

Parliament matter (2025-26)

Sr. No.	Received on	Received from	Lok Sabha/Rajya Sabha Question No.	Subject	Reply given on
1	22.7.2025	CSIR	Rajya Sabha question D No. 540	Air Pollution and Fly Ash Management in India'	22 July 2025 (a) Whether Government is aware of the severe environmental and public health impacts caused by fly ash pollution from thermal power plants, including the degradation of fertile agricultural lands CSIR-NEERI has not conducted a specific study related to environmental and public health impacts caused by fly ash pollution from thermal power plants. (b) If so, the details of measures taken to support ecological restoration initiatives such as bamboo plantation or afforestation projects proposed or led by scientific institutions to mitigate fly ash contamination CSIR-NEERI has rejuvenated a total of 330 hectares of fly ash dump areas through bamboo plantation at Koradi, Khaparkheda and Chandrapur Thermal Power Stations — 130 hectares at Koradi, 110 hectares at Khaparkheda, and 90 hectares at Chandrapur. (c) The steps being taken or proposed to strengthen enforcement of pollution control norms, ensure safe fly ash disposal and utilization and rehabilitate affected agricultural zones through soil restoration and green cover development. CSIR-NEERI will continue to support ecological restoration initiatives.
2	23.7. 2025	CSIR	Rajya Sabha question D No. S3658	Promoting Indigenous Scientific Innovation and Startups	23 July 2025 (a) The major R&D initiatives undertaken by the Government to boost indigenous scientific innovation in 2024-25 CSIR-NEERI has undertaken R&D initiatives for the development of decentralized sewage treatment systems, implementation of High Rate Transpiration System (HRTS) for zero-liquid discharge in industries and eco-rejuvenation of fly ash dumpsites in 2024-25. (b) Whether the Ministry is supporting deep-tech and science-based startups under any flagship scheme; CSIR-NEERI does not currently have technology licensees under any flagship scheme. Most of its licensing agreements—such as those for solar-assisted defluoridation, HRTS, and others—are carried out through

					standard non-exclusive technology transfer contracts with private firms and are not branded under a specific flagship initiative (c) The role of CSIR, DST, and DBT in addressing national challenges like climate change and health-tech The current research initiatives undertaken by CSIR-NEERI to understand and mitigate climate change include the following three key projects: 1. DST-Centre of Excellence on Climate Change Research (DST-CoE-CCR) to study the impact of CO₂ emissions from coal-based thermal power plants (TPPs) on the micro-climate of Vidarbha region (2022-2027) 2. DST-Centre of Excellence on Carbon Capture, Utilization and Sequestration (DST-CoE-CCUS) to develop novel materials and processes for the capture, utilization and sequestration of Carbon from different stationary sources (2023-2028) (d) The measures taken to retain Indian scientists and prevent brain drain? Robust infrastructure and recognition of scientists' contributions.
3	28.7. 2025	CSIR	Rajya Sabha question D No. S5884	Mission-Mode Research and Support for Indigenous Green Energy Innovation'	28 July 2025 (a) Whether the Government plans to expand mission-mode research on indigenous clean energy technologies under DST and CSIR, in collaboration with IITs and start-ups At present, there is no mission-mode proposal submitted related to indigenous clean energy technologies under DST and CSIR. However, active discussions are in progress with the Railway Board to explore the conversion of existing diesel locomotives to hydrogen-powered locomotives, aligning with clean energy goals. (b) How many fellowships and start-up innovation grants have been awarded to young researchers, PhD scholars, and technologists working on solar, wind, hydrogen, or energy storage innovations Nil (c) Whether there is any proposal to establish a National Technology Testbed for Green Energy linked to CSIR laboratories and IITs for prototype development, testing, and field-level validation; and if so, the status and timeline of implementation? Nil
4	29.7.2025	CSIR	Lok Sabha question D No. 7515	Climate Mitigation Technologies	29 July 2025 a) whether the Government has taken steps for the mitigation of climate change through the development and adoption of technology; Yes

				b) if so, the details thereof and if not, the reasons therefor; Under the National Mission on Strategic Knowledge on Climate Change (NMSKCC), Department of Science and Technology (DST) established 2 (two) Centres of Excellence (CoEs) in CSIR-NEERI, Nagpur. 1. DST Centre of Excellence on Climate Change Research (Budget – Rs 3.72 cr ; Duration- 5 Years (2022-27)) The Centre focuses on studying the impact of thermal power plant (TPP) emissions on the micro-climate of the Vidarbha region in Maharashtra. The Vidarbha region generates 45–50% of the thermal power required by the state. The Centre aims to develop procedures and protocols for change detection, evaluation of technologies used in climate change mitigation, and impact and risk assessment of climate-related vulnerabilities. It supports the administration, R&D institutes, and policymakers by providing data and strategies to address both long-term and short-term climate change implications. The Centre also functions as a focal point for capacity building and raising awareness about the impacts of climate change. 2. DST Centre of Excellence on Carbon Capture, Utilization and Sequestration (Budget-Rs 5.35 cr; Cr Duration-5 Years (2023-28)) The DST Centre of Excellence on Carbon Capture, Utilization and Sequestration (DST-CoE-CCUS) at CSIR-NEERI focuses on developing cost-effective and energy-efficient CO₂ mitigation technologies. Key objectives of the Centre include reducing solvent regeneration energy using graphene-based nanomaterials, optimizing zeolite-based adsorption systems for high-temperature CO₂ capture, and enhancing biological sequestration through algal reactors. These processes address energy demand during mitigation of CO₂ from process emissions and supports nature-based solutions for climate change mitigation. During selection of suitable amine solvents for CO₂ capture, process simulations using ASPEN Plus and DWSIM have been used for selection of economically and environmentally acceptable solvent system. Application of nanomaterials for CO₂ capture technologies is another priority research of the Centre. Algal systems in pilot scale demonstrated improved CO₂ fixation rates and biomass productivity. The Centre aligns with India's net-zero targets by advancing scalable and low-carbon solutions. c) the details regarding the initiatives undertaken to develop and deploy climate mitigation technologies in key sectors such as agriculture, fisheries etc; CSIR-NEERI has not undertaken specific initiatives related to the development or deployment of climate mitigation technologies in the sectors of agriculture and fisheries.
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					d) whether the Government has made effort to raise awareness and promote the use of these technologies among farmers, fishermen, and vulnerable communities who are directly affected by climate change, if so, details thereof and if not, the reasons therefor CSIR-NEERI has undertaken various outreach and awareness initiatives on climate change and environmental sustainability through workshops, training programs, and stakeholder engagement activities. These efforts aimed to enhance understanding of climate change impacts and promote environmentally responsible practices. However, CSIR-NEERI has not been directly involved in promoting the use of specific climate mitigation technologies among farmers, fishermen, or other vulnerable communities. e) whether the Government has established partnerships with research institutions, start-ups or DeepTech enterprises to accelerate innovation in climate resilience and mitigation, if so, the details thereof and if not, the reasons therefor? CSIR-NEERI has not established specific partnerships with start-ups or DeepTech enterprises exclusively for accelerating innovation in climate resilience and mitigation.
5	6.8.2025	CSIR	Lok Sabha question D No. U14444	Solid Waste Management (Non-Organic)	6 August 2025 (a) the details of all technologies developed and currently being developed for the recycling and repurposing of non-organic solid waste, including glass, plastics, e-waste, metals, and other materials, including the entities involved; CSIR-NEERI is involved in following two projects: (i) CSIR-NEERI is working on the stabilization of solid sludge from Common Effluent Treatment Plants (CETPs) and development of high-value-added products using stabilized waste under the CSIR-FTT project. The process involves encapsulating the CETP sludge by utilizing its intrinsic properties in combination with suitable stabilizing agents. Using this advanced technology, a product with enhanced strength will be developed for structural applications. The final product will be suitable for use in sustainable infrastructure development, contributing to a reduced environmental impact. (ii) CSIR-NEERI, under the CSIR Mission Mode Program on 'Waste to Wealth: Comprehensive Solutions Towards Circular Economy and Sustainability (HCP-54)', is currently developing a lab-scale process for the recovery of valuable materials such as Copper (Cu), Aluminum (Al) and Silver (Ag) from End-of-Life (EOL) Solar Panel Waste (E-Waste). As part of Work Package 14, which focuses on the management of waste photovoltaic (PV) solar panels with recourse to recycling and material

					recovery, a process/methodology is being developed involving solvent processing of EOL PV modules for resin-polymer removal using organic/inorganic solvents under specific process parameters. This is followed by selective chemical extraction techniques for the efficient recovery of Al, Ag and Cu, contributing to the goals of resource efficiency and circular economy. (b) the details of the funds allocated, released and disbursed by the Government for these projects and for the research and development of new technologies for recycling and repurposing of non-organic solid waste; For (a)(i) above: development of high-value-added products using stabilized waste under the CSIR-FTT project <table><tr><th colspan="3">Funds allocated and released (Rs. in lakh)</th></tr><tr><th>2024-25</th><th>2025-26</th><th>Total (Rs. in lakh)</th></tr><tr><td>82.50</td><td>99.50</td><td>182.00</td></tr></table> For (a)(ii) above: Development of a process for recovery of valuable materials from End-of-Life Solar Panel Waste under the CSIR Mission Mode Program on ‘Waste to Wealth: Comprehensive Solutions Towards Circular Economy and Sustainability (HCP-54) <table><tr><th colspan="4">Funds allocated and released (Rs. in lakh)</th></tr><tr><th>2023-24</th><th>2024-25</th><th>2025-26</th><th>Total (Rs. in lakh)</th></tr><tr><td>13.90</td><td>30.90</td><td>20.20</td><td>65.00</td></tr></table> (c) the details of the amount of revenue generated so far and the estimated revenue to be generated in future through the commercialization and large-scale adoption of recycled non-organic solid materials; No revenue has been generated so far, as the projects are currently in progress. The commercialization potential and revenue generation will be explored after successful R&D and process upscaling. (d) whether the Government has undertaken or plans to undertake pilot projects or demonstration plants to test and validate these recycling technologies; and With respect to (a)(i) above, CSIR-NEERI plans to demonstrate the developed processes at pilot scale in collaboration with an industrial partner under the CSIR-FTT project.	Funds allocated and released (Rs. in lakh)			2024-25	2025-26	Total (Rs. in lakh)	82.50	99.50	182.00	Funds allocated and released (Rs. in lakh)				2023-24	2024-25	2025-26	Total (Rs. in lakh)	13.90	30.90	20.20	65.00
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					(e) if so, details thereof, if not, reasons therefor? Potential industrial partners are being explored for collaboration, and demonstration will be undertaken as part of the process upscaling and validation.
6	13.8.2025	CSIR	Rajya Sabha question D No. U876	Development and Deployment of Technology for Agriculture in Maharashtra	13 August 2025 (a) the technological interventions introduced to enhance agricultural productivity in Maharashtra; CSIR-NEERI has carried out the following S&T interventions: 1. High Rate Transpiration System (HRTS) CSIR-NEERI's S&T intervention – High Rate Transpiration System (HRTS), a land-based wastewater treatment system, has been implemented at the following industrial locations in Maharashtra to reduce the dependence on fresh water for maintaining green belts, with the excess treated water available for agricultural use: Mahindra Vehicle Manufacturers Limited, Chakan (200 KLD); Dana Anand India Pvt. Ltd. Chakan (19 KLD); Dana Anand India Pvt. Ltd. Satara (19 KLD); Neosym India Pvt. Ltd., Sanaswadi (10 KLD); and KSPG Automotives India Pvt. Ltd. Supa, Ahmednagar (40 KLD). HRTS uses wide ridges and furrows, where trees with high transpiration capacity are planted on ridges and treated industrial effluent flows through furrows. The soil acts as a bio-physico-chemical reactor, removing pollutants through adsorption, ion exchange, and microbial degradation. This process enables wastewater reuse for irrigation, supports greenbelt development and climate-resilient agriculture. 2. Engineered Constructed Wetland System (ECWS) As part of the <i>Water4Crops</i> Indo-EU collaborative project (GAP-1959), funded by the Department of Biotechnology (DBT), CSIR-NEERI successfully demonstrated an Engineered Constructed Wetland System (ECWS) for decentralized wastewater treatment at a farmer's field in Pandherkawada (Maharashtra), with a hydraulic loading rate of 2 cu.m/day. This system treats untreated domestic sewage through natural processes, providing a sustainable and low-maintenance solution for rural and peri-urban communities. Natural filtration through gravel beds and vegetation, with zero-energy and low O&M requirements, makes ECWS ideal for off-grid locations and ensures year-round water availability for farmers, even during dry

					seasons. It provides a reliable source of treated water for irrigation, reducing dependence on groundwater, enhancing soil moisture retention, supporting crop diversification, and promoting nutrient recycling to improve soil fertility while reducing chemical inputs. 3. CSIR E3OW theme project “Understanding the dynamics of the food-energy-water nexus of the N-P CZO watershed” Under the CSIR E3OW theme project “Understanding the dynamics of the food-energy-water nexus of the N-P CZO watershed” during 2021-22, the water requirements of 15-year old, and 5-year old orange trees were estimated and compared with the prevailing flood irrigation practices in the Narkhed Taluka of Nagpur district (Maharashtra) and Pandhurna taluka of Chhindwara district (M P). The analysis revealed that the water requirement of these trees is much lesser than the water used in flood irrigation. Based on the study, farmers were suggested to adopt drip irrigation to reduce the water loss during flood irrigation, enhance water use efficiency, thereby contributing to improved agricultural productivity. (b) the projects supporting precision farming and water conservation; CSIR-NEERI has carried out a watershed development and management study for the Tarali reservoir (Maharashtra). Analysis of primary and secondary data indicated that the present groundwater stage of development is 39.14% (Safe category), with scope for further improvement in groundwater resources. Based on morphometric analysis of the watershed, various soil and water conservation structures, such as check dams, contour trenches, farm ponds, and percolation ponds, have been proposed to reduce soil erosion from runoff and augment groundwater recharge. (c) the collaboration with State agriculture departments; and Nil (d) the extension services to educate farmers on new technologies? Under the project 'Water4Crops', a workshop was conducted in 2013 for farmers from Nagpur and nearby areas, wherein the Engineered Constructed Wetland System (ECWS) was demonstrated to promote its wider adoption in rural areas as part of extension services to educate farmers on new technologies.
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7	17.9.2025	CSIR-IPU	Parliament matter	Data for inclusion in compilation for Parliament Questions	17 September 2025 (Information is in tabular form)
8	26.11.2025	CSIR	Lok Sabha Question No. U1988	Slowdown in Public Investment in Scientific Research and Innovation	26 November 2025 (Information is in tabular form)
9	2.12.2025	CSIR	Lok Sabha Question No. S5605	Number of Employees Currently Working in CSIR	2 December 2025 (Information is in tabular form)
10	11.12.2025	Ministry of Environment, Forest and Climate Change	Lok Sabha Question No. 2321	Integration of NEERI's Scientific Models to Control Pollution'	12 December 2025 (a) the details of the mechanism adopted by the Government to integrate National Environmental Engineering Research Institute (NEERI) scientific models into regulatory frameworks to move from a 'one-size-fits-all' policy to location-specific, science-driven interventions, particularly in critically polluted areas of our country; CSIR-NEERI has been undertaking scientific research to support evidence-based environmental management, including the development of location-specific air quality management approaches. Notably, research work carried out as part of an AcSIR doctoral research programme, supported by a funded project, has focused on developing a Local Air Quality Management Plan (LAMP). The research outputs have been published in peer-reviewed scientific journals, and a summary of key findings was also featured in CSIR-News (October 2023). Copies of the publications and the CSIR-News extract are enclosed. The research underscores that air pollution varies significantly across different locations within the same urban area and that localized source apportionment and interventions are essential for effective air quality management in critically polluted zones. This scientific evidence supports the broader policy recommendation of shifting from uniform interventions to location-specific, model-driven strategies. CSIR-NEERI has developed two major improvements in the application of air quality mathematical models: (1) the use of modelling approaches tuned to Indian conditions, and (2) a new framework for modelling that supports practical, location-specific problem-solving. This approach also incorporates the

					involvement of Urban Local Bodies (ULBs) in air quality management processes. India-specific improvements in model application Conventional dispersion models such as ISCST3, AERMOD, and CALPUFF treat pollutants as conservative species—meaning that once released from an industrial stack, their chemical composition is assumed to remain unchanged. While this assumption holds reasonably well for particulate matter, it is not valid for reactive gases such as SO₂ and NO_x. As a result, measured ground-level concentrations (GLCs) of these gases are often significantly lower than the concentrations predicted by these models. CSIR-NEERI has demonstrated that better simulation does not require new models, but rather the appropriate application of existing models, supported by India-specific parameters. This includes scientific studies to determine suitable gas conversion coefficients, and their incorporation into Environmental Impact Assessment (EIA) studies through appropriate notifications or Standard Operating Procedures (SOPs). CSIR-NEERI has also highlighted that dust emissions from mining activities cannot be reliably simulated using existing models because re-suspended dust and blasting emissions lack defined source characteristics such as release geometry, exit velocity, flow rate, or temperature. In the absence of such information, arbitrary input values are often used, which may not reflect actual emission conditions. New modelling approach for urban air quality management During the Source Apportionment studies conducted for non-attainment cities, CSIR-NEERI identified that a city-specific emission inventory is a foundational requirement for effective air quality management. Developing such inventories requires significant input and activity data from ULBs. CSIR-NEERI has developed a model for gridded emission inventory preparation, which can be adopted and operated by ULBs. Necessary training and capacity-building support can be provided by CSIR-NEERI. Additionally, each ULB may maintain a vehicular emission inventory, developed through the identification and counting of vehicles using CCTV footage combined with Artificial Intelligence and Machine Learning techniques. CSIR-NEERI, Nagpur has already developed an AI/ML-based tool to facilitate this process. CSIR-NEERI has developed and applied several scientific tools, methodologies, and India-specific modelling approaches that support evidence-based environmental management and enable more localized interventions.
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					However, as per the information available with CSIR-NEERI, there is no formal communication or documentation indicating that the Government has adopted or integrated the above-mentioned scientific models or management approaches into existing regulatory or policy frameworks. CSIR-NEERI remains committed to providing scientific and technical support to national and state regulatory bodies and is available to assist in further developing or operationalizing such location-specific environmental management frameworks, as may be required. (b) the details of Non-Attainment City (NAC) along with the specific criteria and air quality standards that lead to a city being officially designated as a NAC, State/UT-wise; The Central Pollution Control Board (CPCB) identifies Non-Attainment Cities (NACs) based on ambient air quality data generated through manual monitoring stations and Continuous Ambient Air Quality Monitoring Stations (CAAQMS). State/UT-wise lists of NACs are compiled by CPCB. (c) the manner by which Government is ensuring that the City Action Plans (CAPs) are scientifically aligned with the findings of their specific Source Apportionment (SA) studies, rather than implementing generic measures; CSIR-NEERI has been supporting several State Governments and Urban Local Bodies (ULBs) by conducting scientific studies such as Source Apportionment, Emission Inventory, and Carrying Capacity assessments, which form the technical basis for evidence-driven air quality management planning. CSIR-NEERI carried out Source Apportionment, Emission Inventory, and Carrying Capacity studies for Ongole and Guntur cities in Andhra Pradesh, which identified vehicular emissions, re-suspended dust, biomass burning, and construction activities as major contributors to urban air pollution. Based on these findings, CSIR-NEERI proposed both short-term and long-term mitigation measures, which are aligned with the respective City Action Plans. CSIR-NEERI has also conducted Source Apportionment studies in five cities—Kolkata and Howrah (2016–2019) and Haldia, Barrackpore, and Byrnihat (2022–2025). The deliverables from these studies were integrally linked to urban air quality management. Detailed recommendations for
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					improved air quality management were submitted as part of the study reports for Haldia, Barrackpore, and Byrnihat in accordance with the Terms of Reference of the projects. These scientific recommendations serve as guiding inputs for the formulation or strengthening of City Action Plans. Further, Source Apportionment studies have also been carried out for 18 cities in Maharashtra, with findings and city-specific mitigation measures submitted to the concerned authorities. While CSIR-NEERI provides comprehensive scientific evidence and tailored recommendations through these studies, the integration of such findings into City Action Plans rests with the respective State Governments, Pollution Control Boards, and Urban Local Bodies. Adoption or modification of recommended measures is undertaken by these authorities as per their regulatory mandates, local priorities, and implementation mechanisms. (d) the guidelines/measures adopted by the Government for visible interventions like road dust management in the country, State/UT-wise; and This information is not available with CSIR-NEERI (e) whether the specific measures are there to protect the most vulnerable populations who are often disproportionately exposed to high pollution levels in these NACs and if so, the details thereof? CSIR-NEERI provides scientific inputs and advisory support for air quality management.
11	11.12.2025	CSIR	Lok Sabha question D No. U10359	Disaster Management and Climate Resilience	11 December 2025 (a) whether the Government leveraging science and technology to address health, agriculture, and environmental challenges, if so, the details thereof; Yes, CSIR-NEERI is leveraging science and technology to address environmental challenges linked to health through various national missions, R&D programmes, and technology deployments. It contributes significantly to S&T interventions to provide solutions to environmental challenges. Major contributions include: Air quality monitoring and management: CSIR-NEERI undertakes comprehensive air quality monitoring, modelling, source apportionment, mitigation strategy development, and

					carrying capacity studies to support informed policy decisions and effective mitigation of air pollution from various sources. - Ministry of Environment, Forest and Climate Change (MoEF& CC) had launched National Clean Air Programme (NCAP) as a long-term, time-bound, national-level strategy to tackle the air pollution problem in 102 non-attainment cities across 23 States and Union Territories of India. NCAP aims to bring a 20-30% reduction in particulate matter. Many academic and research institutes, including CSIR-NEERI are engaged in this National Clean Air Programme (NCAP) to provide technical guidance to various Municipal Corporations and Pollution Control Boards for the implementation of NCAP in various cities - CSIR-NEERI is carrying out air quality monitoring for six cities - Chennai, Delhi, Hyderabad, Kolkata, Mumbai, and Nagpur under the project “National Air Quality Monitoring Programme (NAMP)”, sponsored by Central Pollution Control Board (CPCB). Safe drinking water interventions: - CSIR-NEERI, in association with the Department of Drinking Water and Sanitation, Government of India, and the Public Health Engineering Departments of the respective States, has installed 200 electrolytic defluoridation (EDF) plants in Maharashtra, Madhya Pradesh, and Chhattisgarh, thereby reducing fluorosis-related health risks, particularly in rural communities. The technology has been transferred to 13 MSMEs. - Nearly 200 attachable iron removal plants have been installed by the Public Health Engineering Departments in Chhattisgarh to provide safe drinking water to rural communities. These units remove excess iron from groundwater through oxidation, sedimentation, and filtration processes. Excess iron in groundwater can cause gastrointestinal discomfort, unpleasant taste and staining, and may contribute to microbial growth that affects overall drinking water safety. Reuse of wastewater for agricultural use - CSIR-NEERI’s High Rate Transpiration System (HRTS) enables the safe reuse of treated industrial wastewater by applying it to engineered greenbelts, where soil–plant systems naturally polish the effluent. - HRTS, a land-based wastewater treatment system, has been implemented at the following industrial locations in Maharashtra to reduce the dependence on fresh water for maintaining green belts, with the excess treated water available for agricultural use: Mahindra Vehicle Manufacturers Limited, Chakan (200 KLD); Dana Anand India Pvt. Ltd. Chakan (19 KLD); Dana Anand India Pvt. Ltd. Satara (19 KLD); Neosym India Pvt. Ltd., Sanaswadi (10 KLD); and KSPG Automotives India Pvt. Ltd. Supa, Ahmednagar (40 KLD)
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					using graphene-based nanomaterials, optimizing zeolite-based adsorption systems for high-temperature CO₂ capture, and enhancing biological sequestration through algal reactors. These processes address energy demand during mitigation of CO₂ from process emissions and supports nature-based solutions for climate change mitigation. During selection of suitable amine solvents for CO₂ capture, process simulations using ASPEN Plus and DWSIM have been used for selection of economically and environmentally acceptable solvent system. Application of nanomaterials for CO₂ capture technologies is another priority research of the Centre. Algal systems in pilot scale demonstrated improved CO₂ fixation rates and biomass productivity. The Centre aligns with India's net-zero targets by advancing scalable and low-carbon solutions. (c) the manner in which innovations translated into affordable products and solutions for rural areas; • CSIR-NEERI, in association with the Department of Drinking Water and Sanitation, Government of India, and the Public Health Engineering Departments of the respective States, has installed 200 electrolytic defluoridation (EDF) plants in Maharashtra, Madhya Pradesh, and Chhattisgarh, thereby reducing fluorosis-related health risks, particularly in rural communities. The technology has been transferred to 13 MSMEs. • Nearly 200 attachable iron removal plants have been installed by the Public Health Engineering Departments in Chhattisgarh to provide safe drinking water to rural communities. These units remove excess iron from groundwater through oxidation, sedimentation, and filtration processes. Excess iron in groundwater can cause gastrointestinal discomfort, unpleasant taste and staining, and may contribute to microbial growth that affects overall drinking water safety. (d) what role does the Government play in promoting Sustainable Development Goals through technology and if so, the details thereof; and Yes, as per our knowledge, the Government promotes Sustainable Development Goals (SDGs) through various science and technology initiatives, missions, and research programmes aimed at environmental protection, clean water, sanitation, clean energy, climate action, and sustainable cities. • CSIR-NEERI contributes to these national efforts through S&T interventions aligned with key SDGs, including: Clean Water & Sanitation (SDG-6): Deployment of water purification technologies such as electrolytic defluoridation units, iron removal
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					systems, NEERI-ZAR mobile water treatment units, and sustainable wastewater treatment systems • Sustainable Cities & Communities (SDG-11): Scientific support for air quality management, solid waste management, and environmental impact assessments • Climate Action & Responsible Consumption (SDG-13 & SDG-12): Research on climate impacts, pollution mitigation, circular economy practices, and resource recovery from waste. Through these interventions, CSIR-NEERI supports the Government's efforts to integrate science and technology into achieving the Sustainable Development Goals. (e)are there outreach programs to increase public awareness of scientific advances, if so, the details thereof CSIR-NEERI conducts awareness programmes, trainings, workshop, and other events on air quality, water quality, waste management, sanitation, climate change etc. for students, teachers, community groups, and local bodies. CSIR-NEERI disseminates scientific information through print, electronic, and social media platforms to enhance public understanding of environmental research, technologies, and sustainability initiatives CSIR Jigyasa and Jigyasa Virtual Lab, engaging school and college students with hands-on demonstrations, virtual simulations, science videos, and interactive learning modules. Participation in national science events, including India International Science Festival (IISF), exhibitions, open days, and public lectures showcasing environmental technologies and research. These outreach activities enhance scientific understanding and promote environmental awareness among the public.
12	17.12.2025	CSIR	Lok Sabha question D No. 3412	Production of pollution free dye-stuffs'	17 December 2025 NIL
13	20.1.2026	CSIR	Rajya Sabha Provisionally Admitted Unstarred Parliament Question Diary No. U187	Women in STEM"	20 January 2026 (Information is in tabular form)
14	21.1.2026	Ministry of Environment, Forest and	Rajya Sabha Starred Question Diary No. 37	Ecological impact of mining and industrial projects in Odisha	21 January 2026

		Climate Change			a) whether Government has evaluated the ecological impact of mining and industrial projects in Rayagada, Koraput, Sundargarh and Mayurbhanj; Yes. In Rayagada district, CSIR-NEERI has undertaken detailed scientific assessment and designed containment, monitoring, and remediation systems for red mud backfilling in mined-out bauxite pits at Utkal Alumina International Limited (UAIL), including evaluation of soil, water, geotechnical stability, and ecological restoration measures. CSIR-NEERI also conducted a Carrying Capacity Study for Environmentally Sustainable Iron and Manganese Ore Mining in Keonjhar, Sundargarh, and Mayurbhanj districts pursuant to the recommendations of the Justice M.B. Shah Commission and directions of MoEFCC. The study, submitted in February 2018, involved field investigations, ecological assessments, and review of environmental compliance of mining leases. b) the district-wise details of environmental clearances, compensatory afforestation obligations and compliance reports; and Environmental clearances for mining and industrial projects in these districts are granted by MoEFCC/State Environment Impact Assessment Authority (SEIAA) with district-specific conditions, including compensatory afforestation, greenbelt development, mine reclamation, wildlife protection, pollution control, and post-closure land restoration, along with periodic submission of compliance reports. In the Rayagada red mud backfilling project, afforestation and greenbelt development using native and pollution-tolerant species have been integrated into the mine backfilling plan. Compliance monitoring includes containment, leachate management, and post-remediation assessment systems. Similarly, the recommendations of the CSIR-NEERI carrying capacity study have been incorporated as mandatory Environmental Clearance conditions for iron and manganese ore mining projects in Odisha since 2018. c) whether Government proposes stronger enforcement, monitoring and community participation frameworks to safeguard vulnerable tribal habitats in Odisha? Yes. The Government has strengthened enforcement, monitoring, and community participation frameworks through strict environmental clearance conditions, continuous environmental monitoring, protection of wildlife corridors, post-closure ecological restoration plans, and
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					afforestation/social forestry programmes in villages and lease areas. These measures ensure ecological safeguards and promote participation of local communities, particularly in tribal-dominated and ecologically sensitive regions of Odisha.
15	21.1.2026	CSIR	Rajya Sabha question D No. S375	Biotech Start-up Incubation	21 January 2026 (a) Whether the Government is taking dedicated measures to establish biotech startup incubation centers aimed at accelerating innovations in healthcare, agriculture, and environmental solutions CSIR-NEERI has not established any dedicated biotech startup incubation centres. However, it has been invited by Ministry of Housing and Urban Affairs (MoHUA)/CPHEEO to participate in a Pilot-scale Integrated Technology Test Beds Initiative for the Public Health and Environment (PHE) sector, supporting pilot-scale evaluation of water, used-water, and solid waste technologies. (b) If so, the details of support provided in terms of funding and mentorship The proposed Testbed Facility is envisaged to be supported through a blended funding model, including assistance from MoHUA/CPHEEO, sponsored research and consultancy projects, and user charges (c) If not, the reasons therefor Not applicable (d) The challenges in IP protection No specific challenges in intellectual property protection have been reported (e) The proposed measures to be taken in this respect, such as regulatory sandboxes and collaborations with global biotech hubs? No specific measures, such as regulatory sandboxes or global collaborations, are proposed at present.
16	3.2.2026	CSIR	Lok Sabha question D No. U6130	Non-enforcement of Contractual Penalties	3 February 2026 (a) the number of instances across scientific institutions where funds remained blocked for more than three years due to non-enforcement of contractual penalties; NIL

					(b) the number of scientific equipment or prototypes procured during the last ten years that remain unutilised or idle and the cumulative value of such idle assets; and NIL (c) the details of meteorological charges and statutory levies not realised due to absence of MoUs / agreements and whether recovery proceedings have since been initiated and if so, the details thereof? NIL																																										
17	3.2.2026	CSIR	Rajya Sabha question D No. S4347	funding allocated during last five years and contribution to regional innovation, startups and industry-academia collaboration	4 February 2026 The funds allocated to CSIR-NEERI during the last five years are as follows :- <table border="1"> <thead> <tr> <th></th><th></th><th></th><th></th><th></th><th>(Rs.in Lakhs)</th></tr> <tr> <th></th><th colspan="5">FINANCIAL YEAR</th></tr> <tr> <th>Budget Heads</th><th>2020-21</th><th>2021-22</th><th>2022-23</th><th>2023-24</th><th>2024-25</th></tr> </thead> <tbody> <tr> <td>Gia-Salary</td><td>4369.970</td><td>4537.766</td><td>4982.458</td><td>5401.809</td><td>5635.366</td></tr> <tr> <td>Gia-General</td><td>3986.095</td><td>4641.610</td><td>5423.505</td><td>5446.114</td><td>5736.453</td></tr> <tr> <td>Gia-Capital</td><td>1088.450</td><td>505.925</td><td>550.000</td><td>394.941</td><td>356.370</td></tr> <tr> <td>Total</td><td>9444.515</td><td>9685.301</td><td>10955.963</td><td>11242.864</td><td>11728.189</td></tr> </tbody> </table> Contribution of these institutions to regional innovation, startups and industry-academia collaboration CSIR-NEERI has contributed to regional innovation through the development, demonstration, and transfer of environmentally sustainable technologies. CSIR-NEERI's High Rate Transpiration System (HRTS) enables reuse of treated industrial wastewater through engineered greenbelts, reducing freshwater consumption and supporting climate-resilient practices. In Maharashtra, HRTS has been implemented at Mahindra Vehicle Manufacturers Limited, Chakan (200 KLD); Dana Anand India Pvt. Ltd., Chakan and Satara (19 KLD each); Neosym India Pvt. Ltd., Sanaswadi (10 KLD); and KSPG Automotives India Pvt. Ltd., Supa, Ahmednagar (40 KLD), with surplus treated water also made available for agricultural use.						(Rs.in Lakhs)		FINANCIAL YEAR					Budget Heads	2020-21	2021-22	2022-23	2023-24	2024-25	Gia-Salary	4369.970	4537.766	4982.458	5401.809	5635.366	Gia-General	3986.095	4641.610	5423.505	5446.114	5736.453	Gia-Capital	1088.450	505.925	550.000	394.941	356.370	Total	9444.515	9685.301	10955.963	11242.864	11728.189
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					CSIR-NEERI has also transferred its solar electrolytic defluoridation technology to Rite Water Solutions (India) Limited, Nagpur, and HES Water Engineers (India) Pvt. Ltd., Nagpur, with installations at Dongargaon and Gumgaon in Maharashtra, supporting safe drinking water access and technology commercialization. CSIR-NEERI has further contributed through the development and deployment of India's first-of-its-kind Faecal Sludge & Septage Management (FSSM) plant based on the indigenously developed Mechanical Dewatering & Drying System (MDDS), which was handed over to Chandrapur Municipal Corporation, enabling sustainable sanitation, resource recovery, and pollution prevention. The project, implemented under the IN-EU Horizon 2020 Programme (PAVITR) in collaboration with Urban Local Bodies and supported by DST, demonstrates strong industry-academia-government collaboration and provides a replicable model for other cities. CSIR-NEERI has also undertaken large-scale ecological restoration of fly ash dump areas, rejuvenating 330 hectares through bamboo plantation at Koradi (130 ha), Khaparkheda (110 ha), and Chandrapur (90 ha) Thermal Power Stations, demonstrating sustainable waste-to-resource and land reclamation solutions. The initiative strengthened industry linkages and provided scalable models for environmental restoration and green livelihoods. CSIR-NEERI collaborates with academic institutions, industries, and startups through joint R&D projects, pilot demonstrations, internships, and capacity-building programmes, thereby strengthening industry-academia linkages and facilitating translation of research outcomes into field-level applications.
18	4.2.2026	CSIR	Lok Sabha question D No. 4468	Trade Dependence on China and Government Procurement Links	4 February 2026 Whether any Government Ministries, Departments, or Public Sector Undertakings have directly procured goods, parts, or services from Chinese companies since 2014, and if so, the details thereof As per available records, CSIR-NEERI has not directly procured any goods, parts, or services from Chinese companies since 2014. CSIR-NEERI strictly follows Govt. of India's procurement guidelines and mandatorily requires submission of a Land Border Declaration Undertaking in the prescribed format, as stipulated by the Government of India, in all tenders for procurement of goods and services from participating bidders.

19	4.3.2026	CSIR	Rajya Sabha question D No. U4697	The number of transgender persons	4 March 2025 As per the available records, the number of transgender persons employed at CSIR-NEERI from 15.04.2024 onwards, on a year-wise basis, is 'NIL'.
20	4.3.2026	CSIR	Lok Sabha question D No. S8383	Scientific Assessment of Groundwater Contamination in Industrial and River Basins of Uttar Pradesh	5 March 2026 (a) whether the Government is conducting or funding research on groundwater contamination arising from industrial effluents and untreated discharge in major river basins and industrial clusters of Uttar Pradesh and if so, the findings thereof; CSIR-NEERI has not conducted any dedicated study on groundwater contamination arising from industrial effluents and untreated discharge in major river basins and industrial clusters of Uttar Pradesh. However, performance evaluation of Effluent Treatment Plants (ETPs) installed within the premises of Grossly Polluting Industries (GPIs) was carried out in several cities of Uttar Pradesh, namely Meerut, Aligarh, Bulandshahr, Muzaffarnagar, Agra and Mathura, under a project sponsored by the Central Pollution Control Board. During the study, it was observed that most industries had installed borewells within their premises for meeting water requirements for various purposes. A few borewell water samples were collected during the inspection of GPIs and analysed for common heavy metals such as arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), iron (Fe), lead (Pb), manganese (Mn), mercury (Hg), nickel (Ni), zinc (Zn), cobalt (Co), selenium (Se) and vanadium (V). The industries were located in areas adjoining the Yamuna River and Hindon River, which are tributaries of the Ganga River. The analysis indicated that the concentrations of the selected heavy metals in the borewell water samples were within the permissible limits prescribed under BIS 10500. (b) the details of the districts identified with elevated levels of heavy metals, nitrates, fluorides or other toxic contaminants, and whether district-wise hydro-geological risk mapping has been undertaken; CSIR-NEERI has not carried out district-wise hydrogeological risk mapping for groundwater contamination in Uttar Pradesh under the above study. The borewell samples analysed during the study did not indicate heavy metal concentrations exceeding the permissible limits prescribed under BIS 10500.

					(c) the findings on long-term aquifer degradation, recharge obstruction, and drinking water safety in affected regions; and CSIR-NEERI has not undertaken any specific long-term study on aquifer degradation, recharge obstruction or drinking water safety in the affected regions of Uttar Pradesh. (d) the scientific remediation technologies, real-time monitoring systems or pilot projects proposed to restore contaminated aquifers and prevent further groundwater deterioration in the State? CSIR-NEERI has not proposed any scientific remediation technologies, real-time monitoring systems or pilot projects for restoration of contaminated aquifers or prevention of groundwater deterioration in the State of Uttar Pradesh.
21	5.3.2026	CSIR	Rajya Sabha question D No. U4082	Development of Technology Hubs and Startups in Maharashtra	5 March 2026 Details regarding the establishment of technology hubs, incubators, and startup support initiatives in Maharashtra over the last five years CSIR-NEERI has not been directly involved in the establishment of technology hubs, incubators, or startup support initiatives in Maharashtra during the last five years. However, CSIR-NEERI provides scientific and technical support to the Government of Maharashtra through project-specific studies and advisory services related to environmental management. How many startups and technology-based enterprises have received assistance, mentorship, and funding from government programs? CSIR-NEERI has not supported startups under government funding programmes. However, seven technology-based enterprises in Maharashtra have received technical assistance through transfer of four environmental technologies/know-how from CSIR-NEERI. The technology-based enterprises include: M/s. SMS Envocare Limited, Nagpur; M/s. Wotastic Solutions Pvt. Ltd., Pune; M/s. Ecologique Science Technik (India) Private Limited, Nagpur; M/s. Punjab Renewable Energy Systems Pvt. Ltd., Navi Mumbai; M/s. Eco Sense Appliances Pvt. Ltd., Aurangabad; M/s. RITE Water Solutions India Pvt. Ltd. Nagpur; and M/s. Al-Aziz Plastic Pvt. Ltd., Mumbai What steps are being taken to encourage innovation in fields such as biotechnology, information technology, renewable energy, and advanced manufacturing?

					CSIR-NEERI encourages innovation through development and transfer of environmental technologies addressing critical challenges in water, waste, and air pollution management. Key initiatives include promotion of decentralized sewage treatment systems, development of need-based solutions for industrial wastewater treatment and management, solid and hazardous waste management and resource recovery, air pollution monitoring and control strategies, water treatment and management, environmental intelligence and digital systems, etc. (d) How does the Ministry coordinate with Maharashtra state authorities and industry partners to enhance research infrastructure, promote technology transfer, and create employment opportunities? Coordination is facilitated through technology transfer, collaborative projects with industries, and field-level demonstrations, contributing to innovation and employment generation. Key examples include: 1. Technology Transfer • High Rate Transpiration System (HRTS) transferred to M/s. SMS Envocare Limited, Nagpur (2019) for industrial wastewater management • Bioculture Technology transferred to M/s. Wotastic Solutions Pvt. Ltd., Pune (2019) for wastewater treatment, bioremediation • NEERDHUR technology transferred to M/s. Ecologique Science Technik (India) Pvt. Ltd., Nagpur; M/s. Punjab Renewable Energy Systems Pvt. Ltd., Navi Mumbai; and M/s. Eco Sense Appliances Pvt. Ltd., Aurangabad (2020) for control of indoor air pollution • Electrolytic Defluoridation technology transferred to M/s. RITE Water Solutions India Pvt. Ltd. Nagpur and M/s. Al-Aziz Plastic Pvt. Ltd., Mumbai for removal of excess fluoride from drinking water 2. Community Capacity Building and Livelihood Support • Under the project “Development of bamboo diversity on fly ash dump sites and surroundings”, sponsored by Koradi Thermal Power Station (Maharashtra State Power Generation Co. Ltd.), 60 women from nearby villages were trained in bamboo plantation, nursery establishment, cultivation, maintenance, harvesting, and utilization for livelihood generation. 3. Large-scale Ecological Restoration
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					- CSIR-NEERI implemented bamboo-based ecological restoration of fly ash dump areas covering 330 hectares, including: - Koradi Thermal Power Station – 130 ha - Khaparkheda Thermal Power Station – 110 ha - Chandrapur Thermal Power Station – 90 ha - This initiative demonstrates sustainable waste-to-resource utilization, land reclamation, industry collaboration, and green livelihood generation.
22	10.3.2026	CSIR	Lok Sabha question D No. 13431	Promote Technology Transfer	10 March 2026 Information with respect to parts (b) and (c) of the Parliament Question is 'NIL'.
23	10.3.2026	CSIR	Rajya Sabha question D No. U4083	Scientific Awareness and Capacity Building in Maharashtra	11 March 2026 (a) details of initiatives aimed at enhancing scientific awareness, education and capacity building in Maharashtra over the last five years? How many workshops, training programs and science outreach activities have been conducted for students, teachers and research professionals; During the last five years, CSIR-NEERI has undertaken several initiatives to enhance scientific awareness, education and capacity building. 95 training programmes were organized during 2020–2026, benefiting more than 8,500 participants. The participants included graduate, postgraduate and Ph.D. students, professors, and officials from the Ministry of Environment, Forest and Climate Change (MoEFCC), Central and State Pollution Control Boards, government organizations, industries and NGOs. Participants were from across India, including Maharashtra. Details of the training and skill development programmes conducted during the last five years are provided in the attached statement (Annexure-I). Further, 967 science outreach programmes, including activities under the CSIR Jigyasa Programme, were conducted benefiting 3,118 schools and about 4,18,388 students (1,99,198 male and 2,19,190 female). In addition, 19,204 teachers were benefited during students' visits, and 10 teacher-training programmes were organized. 52 visits of CSIR-NEERI scientists to schools, 6 rural outreach programmes benefiting 1,320 rural students, 5 student residential programmes, and 17 innovation-related programmes were conducted. The Institute also organized 25 programmes of national/international importance, 14 collaborative programmes, developed 73 virtual learning contents, and conducted 36 webinars. Details of these science outreach activities are provided in the attached statement (Annexure-II).

					9 thematic workshops were organized covering areas such as air quality management, water resources management, climate change and carbon capture, utilization and storage (CCUS), sustainable waste management, chemicals and waste conventions, traffic noise pollution, and silicone monitoring. These programmes were aimed at strengthening scientific knowledge, technical skills and policy awareness among students, teachers, research professionals, government officials, industry representatives and other stakeholders. The workshops facilitated dissemination of scientific information, capacity building and stakeholder engagement for addressing environmental challenges. Details of the workshops conducted during the last five years are provided in the attached statement (Annexure-III). (b) what measures are being taken to promote STEM education, community engagement and participation in national science programs; CSIR-NEERI is undertaking several initiatives to promote STEM education, community engagement and participation in national science programmes in Maharashtra. The Institute actively participates in flagship programmes such as CSIR Jigyasa Programme, Vigyan Jyoti Programme, INSPIRE Programme, and Atal Innovation Mission, including Atal Tinkering Labs (ATLs) and Atal-Faculty Development Programmes. Student-scientist interaction programmes are also organized for PM SHRI Schools, along with citizen science projects and rural outreach activities, to encourage youth participation in science and research in alignment with the objectives of the National Education Policy (NEP). Further, CSIR-NEERI supports national development initiatives such as Swachh Bharat Mission and Smart Cities Mission, encouraging student participation in environmental protection and sustainable development initiatives. The Institute also develops environmental education modules and demonstration programmes on water quality monitoring and management, wastewater treatment, recycle and reuse, air quality monitoring and management, and waste management to strengthen scientific awareness, practical learning and community engagement among students, teachers and research professionals. (c) additionally, how does the Ministry coordinate with Maharashtra State authorities, universities and research institutions to strengthen scientific skills, encourage youth participation in research and build a sustainable knowledge-based society while contributing to innovation and socio-economic development in the State? CSIR-NEERI coordinates with State authorities, universities and research institutions in Maharashtra through Memoranda of Understanding
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					(MoUs), collaborative research projects, training programmes and student internships to strengthen scientific skills and promote youth participation in research. During 2021–2025, CSIR-NEERI has signed several academic MoUs and agreements with universities and higher educational institutions in Maharashtra to facilitate joint research, knowledge exchange, skill development, student training, faculty interaction and technology transfer in environmental science and engineering (Annexure-IV). These collaborations also support student projects, internships, workshops and capacity-building programmes, thereby encouraging innovation, strengthening scientific capabilities and contributing to socio-economic development and the creation of a sustainable knowledge-based society in the State.
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