Rajeevan, Vice President & Chief Technology Officer, Larsen & Toubro Limited as Chief Guest. Shri Rajeevan emphasized the shift from linear to circular economy and highlighted L&T's sustainable innovations in water and wastewater management. Dr. S. Venkata Mohan, Director, CSIR-NEERI, stressed the institute's role in microplastics monitoring and plastic waste-to-resource technologies. The

event also featured a strategic meeting to explore collaborative research and green technology deployment.

CSIR-NEERI Hyderabad Zonal Centre (HZC) celebrated World Environment Day on 5th June 2025. Dr. Ram Gopal Reddy, Chairman, SEAC, Telangana, was the Chief Guest, while Dr. R. N. Singh, Former Director, CSIR-NEERI & Visiting Professor, IIT Gandhinagar, and Dr. Subba Rao M. Gavaravarapu, Scientist-F & Head, NICHE, ICMR-NIN, were the Guests of Honour. The experts delivered lectures and discussed the threats posed by plastic pollution and strategies to eliminate it. Students of Classes 9 and 10, along with faculty members from Global Edge School, actively participated in various events organized as part of WED 2025. The students learned about sample collection methods and the analysis of environmental parameters. They also presented posters on environmental issues and sustainable environmental management. The best posters were awarded.

Shri K. Rajeevan, Vice President & Chief Technology Officer, Larsen & Toubro Limited speaking on the occasion


Students at the CSIR-NEERI Hyderabad Zonal Centre Lab

Seminar on 'Environmental and Water Sustainability'

CSIR-NEERI Kolkata Zonal Centre (KZC) in association with CSIR-CGCRI, organized a one-day seminar on 'Environmental and Water Sustainability' at CSIR-CGCRI on the occasion of World Environment Day, 5th June 2025. The event was part of CSIR-CGCRI's year-long Platinum Jubilee celebrations. The seminar was inaugurated by Prof. Bikramjit Basu, Director, CSIR-CGCRI. The keynote address was delivered by Shanti Swarup Bhatnagar Awardee Dr. Sirshendu De from IIT Kharagpur, who also served as the Chief Guest. The initiatives and projects undertaken by KZC in the areas of water and wastewater over the past few years were presented by the KZC Chair. Dr. Kanchan Kumari delivered a presentation on bioindicators of water pollution. Several other lectures were delivered by academicians and industry experts. In the student poster competition, Mr. Ankit Kumar, an AcSIR student from KZC, secured the third position.


Dr. Sirshendu De, IIT Kharagpur addressing the audience

Stakeholder's consultation meeting on CETP sludge: Turning waste into value-added products

CSIR-NEERI Delhi Zonal Centre (DZC) organized a Stakeholder's Consultation Meeting on "CETP Sludge: Turning Waste into Value-added Products" on June 10, 2025. This meeting was held under the CSIR-FTT Project (FTT 050506) titled "Utilization and Processing of CETP Sludge through Sustainable Processes for Circular Economy". Dr. S. Venkata Mohan, Director, CSIR-NEERI inaugurated the program and delivered the inaugural address. Dr. S. K. Goyal, Chief Scientist & Head, DZC, CSIR-NEERI welcomed the participants and presented an overview of the program. The meeting participants included officials from the Central Pollution Control Board (CPCB), Delhi Pollution Control Committee (DPCC), Innovation Management Directorate (IMD) of CSIR, Municipal Corporation of Delhi (MCD) and CETP Societies of Naraina, Mayapuri and Wazirpur Industrial Areas. Dr. Raman Sharma, Principal Scientist, CSIR-NEERI Delhi Zonal Centre spoke on "Status of CETPs in Delhi: Gaps and Opportunities". Dr. Avneesh Anshul, Principal Scientist, Energy Resources, CSIR-NEERI and Project Leader, delivered a talk on "Scientific Utilization and Processing of CETP Sludge". At the end of the technical session, Dr. Ankit Gupta, Principal Scientist, CSIR-NEERI Delhi Zonal Centre presented on "Market Potential and Decarbonization Opportunities". All participants shared their insights and recommendations to further enhance the project outcomes and findings. Officials from CPCB and MCD outlined the roadmap for translating the technology from lab to field, highlighting regulatory and industrial requirements.


Dr. Avneesh Anshul, Sr. Principal Scientist, CSIR-NEERI, delivering a talk on CETP sludge utilization

Director General, SACEP, Sri Lanka visits CSIR-NEERI

Mr. Norbu Wangchuk, Director General, South Asia Co-operative Environment Programme (SACEP), Colombo, Sri Lanka along with Dr. J. S. Kamyotra, Former Member Secretary, Central Pollution Control Board (CPCB) visited the CSIR-NEERI Delhi Zonal Centre (DZC) to discuss air quality management issues in the South East Asia region. The meeting began with a formal welcome by Dr. S. K. Goyal, Chief Scientist and Chair, DZC. Mr. Wangchuk was apprised of various projects and activities undertaken by DZC related to air pollution management in Northern India. He also visited the DZC exhibition and the Sophisticated Instrumentation Facility. While appreciating the efforts of CSIR-NEERI, Mr. Wangchuk expressed that India, being the fourth-largest economy in the world, must take a more proactive role in environmental initiatives and lead the countries of the South East Asia region. At the end of the meeting, it was agreed to further explore potential areas of collaboration between CSIR-NEERI and the South Asia Co-operative Environment Programme. Dr. Raman Sharma, Principal Scientist; Dr. Sunil Gulia, Senior Scientist; and Dr. Mamta Prakash, Principal Technical Officer, were also present during the meeting.

International Yoga Day 2025 celebrations

As part of the International Yoga Day 2025 celebrations, CSIR-NEERI conducted 'Workplace Yoga Session' at its auditorium on 25th June 2025 to promote health, mindfulness and overall well-being among its staff. The initiative aimed to encourage participation in wellness activities at the workplace and foster a healthier, more engaged work environment. The yoga session was conducted by Shri Yogiraj J. Baseshankar, Senior Technician, and coordinated by Smt. G. R. Prabha Rao, Assistant Section Officer.

Meeting with Arugga Bohi Labham on sustainable excreta management

A meeting was held between officials of Arugga Bohi Labham, a Jain society trust based in Bikaner and CSIR-NEERI Nagpur to explore sustainable and culturally appropriate solutions for human excreta management. The discussion focused on eco-friendly sanitation technologies aligned with the trust's values and the potential for collaborative implementation in community settings.

Brainstorming workshop on scoping study of the informal waste sector in India

A brainstorming workshop on "Scoping Study of the Informal Waste Sector in India" was organized on 16th July 2025 by CSIR-NEERI. Key participants included Ms. Jacqueline Eckhardt-Gerritsen & Ms. Anneleen de Ruiter from Netherlands Enterprize Agency, and Ms. Priya Joshi & Mr. Kaustubh Parihar from the Netherlands Consulate, New Delhi and Mumbai. The event witnessed the participation of key stakeholders from government bodies, academic institutions, NGOs and industries. The workshop brought together stakeholders from various sectors, including Prof. Adarsh Pal Vig (PPCB), Dr. Brajesh Kumar Dubey (IIT Kharagpur), Mr. Abhisesh Bhangalia (Waste Warriors), Ms. Leena Budhe (CFSD), Dr. Abhishek Khapre (KPMG), and Mr. Nitin Patwardhan and Mr. Ankit Motghare (SusBDe) to discuss challenges and opportunities in integrating the informal waste sector. The workshop included the contributions from government officials along with academicians. The workshop also featured active contributions from non-governmental organizations, and the discussions were focused on their practical experience and sectoral knowledge. The workshop emphasized that the integration of the formal and informal waste sectors is essential for sustainable waste management through a decentralized operational model. Training and skill development of informal waste workers are crucial for their empowerment and for achieving the 3R goals—Reduce, Reuse, and Recycle. Formalization can be implemented

through mobile waste processing units, cluster formations, source segregation, and bulk waste management. The vitality of active involvement of SHGs, academic institutions, supportive government policies, and public participation was also addressed. Additionally, promoting gender equality and empowering women in the waste sector is a necessary and ongoing effort was also addressed.

Stakeholder consultation meeting on development and demonstration of a high-spatio-temporal resolution UAV-aided GHG monitoring system for municipal solid waste management

CSIR-NEERI organized a Stakeholder Consultation Meeting on 'Development and Demonstration of a High-Spatio-Temporal Resolution UAV-Aided GHG Monitoring System for Municipal Solid Waste Management' on July 24, 2025 under the CSIR-FTT Project (FTT-050501), aligned with the EES theme. This multi-institutional initiative is being implemented in collaboration with CSIR-NAL and CSIR-NIIST. Dr. S. Venkata Mohan, Director, CSIR-NEERI inaugurated the meeting and delivered the opening remarks. Dr. Avneesh Anshul, Principal Scientist, CSIR-NEERI welcomed the participants and outlined the objective of the stakeholder consultation. Dr. Debishree Khan, Project Leader, provided a comprehensive overview of the project, highlighting its significance in enhancing GHG monitoring capabilities in the municipal solid waste sector through UAV-based systems. Er. Roshan Wathore, also Project Leader, presented the technical progress from CSIR-NEERI, including system design, sensor deployment, and preliminary field results. Dr. Shashant from CSIR-NAL and Er. Sravanth from CSIR-NIIST and the PLs showcased their respective contributions and R&D advancements under the project. Dr. Piyush Kokate, Principal Scientist emphasized the importance of addressing drone accessibility challenges in urban settings and highlighted the role of UAV-based systems in strengthening India's emission monitoring framework. The meeting witnessed active participation from key stakeholders including municipal authorities, regulatory agencies, and sectoral experts. The interactive session fostered valuable discussion, feedback, and alignment of project outcomes with practical implementation and end-user needs.

Induction/Refresher Training Programme for newly recruited Junior Secretariat Assistants (General/F&A/S&P)

CSIR-NEERI organized a three-day Induction/Refresher Training Programme for 32 newly recruited Junior Secretariat Assistants (General/F&A/S&P) and Junior Stenographers at CSIR-NEERI, Nagpur. Addressing the new entrants, Dr. S. Venkata Mohan, Director, CSIR-NEERI, welcomed them and advised them to uphold the core values of CSIR, maintain integrity, continuously enhance their skills and contribute meaningfully to the organization's mission. Shri Rajiv Kumar Verma, Controller of Administration, CSIR-NEERI introduced them to their roles and familiarized them with the official programmes and social facilities available at CSIR-NEERI. Shri Chandan Kumar, Administrative Officer, CSIR-NEERI provided an overview of the relevant rules and regulations, and the principles of official language and its compliance. Shri Pravin Chichmalkar, Section Officer, CSIR-NEERI guided the participants on the basics of official noting and drafting.

Indian Organ Donation Day

On the occasion of Indian Organ Donation Day, observed on 3rd August, CSIR-NEERI actively contributed to spreading awareness about the noble cause of organ donation. To mark the day, the Institute displayed messages highlighting the importance of organ donation on its e-notice board at the entrance, ensuring visibility for all visitors and staff. A Slogan Competition was organized to encourage participation and generate interest among employees and pensioners, with selected slogans widely shared via email and WhatsApp. Multiple awareness messages were circulated to sensitize staff and retirees about the significance of organ donation. The Organ Donation Pledge taken by both employees and pensioners, demonstrating their commitment to the cause. Several employees went a step further by directly registering themselves with NOTTO (National Organ and Tissue Transplant Organization). CSIR-NEERI reaffirmed its dedication to social responsibility and health awareness.

Brainstorming on "Indoor Air Quality, Human Health and Deployment of Low-Cost Sensors for Indoor Air Quality Monitoring

CSIR-NEERI Kolkata Zonal Centre in association with University of York (UoY), UK organized a Brainstorming Event on "Indoor Air Quality, Human Health and Deployment of Low-Cost Sensors for Indoor Air Quality Monitoring: Indian Experience" on 7th August 2025 in Kolkata. Dr. S. Venkata Mohan, Director, CSIR-NEERI graced the occasion by welcoming all speakers and participants and briefly highlighting the research undertaken by CSIR-NEERI. The technical session started with the findings of UK-India project through a lecture on 'Co-creating an Indoor Air Quality Study with Diverse Socio-Economic Groups of India' by Dr. Darpan Das, UoY. Experts from Chittaranjan National Cancer Institute (Dr. Dona Sinha), AIIH&PH (Dr. Monalisha Sahu) and AIIMS-Kalyani (Dr. Gitismita Naik) addressed the gathering on various aspects of indoor air quality (IAQ) and human health. Dr. Indrani Ghosh of Adamas University spoke on the use of low-cost sensors for air quality monitoring inside vehicles. Experts from CSIR-NEERI delivered lectures on indoor air quality modeling (Dr. Anirban Middey), hazardous air pollutants (Dr. Dipanjali Majumdar) and IAQ monitoring instrumentation (Dr. Deepanjan Majumdar). The event ended with discussions on IAQ, its impact on human health and a vision for the future roadmap of IAQ research in India.

CSIR-NEERI and CMRL held technical discussions on effluent treatment

Officials from M/s Cochin Minerals and Rutile Limited (CMRL), Alwaye, Kerala — Shri P. M. Ashtamoorthy, Dy. General Manager, and Shri Manohardas, Project Manager — visited CSIR-NEERI, Nagpur to discuss about the project "Performance Evaluation of the Existing Effluent Treatment Plant of CMRL, Alwaye, Kerala." They also visited CSIR-NEERI's Low Temperature-Adapted Methanogenesis Facility and commended the S&T achievements of CSIR-NEERI. The visit facilitated technical discussions aimed at strengthening collaboration for sustainable and efficient effluent treatment solutions.

Independence Day Celebration

CSIR-NEERI celebrated Independence Day with great enthusiasm. Dr. S. Venkata Mohan, Director, CSIR-NEERI, hoisted the national flag on the campus. In his address, he spoke about the Institute's progress over the past seven months and outlined the key R&D activities and infrastructure developments planned for the coming year. He appreciated all staff members for their contributions to major achievements and encouraged them to work with a mission for a green, sustainable India while aligning their activities with global environmental goals. After his speech, a cultural program was held, and CSIR-NEERI staff actively participated in the Independence Day celebrations.

CSIR-NEERI participates in Empowering India – 2025 Expo in Goa

The Empowering India – 2025 Expo, held from 12–14 September 2025 at the Panjim Convention Centre, Goa, received an overwhelming response from visitors, especially students and teachers. The CSIR Pavilion, showcasing key scientific innovations from CSIR-NEERI and CSIR-NIO, emerged as a major attraction throughout the event. Students eagerly interacted with scientists to learn about solutions for clean air, safe water, and waste

management, as well as cutting-edge research on ocean resources, marine biodiversity, and climate resilience. The Pavilion effectively highlighted CSIR's contributions to industry, society, and the environment. In recognition of its impactful outreach, the organisers presented CSIR with a token of appreciation for inspiring young minds and promoting science for sustainable national progress.

Stakeholders consultation meeting for up-gradation of 11 CETPs of Delhi

CSIR-NEERI Delhi Zonal Centre organised a Stakeholders Consultation Meeting on 16 September 2025 for the up-gradation of 11 CETPs of Delhi. This consultation was organised as per the instructions of the Joint Commissioner of Industries, Government of NCT of Delhi. The meeting was attended by around 30 officials from Department of Industries, Government of NCT of Delhi, DSIIDC, Delhi Pollution Control Committee (DPCC) and representatives of the respective CETP Societies. The meeting started with a formal welcome by Dr. S. K. Goyal, Chief Scientist & Chair, CSIR-NEERI Delhi Zonal Centre. This was followed by a presentation by Dr. Raman Sharma, Principal Scientist, who highlighted the challenges and the way forward for the up-gradation of 11 CETPs of Delhi. During the discussions, representatives of CETP Societies shared the issues they face in ensuring efficient operation of the CETPs. The consultation concluded with deliberations among all stakeholders on mutually agreeable action points to take the process forward.

Swachhata Hi Seva (SHS) Campaign 2025

CSIR-NEERI launched the Swachhata Hi Seva (SHS) Campaign 2025, reaffirming its commitment to cleanliness, sustainability, and public health. The Swachhta Oath was administered by Dr. S. Venkata Mohan, Director, CSIR-NEERI. All CSIR-NEERI staff including scientific, technical, administrative, research and project personnel — took the oath in the NEERI Auditorium. The campaign (17 September – 2 October 2025) will feature cleanliness drives, training and workshops on waste management, and community outreach initiatives to promote hygiene, sustainability, and social responsibility.

Medical trainees from AIIH&PH visit CSIR-NEERI Kolkata for environmental exposure

CSIR-NEERI Kolkata Zonal Centre (KZC) organized an institutional visit for 25 Postgraduate Trainees (MBBS, MD) and 6 faculty and technical staff from the Department of Occupational Health, All India Institute of Hygiene & Public Health, Kolkata. The trainees explored the instrumentation facilities used in environmental studies and gained insights into the R&D and consultancy activities of the Centre in the areas of air pollution, environmental microbiology, and public health.

Stakeholders' Conclave & Brainstorming on "Current Challenges & Environmental Issues in Southern Region of India"

CSIR-NEERI organized a Stakeholders' Conclave & Brainstorming on "Current Challenges & Environmental Issues in Southern Region of India" at CSIR Madras Complex, Chennai on 19 September 2025. The event brought together 350+ participants from State Pollution Control Boards, industries, regulators, and academia to deliberate on groundwater stress, climate change, waste management, and

emerging pollutants. Eminent speakers including Dr. Jayanthi Murali (TNPCB), Er. S. Sreekala (KSPCB), Dr. N. Ramesh (PPCC), and Dr. K. Rajeevan (L&T) shared perspectives on microplastics, e-waste, sludge management, ZLD systems, and circular economy. Dr. Sukumar Devotta, Former Director, CSIR-NEERI emphasized the need for inter-state collaboration and a comprehensive national-level policy to tackle emerging environmental challenges effectively. Dr. S. Venkata Mohan, Director, CSIR-NEERI, highlighted success stories and called for collaborative action to address regional environmental challenges through innovation, policy, and sustainable solutions.

Brainstorming Session on "Development of India-Specific Emission Factors for Methane and Nitrous Oxide Emissions from the Indian Waste Sector for Biennial Transparency Reports and National Communications"

CSIR-NEERI organized a Brainstorming Session on "Development of India-Specific Emission Factors for Methane and Nitrous Oxide Emissions from the Indian Waste Sector for Biennial Transparency Reports and National Communications" on 22 September 2025. Officials from the Ministry of Environment, Forest and Climate Change (MoEF&CC), New Delhi, along with experts from CSIR-NEERI participated in the deliberations. The session focused on improving GHG emission estimates from the waste sector through better methodologies, granular databases, and strengthened institutional arrangements. The program began with a welcome by Dr. S. Venkata Mohan, Director, CSIR-NEERI, followed by remarks from Dr. Sharath Kumar Pallerla, Scientist G, NATCOM Cell & IPCC, MoEF&CC, who stressed the need for India-specific emission factors. Dr. Debishree Khan, Sr. Scientist and Er. M. Karthik, Sr. Principal Scientist presented the roadmap and approach for the upcoming Biennial Transparency Reports (BTRs) and the Fourth National Communication, while Dr. Sanjeev Kumar Singh, Sr. Principal Scientist highlighted GHG monitoring and measurement protocols. Dr. Ajay Raghava, Scientist E, MoEF&CC, emphasized aligning national inventories with UNFCCC requirements. The session concluded with remarks by Dr. M. P. Patil, CSIR-NEERI, underscoring the need for collaboration, long-term databases, and sustained efforts. The officials also visited the Fly Ash Dump Site Rejuvenation Project at Koradi, led by Dr. Lal Singh, Principal Scientist.

10th Ayurveda Day

The 10th Ayurveda Day was celebrated at CSIR-NEERI Health Centre on 29th September 2025. Dr. Priya Thakare from the Regional Ayurveda Research Centre, Nagpur, delivered a talk on "Obesity and Ayurveda," elaborating on its causes, pathophysiology, symptoms, complications, and treatment modalities, including lifestyle modification, diet, exercise, and Ayurvedic medicines. She also presented studies on the effectiveness of Ayurvedic treatment, dispelled common myths, and provided personalized guidance to patients.

Dr. Ambedkar Jayanti

Dr. P. S. Changole, Former Principal of Dhanwate National College and Advocate at the Nagpur Bench of the High Court addressing the audience

CSIR-NEERI celebrated Dr. Ambedkar Jayanti on April 14, 2025 to honor the birth anniversary of Dr. B. R. Ambedkar. The Chief Guest Dr. P. S. Changole, Former Principal of Dhanwate National College and Advocate at the Nagpur Bench of the High Court emphasized the importance of scientific thinking for national progress. He also highlighted Dr. Ambedkar's significant contributions to society, particularly his advocacy for the rights of the underprivileged, laborers and women. Dr. M. P. Patil, Chief Scientist & Chair, Waste Management reflected on Dr. Ambedkar's impact on society and the economy, urging everyone to carry forward his vision for the nation's progress.