

Foundation Day

CSIR Celebrates its 83rd Foundation Day



From Left to Right: Dr N Kalaiselvi, DG, CSIR; Principal Scientific Adviser, GoI, Prof. Ajay Kumar Sood; Hon'ble Vice President of India, Shri Jagdeep Dhankhar; Dr K Radhakrishnan, Former Chairman, ISRO; and Dr G Mahesh, Head, DGED, CSIR

CSIR celebrated its 83rd Foundation Day on 26 September 2024 at NASC Complex, Pusa, New Delhi, with great fervour. The Hon'ble Vice President of India, Shri Jagdeep Dhankhar, graced the programme as the Chief Guest. Dr K Radhakrishnan, Former Chairman, ISRO, delivered the Foundation Day Lecture. Principal Scientific Adviser, GoI, Prof. Ajay Kumar Sood was also present. The celebrations included various sessions, such as Thematic Exhibition on CSIR for Viksit

Bharat @2047, CSIR Leadership Conclave and Cultural Programme.

The celebration began with the inauguration of the Thematic Exhibition on CSIR for Viksit Bharat @2047 by the Vice President of India at NASC Complex, New Delhi. The exhibition showcased how CSIR's contributions across various sectors align with the National Agenda for India by 2047. During his visit, Shri Jagdeep Dhankhar enthusiastically toured each thematic



During the exhibition at NASC Complex

pavilion, keenly interested in the various technologies and innovations on display. The Vice President interacted with the scientists and innovators, appreciating their contributions and encouraging them to continue their outstanding work driving the nation's progress and development.

Shri Jagdeep Dhankhar, during his address, said, "It is CSIR's Foundation Day, but it is integrally connected with the firm foundations of Bharat. You are firming up those foundations of the most vibrant and functional democracy on the planet. You are firming up the foundations of a nation that is on the rise as never before, and the rise is unstoppable". He further termed CSIR as "Catalyst for Scientifically Imaginative Rashtra". He also appealed for establishing Standard Operating Procedures (SOPs) to ensure that investments in human resources and institutions are directed towards authentic and impactful research. Giving his best wishes to CSIR, Shri Dhankhar said, "CSIR exemplifies excellence, academic brilliance and cutting-edge research".

The Hon'ble Minister of State, S&T and the Vice President of India, Dr Jitendra Singh, in a video message, said, "CSIR plays a vital role in making India a global leader in science by promoting women in science, driving economic growth, and ensuring innovations benefit

society. Through its initiatives, CSIR contributes to the Viksit Bharat @2047 vision by fostering indigenisation."

Dr Singh added that CSIR is a national treasure for all of us and a true changemaker of our time. He congratulated CSIR on its 83rd Foundation Day and on making our country proud in various R&D breakthroughs like green hydrogen technology and agriculture-based start-ups that are changing the lives of farmers and common people. Lavender farming has transformed the landscape of Jammu and Kashmir, making it a hub for agri-based entrepreneurship, praised Dr Singh.

In his address, Prof. Ajay Kumar Sood quoted a valuable thought of India's former President, late Dr APJ Abdul Kalam, "Economic Development is powered by competitiveness. The Competitiveness is powered by knowledge. Knowledge is powered by technology and innovation". He further added that technology and innovation are powered by fundamental science. Later, he said, "For India to move towards its ambitious goal of becoming a five trillion economy soon by making India a major product nation over and above the presently dominant service economy, I am sure CSIR is and will be a major player in this journey".

Earlier, in her welcome address, Director General of CSIR,

Giving his best wishes to CSIR, The Hon'ble Vice President of India, Shri Jagdeep Dhankhar said, "CSIR exemplifies excellence, academic brilliance and cutting-edge research".

Dr N Kalaiselvi, emphasised on the contributions and commitments of CSIR for the vision of making India a developed nation in 2047. She informed that CSIR has organised a leadership conclave to take up recommendations of the visionary leaders and make it our roadmap.

During his lecture, Dr K Radhakrishnan spoke on “Team Excellence and Indian Space Odyssey”. He explained how Indian space research has grown with team excellence and perseverance to achieve success in all space missions of the country.

A book titled “*Innovation Trailblazers: The Leadership Legacies of CSIR*” was released during the programme. The book presents the remarkable leadership of twenty-four Director Generals of CSIR who have led and shaped the CSIR since it started in 1942. It showcases their vision, scientific contributions and legacy. Subsequently, the CSIR movie was also featured, depicting the journey, achievements and commitments of CSIR to scientific excellence and innovation in building a self-reliant India.

Besides, the winners of the CSIR Energy saving campaign were also felicitated, with CSIR-CGRI securing first prize, CSIR-CECRI with second prize, and CSIR-CSMCRI with third prize. In collaboration, the CSIR and Energy Swaraj Foundation launched an energy-saving campaign to reduce energy consumption across all CSIR labs during June, July and August 2024.

Concluding the first session, Dr G Mahesh, Head, DGED at CSIR and the CSIR Foundation Day 2024 Coordinator, presented the vote of thanks.

In its second session, CSIR hosted a unique and first-of-its-kind leadership conclave where former Director Generals of CSIR came together to share their vision and suggestions on what could be the CSIR’s contribution towards Viksit Bharat 2047.

The 83rd Foundation Day 2024 evening was concluded with a cultural programme during which an Odissi dance performance, Vistaar, was performed by Padma Shri Madhavi Mudgal and Team.

The Hon’ble Minister, Dr Jitendra Singh, in a video message said that CSIR is a national treasure for all of us and a true changemaker of our time.



During the release of the book



During the CSIR Leadership Conclave

However, the Thematic Exhibition continued from 27-29 September 2024 at the National Science Centre, Pragati Maidan, New Delhi. The exhibition aimed to highlight the innovations, achievements and contributions of CSIR and its network of laboratories under the following eight themes:

1. Aerospace, Electronics, Instrumentation & Strategic Sectors (AEISS)
2. Civil Infrastructure & Engineering (CIE)
3. Ecology, Environment, Earth & Ocean Sciences and Water (E3OW)
4. Mining, Minerals, Metals & Materials (4M)
5. Chemicals (including Leather) & Petrochemicals (CLP)
6. Energy (Conventional, Non-Conventional & Energy Devices) (EED)
7. Agriculture, Nutrition & Biotechnology (ANB)
8. Healthcare (HTC)

In addition to these eight themes, the exhibition featured

a special pavilion dedicated to “Viksit Bharat” (Developed India), focusing on innovations driving the nation’s journey toward becoming a prosperous and developed country. This pavilion showcased advancements to foster economic growth, technological leadership, and social well-being.

The exhibition was open to the general public, students, researchers, and other stakeholders. It offered a unique opportunity to explore recent scientific developments and experience cutting-edge innovations within CSIR and its laboratories nationwide.

The three-day exhibition attracted a diverse audience, with high footfall from school students, visitors of all age groups, non-governmental organisations (NGOs), and representatives from allied industries. The event offered a unique opportunity to explore technological innovations that can shape the future across various sectors.

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During the Exhibition at NSC, Pragati Maidan

Celebration of 83rd Foundation Day of CSIR at CSIR-CECRI



CSIR-Central Electrochemical Research Institute (CSIR-CECRI), Karaikudi, celebrated the CSIR's 83rd Foundation Day on 30 September 2024. In his welcome address, Dr S Vasudevan, Chief Scientist, CSIR-CECRI, welcomed the gathering and gave a brief overview of the events marking CSIR Foundation Day at CSIR-CECRI and on the genesis of CSIR.

Dr K Ramesha, Director, CSIR-CECRI, began his presidential address by congratulating team CSIR-CECRI for a successful organisation of the open day at CSIR-CECRI, Karaikudi, on 26 September, in which more than 15000 people, including students from various academic institutions visited and enlightened on the achievements of CSIR-CECRI in electrochemical science and technology especially the highlights of activities since last Foundation Day of CSIR. He

further applauded the institute for securing the second prize from CSIR (Rs 3 Crore + Citation) in recognition of its outstanding innovation, dedication, and contribution towards energy conservation and promoting energy efficiency amongst all CSIR Labs.

Dr Ramesha also recalled with reverence the foresight and visionary thoughts of our leaders for establishing an exclusive body, CSIR, with a specialised mandate to do scientific and industrial research in our country in 1942, when our struggle for Independence was at its peak. He also put forth the impactful contribution of CSIR to science and society, starting from the Indelible Ink used in the Elections, Amulspray – India's first Infant Food to the recent achievements in the strategic sectors – HANSA, India's first indigenous

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Dr Anupam Agnihotri, Director, JNARDDC, Nagpur, said that the Viksit Bharat@2047 Vision of our Hon'ble Prime Minister has created a level-playing field for all the budding entrepreneurs.

Flying Trainer, the successful Chandrayaan-2 Mission, etc. Dr Ramesha also highlighted CSIR's crucial role in fighting the COVID-19 pandemic.

Dr Anupam Agnihotri, Director, Jawaharlal Nehru Aluminium Research Development and Design Centre (JNARDDC), Nagpur, was the Chief Guest and delivered the 83rd CSIR Foundation Day Lecture. He started his speech with a congratulatory poem hailing CSIR and CECRI for their achievements. We all should consider ourselves fortunate to live in this Amrit Kaal of Bharat which is brimming with opportunities particularly for innovators, MSMEs and start-ups, he opined. He further said that the Viksit Bharat@2047 Vision of our Hon'ble Prime Minister has created a level-playing field for all the budding entrepreneurs. Recently, India has leapfrogged to the 39th Position in the Global Innovation Index (GII) from its 81st Position in 2015 and success stories of Vandebharat Trains, Tejas LCA – the most fuel-efficient aircraft, landing on the moon at the lowest cost, carbon-neutral India, etc. have contributed toward this, he remarked. He further added that CSIR and CSIR-CECRI have an

indispensable role to play towards Viksit Bharat and Aatmanirbhar Bharat. Dr Agnihotri also presented a glimpse of the ongoing R&D activities at JNARDDC and the areas of potential collaboration with CSIR. He provided an example of an innovative indigenous technology in sand filtration during oil extraction from oil wells by a startup, which resulted in huge savings and import reductions.

Dr Manish Jaiswal, Director, National Automotive Test Track (NATRAX), Pithampur, participated as the Guest of Honour and in his address, he delineated the mission and vision of NATRAX and their ongoing activities. He added that NATRAX is Asia's longest and one of the high-speed state-of-the-art tracks for automotive testing and certification in India. He also projected the potential areas of collaboration with CSIR-CECRI, especially in E-mobility and battery testing. A Memorandum of Understanding on battery testing between NATRAX and CSIR-CECRI was inked and exchanged during the occasion.

During the event, the Chief Guest released the Annual Report of CSIR-CECRI for the

year 2023-24. The Guests also distributed cash awards, prizes and certificates to the winners of various competitions conducted by the CECRI Club for students and wards of CECRI in connection with the 83rd CSIR Foundation Day celebrations. As a part of the event,

staff members who superannuated during 2023-2024 and who completed 25 years of service were also honoured.

The event concluded with a vote of thanks by Shri P Shyam Sundar, Administrative Officer, CSIR-CECRI.

CSIR-NIScPR Commemorates 83 Years of Scientific Excellence of CSIR



With great zeal and vigour, CSIR-National Institute of Science Communication and Policy Research (CSIR-NIScPR), New Delhi, celebrated the 83rd Foundation Day of CSIR at the National Agricultural Science Complex (NASC), Pusa, New Delhi, on 30 September 2024. The Distinguished Guests for the programme were Prof. (Dr) Sushma Yadav, Pro Vice-Chancellor, Central University of Haryana and Prof. Jagat Bhushan Nadda, Director of the Consortium for Education Communication.

The programme commenced with a welcome address by Prof. Ranjana Aggarwal, Director,

CSIR-NIScPR. Appreciating the efforts of CSIR, she said, “CSIR labs are actively engaged in all the areas of science and technology. At NIScPR, our focus is on bridging the gap between science and society. We publish 15 research journals and three popular science magazines, and we are striving to make our content accessible in all Indian languages. Notably, we’ve recently participated in the UN Assembly Science Summit.”

Addressing the gathering, Prof. (Dr) Sushma Yadav, said, “CSIR strives to bridge the gap between science and industry. Historically, there has been a

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During the release of *Science Reporter*

Prof. Jagat Bhushan Nadda, Director of the Consortium for Education Communication, remarked, "CSIR has admirably carried forward India's scientific legacy, serving as a cornerstone in our nation's journey".

misconception that India lacks scientific temper, and CSIR has been working to dispel this notion. By promoting a scientific tradition that coexists with spiritual temper, we aim to create a harmonious blend of rational inquiry and cultural values."

Prof. Jagat Bhushan Nadda, remarked, "CSIR has admirably carried forward India's scientific legacy, serving as a cornerstone in our nation's journey. By being at the forefront of addressing national challenges, CSIR has consistently benefited society at large. The need of the hour is to make science accessible, especially in rural areas. To maximise impact, scientific research and discoveries must be translated into actionable policies. CSIR is successfully creating synergy between higher education, research, and innovation, positioning India to become a global leader in science and innovation."

CSIR-NIScPR's *Science Reporter*, a monthly popular science magazine in English, has recently completed its sixty years in science communication.

Marking this milestone, the October 2024 issue of the magazine — "*Science Reporter: A Six Decade Journey in Science Communication (1964-2024)*" was also released during the foundation day celebrations. Besides, the Distinguished Guests felicitated retirees, employee who completed 25 years of service, and a meritorious 12th-class student by presenting them awards.

A cultural programme was also organised as part of the Foundation Day celebrations, during which children of NIScPR staff members, students, and project staff participated with great interest and enthusiasm. The programme showcased various captivating performances, filling the evening with joy and excitement. Subsequently, prizes were distributed for the various competitions, including painting, drawing, quiz and essay, which were organised earlier as part of the foundation day celebrations.

Shri Mukesh Pund, Chief Scientist, CSIR-NIScPR and Chairperson of the Foundation Day programme, proposed the vote of

thanks and expressed his gratitude to all the committees engaged in organising the programme.

The event was attended by CSIR-NIScPR staff with their families, AcSIR students, and project staff.

CSIR-NEERI Celebrates 83rd CSIR Foundation Day



Delivering a lecture on “The Challenge of Sustainability and Environmental Research,” Prof. Rangan Banerjee, Director, IIT Delhi, expressed concern over current consumption patterns.

CSIR-National Environmental Engineering Research Institute (CSIR-NEERI), Nagpur, celebrated 83rd CSIR Foundation Day on 4 October 2024. Prof. Rangan Banerjee, Director, Indian Institute of Technology (IIT) Delhi, was the Chief Guest on this occasion. Dr Atul N Vaidya, Director, CSIR-NEERI, and Mr Prakash Kumbhare, Sr Principal Scientist, CSIR-NEERI, shared the dais.

Delivering a lecture on “The Challenge of Sustainability and Environmental Research,” Prof. Banerjee expressed concern over current consumption patterns. He pointed out that the exponential growth across various sectors is

directly linked to unsustainable practices. He stated that data from the Intergovernmental Scientific Carbon Observation Network (ISCON) highlights the direct relationship between CO₂ concentrations and global temperature equilibrium. He added that the stable temperature regime that has persisted since the Holocene epoch is now being threatened. Prof. Banerjee advocated for significant reforms in energy systems to limit CO₂ emissions and mitigate the impacts of climate change in alignment with the Sustainable Development Goals (SDGs). He emphasised that we need new technologies and a

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clear understanding of their social and economic effects to solve sustainability issues.

He further noted that there are still considerable gaps in our scientific knowledge, necessitating the fostering of curiosity and innovation. Prof. Banerjee also mentioned that a thorough analysis of air pollution, climate change, and energy systems will be key to creating a sustainable future. He described the significant scientific and technological achievements of IIT Delhi and expressed a desire to collaborate with CSIR-NEERI.

In his welcome address, Dr Atul Vaidya highlighted the core objectives behind the founding of the CSIR. He emphasised the organisation's long-standing mission to drive scientific excellence and technological innovation for the benefit of society. He underlined the need for a balanced approach, where fundamental science and applied technology work together to address complex societal issues such as climate change and sustainable resource management.

Dr Debishree Khan conducted the proceedings, and Prakash

Kumbhare proposed the vote of thanks. The staff members of CSIR-NEERI who had completed 25 years of service and those who had retired during September 2023 and August 2024 were honoured. The e-version of *Paryavaran Patrika* was launched during the event. A book titled *Bamboo Diversity in India and Its Role in Surface Erosion Control* was also released.

The “Micro Research Project Competition” was organised under the JIGYASA initiative, and prizes were given to the winners.

The institute was open to the general public, including students. Approximately 3,132 students from 59 schools and colleges across Nagpur and Vidarbha visited the institute. CSIR-NEERI scientists briefed the visitors on the institute's significant R&D activities and achievements, providing practical demonstrations in the laboratories and at the Harit Sangrahalaya.

The visitors also had the opportunity to interact with the scientists on various environmental and engineering issues.

CSIR-IMTECH Celebrates 83rd CSIR Foundation Day

CSIR-Institute of Microbial Technology (IMTECH), Chandigarh, celebrated the 83rd Foundation Day of CSIR on 18 October 2024 with prestigious Foundation Day Lecture delivered by Dr Krishnananda Chattopadhyay, Chief Scientist at

CSIR-Indian Institute of Chemical Biology (IICB), Kolkata.

The lecture delivered by Dr Chattopadhyay focused on the “Conformational fluctuations of proteins: from test tubes to neurodegenerative diseases” and outlined his lab's interdisciplinary



**Dr Krishnananda Chattopadhyay,
Chief Scientist, CSIR-IICB**

approach to use single-molecule spectroscopy to investigate the folding and aggregation of proteins. The work from his lab is an important milestone in developing a process for diagnostics and therapeutics currently absent for major neurodegenerative diseases.

In his talk, Dr Chattopadhyay made some important reflections on how protein conformational disorder and aggregation have serious implications for several neurodegenerative diseases. These processes are difficult to study as they often share common conformational landscapes, which are inherently heterogeneous, consisting of multiple pathways and intermediates of varying toxicities. In his address, he outlined that his lab has been developing and using sensitive fluorescence

methods at ensemble and single molecule resolution to address the heterogeneity and toxicity of several neurodegenerative disorders like Parkinson's Disease (PD) and Amyotrophic Lateral Sclerosis (ALS).

Welcoming the gathering, Dr Sanjeev Khosla, Director, IMTECH, apprised the audience of the contributions and commitments of CSIR for the vision of making India a developed nation in 2047. He highlighted scientific and technological interventions from CSIR and especially how its constituent laboratory, IMTECH, has always helped society. Dr Khosla emphasised the need for innovative collaborative solutions to pave the way for a sustainable future, especially for neurodegenerative diseases. The CSIR, known for its cutting-edge R&D knowledge base in diverse S&T areas, is a contemporary R&D organisation established in 1942. CSIR has a dynamic network of 37 national laboratories, 39 outreach centres, 3 Innovation Complexes and 5 units.

CSIR-IMTECH also felicitated its retirees and employees who have completed 25 years of service as part of the celebrations. The institute also awarded mementoes to wards of its staff for their outstanding performances in various sporting events held at the state and national level. As part of Foundation Day celebrations, an open day for the general public and students was also organised a few days back, showcasing the scientific prowess of CSIR-IMTECH.

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Hon'ble Vice-President of India, Shri Jagdeep Dhankhar Visits to CSIR-IIP



Hon'ble Vice-President and Hon'ble Governor of Uttarakhand, Lt Gen Gurmit Singh, plant saplings at CSIR-IIP

Hon'ble VP, Shri Jagdeep Dhankhar, in his insightful address, acknowledged the remarkable technological achievements of CSIR-IIP. He applauded several key accomplishments of the institute.

The Hon'ble Vice-President of India, Shri Jagdeep Dhankhar, visited the CSIR-IIP (CSIR-Indian Institute of Petroleum), Dehradun, campus on 31 August 2024. He was accompanied by his Spouse, Dr (Smt) Sudesh Dhankhar and Hon'ble Governor Uttarakhand, Lt Gen. Gurmit Singh, PVSM, UYSM, AVSM, VSM (Retd).

The dignitaries inaugurated the programme by planting Rudraksha plants under the campaign launched by the Hon'ble Prime Minister Shri Narendra Modi, "Ek Ped Maa Ke Naam" at the CSIR-IIP campus. In his welcome address, Dr Harender Singh Bisht, Director CSIR-IIP, provided a brief overview of CSIR-IIP, including the history, research activities, and achievements, and also highlighted the S&T contributions of the institute to the nation.

Lt Gen. Gurmit Singh, in his address, commended CSIR-IIP for its achievements. He emphasised

the role of CSIR-IIP in energy security, mitigating climate change and economic development. He further mentioned that CSIR-IIP will play a great role in achieving Viksit Bharat 2047, Net Zero 2070 and UNSDG goals.

Shri Jagdeep Dhankhar, in his insightful address, acknowledged the remarkable technological achievements of CSIR-IIP. He applauded several key accomplishments of the institute, including the development of the LPG Sweetening Catalyst used by eleven Indian and two foreign refineries, Sustainable Aviation Fuel, especially mentioning the 2019 and 2024 Republic Day flypast, Biogas to PNG, mitigation of forest fires in hilly regions of Uttarakhand and human resources training and development programmes for the hydrocarbon, petrochemical, and automotive industries. Shri Dhankhar further said that we have only one planet, and all



stakeholders need to converge to protect it. He also emphasised the need to develop environment-friendly and sustainable technologies and products. He appreciated that CSIR-IIP is doing its bit in that direction.

He urged the optimal utilisation and preservation of natural resources, stressing that usage should be driven by need rather than financial or political

power. The Vice President also underscored the importance of the youth in shaping the nation's future and leveraging the opportunities provided by the government for scientific advancements across all domains like sea, land, sky and space. He also mentioned India's leadership in the global solar and biofuel alliances. He encouraged government and corporate sectors to loosen their purse for supporting the R&D of research institutes like CSIR and emphasised that every rupee spent on research and development contributes to the nation's growth. He highlighted the importance of Quantum Computing and the Green Hydrogen Mission.

The Vice President of India also invited CSIR-IIP students to the new parliament building and promised that his office would contact CSIR-IIP to invite two batches of students in September 2024.

The event concluded with the National Anthem, marking the end of a memorable and impactful visit.

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Vice-President of India congratulates & compliments team CSIR-IIP for its exemplary academic excellence, research activities, and technological outputs

Advancements in Biogas Technology and Sustainable Waste Management



The gathering aimed to explore the latest innovations, identify challenges, and uncover opportunities in biogas technology.

The CSIR-Indian Institute of Chemical Technology (CSIR-IICT), Hyderabad, hosted a pivotal conference titled “Advancements in Biogas Technology and Sustainable Waste Management” on 17 & 18 August 2024. The two-day event, brought together a distinguished array of experts, industry partners (all the license holders of AGR technology), and research scholars. This gathering aimed to explore the latest innovations, identify challenges, and uncover opportunities in biogas technology, aiming to foster collaborations that could propel sustainable waste management and renewable energy solutions.

The conference began with a warm welcome address by Dr A Gangagni Rao, Chief Scientist,

Department of Energy and Environmental Engineering, introducing the panel of experts and industry representatives. This was followed by opening remarks from Dr D Srinivasa Reddy, Director of CSIR-IICT, who emphasised the significance of such focused meetings in facilitating productive discussions and groundbreaking collaborations. Dr Reddy highlighted the growing global interest in biogas technology, especially from India, supported by the country’s leadership, including the Prime Minister.

Dr Reddy also spoke about the successful collaborations between CSIR-IICT and major industry partners such as Bharat Petroleum Corporation Limited (BPCL) and GAIL (India) Limited. These partnerships have led to



innovative technologies like the Dry Anaerobic Digester (DAD) and the Bi-phasic Anaerobic Digestion System (Bi-ADS). He encouraged attendees to visit the operational demo pilot plants, stressing the importance of scaling up biogas projects with industry support to expand these technologies across India.

The conference featured several enlightening presentations and discussions covering various topics in biogas technology. The first day concluded with a panel discussion featuring industry experts and invited speakers who shared insights on waste management, composting, sewage treatment, and biomass utilisation projects. The panellists from KHAR Energy Optimizers, VS Lignite Power Private Limited, Kaashyap Envergy Private Limited, Nybes Private Limited, and Amflind Private Limited discussed issues such as the cost of biomass conversion, the need for technological improvements, and the impact of government policies. A consensus

emerged on the necessity for collaborative efforts to address these challenges and advance the biogas industry.

Day two continued with engaging presentations and discussions, focusing on technological innovations and practical applications in biogas technology. The conference concluded with non-technical talks and closing remarks, commending the efforts of all participants and organisers. This event provided a valuable platform for knowledge sharing, idea exchange, and fostering collaborations in biogas technology and sustainable waste management. It underscored the potential of biogas technology to contribute to India's net-zero goals. It emphasised the need for continued research, innovation, and collaboration to address challenges and fully realise the potential of biogas as a sustainable energy solution.

As the world grapples with climate change and resource scarcity challenges, conferences

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like these are crucial in advancing sustainable waste management and renewable energy solutions. The discussions and insights from

this conference are expected to have a lasting impact, paving the way for future advancements in biogas technology.

An International Workshop at CSIR-NEERI – A Capacity-Building Programme



The workshop included scientists from six CSIR labs, including CSIR-NEERI and officials from FSSAI, BIS and national universities.

The international workshop, a capacity-building programme titled “Best Practices for Collection and Analysis of Silicones in Different Environmental Matrices,” organised from 5 to 6 August 2024, with an aim to address the fate of silicones, their environmental impact and best practices for their management. The event was held at the CSIR-National Environmental Engineering Research Institute (CSIR-NEERI), Nagpur. The workshop included scientists from six CSIR labs, including CSIR-NEERI and officials from FSSAI, BIS and national universities.

Dr Raju Mankar, Vice-Chancellor, Laxminarayan Innovation Technological

University, Nagpur, inaugurated the workshop along with key figures such as Shri Ved Prakash Mishra, Director, Hazardous Substances Management, Ministry of Environment, Forest and Climate and Mr K Thomas, Executive Director, Global Silicones Council (GSC), USA. Dr Atul Vaidya, Director, and Dr Nitin Labhsetwar, Chief Scientist, CSIR-NEERI, were present during the workshop.

Addressing the gathering, Dr Mankar highlighted the pervasive use of silicones in daily life, from personal care products to industrial applications, and their potential environmental impacts. He emphasised the

need for such workshops to discuss mitigation strategies and anticipated that CSIR-NEERI would play a crucial role in assessing these impacts.

Shri Ved Prakash Mishra also raised these concerns, addressing the misconceptions about silicones, particularly their classification as plastics, and urging participants to recommend practical management solutions. Mr Thomas, in his address, provided an overview of the Global Silicones Council capacity-building programmes and emphasised the importance of addressing these misconceptions, particularly the debate on the classification of silicones as Persistent Organic Pollutants (POPs).

Dr Vaidya stressed the need for comprehensive analyses of silicones in various environmental samples as a foundation for informed decision-making. He underscored the importance of understanding the accumulation of silicones in the environment, starting with groups of compounds before focusing on individual ones.

During the first day of the technical session, resource persons from GSC provided an in-depth exploration into the chemistry, monitoring, and analysis of silicones, particularly cyclic Volatile Methyl Siloxanes (cVMS). Dr Kathleen P Plotzke, The Dow Chemical Company, presented a detailed overview of silicone chemistry, focusing on cVMS and their unique properties, environmental fate, and applications. She explained

how the distinct characteristics of silicones, such as their high hydrophobicity and low water solubility, lead to different environmental behaviours compared to traditional organic compounds.

In the next session, Ms Debra McNett, Senior Scientist, The Dow Chemical Company, elaborated on the uniqueness of siloxane chemistry. She explained the fundamental differences between silicone and carbon-based chemistry, highlighting the implications for environmental and biological systems. The discussion focused on the unusual combination of properties exhibited by cVMS, such as high air/water partitioning, which results in their distinct environmental fate patterns.

Mr Jeremy Durham, Associate Research Scientist, The Dow Chemical Company, presented the critical steps for developing a monitoring programme for cVMS. He emphasised the importance of thorough planning, including defining study objectives, selecting appropriate environmental matrices, and establishing robust quality control measures to ensure the reliability of monitoring data.

The second day began with a visit to CSIR-NEERI's Sophisticated Environmental Analytical Facility (SEAF), led by Dr SK Singh and Harit Sangrahalaya, to give an overview of the institute state-of-the-art instruments facility and pioneer work conducted by NEERI in national development since its establishment.

Dr Raju Mankar, VC, Laxminarayan Innovation Technological University, Nagpur, highlighted the pervasive use of silicones in daily life and their potential environmental impacts.



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In the first technical session, Dr Durham discussed analytical methods for siloxanes in different matrices. He provided an in-depth overview of the equipment, methods, and quality assurance measures required to analyse Volatile Methyl Siloxanes (VMS), highlighting the challenges associated with standard sampling approaches and the need for rigorous quality control to ensure accurate results.

Dr McNett addressed the various challenges encountered during environmental sample collection and analysis, stressing the need for continuous QA/QC procedures to maintain the integrity of cVMS monitoring data.

Ms Tracy Guerrero, Director, American Chemistry Council Silicones, presented a mock journal article detailing the occurrence of cVMS in environmental media from wastewater treatment plants, giving valuable insights into the environmental impact study of cVMS. Her presentation provided an opportunity for the participants to review the important points and rigorous approaches to be followed while monitoring and analysing these compounds.

In the concluding session, Dr NN Rao, Former Chief Scientist, CSIR-NEERI, emphasised the growing use of silicone products across various industries and the need for industry awareness regarding these materials' scientific and regulatory aspects. Adding to his words, Dr Nitin Labhsetwar advocated for comprehensive studies to enhance regulatory frameworks and suggested a collaborative approach across India for policy development.

Dr Noor A Khan, Principal Scientist, CSIR-NEERI, summarised the workshop outcome, stressing the need for sustainable use of silicones and the importance of developing evidence-based practices supported by validated data in the Indian context. She called for a strategic approach to scaling up the programme initiatives internationally, ensuring that the insights gained are applied broadly and effectively. The event ended on a high note, with a collective commitment to advancing the understanding and management of silicones for the betterment of the environment in India.

Student-Scientist Connect Programme under Jigyasa at CSIR-NIScPR



CSIR-NIScPR, New Delhi, organised a “Student-Scientist Connect Programme” at the PM Shri Jawahar Navodaya Vidyalaya (JNV) in Jaffarpur Kalan, New Delhi, on 22 August 2024. The primary objective of this programme was to foster a scientific temper among young minds and promote science education. Around 39 students from the 11th and 12th grades (Science stream) and their four teachers actively participated in the event.

In his welcome address, Shri CB Singh, Chief Scientist, Head, Jigyasa, Training & HR Division and Head, Popular

Science Division at CSIR-NIScPR, introduced the students to the CSIR and its various laboratories, including CSIR-NIScPR. He interacted with the students and shared valuable insights into the types of industrial research conducted in CSIR labs. He emphasised the importance of the science-society connection and how it could help bridge the gap between the scientific community and society.

He also highlighted the role of the Jigyasa programme in promoting science education among school students. Mr CB Singh encouraged the students

Shri CB Singh, Chief Scientist, CSIR-NIScPR, emphasised the importance of the science-society connection and how it could help bridge the gap between the scientific community and society.



*Dr Suman Ray,
Pr. Scientist,
CSIR-NIScPR,
highlighted the wide
array of innovations
and ingenious
solutions developed
by various CSIR
institutes, which
have significantly
advanced S&T,
benefiting Indian
society.*

to be curious and to develop a passion for science that could help them become future scientists and innovators.

Dr Suman Ray, Principal Scientist and Jigyasa Nodal Principal Investigator (PI) at CSIR-NIScPR, delivered an insightful talk on the remarkable achievements of CSIR technologies over the past eight decades. In her presentation, Dr Suman Ray highlighted the wide array of innovations and ingenious solutions developed by various CSIR institutes, which have significantly advanced science and technology while benefiting

Indian society. During her presentation, One of the key achievements she mentioned was the development of Indelible Ink by CSIR-National Physical Laboratory (CSIR-NPL), which has played a crucial role in ensuring the integrity of India's electoral process.

Additionally, she touched upon the Sindhu Sadhana, India's first indigenously built research ship, launched by the CSIR-National Institute of Oceanography (CSIR-NIO) in Goa. She emphasised the institute's contribution to advancing marine research in India.

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