

Union Environment Minister interacts with Start-ups to explore Affordable, Scalable, Technology-driven Solutions for Air Pollution in Delhi-NCR

A Proactive Initiative to Bridge Gap between Policymakers and Technology Innovators to tackle Air Pollution: Shri Bhupender Yadav

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Union Minister for Environment, Forest and Climate Change (EFCC), Shri Bhupender Yadav, today interacted with start-ups and innovation companies working on air pollution mitigation, with a focus on developing practical, scalable and technology-driven solutions to address the air pollution challenge in Delhi-NCR. This interaction was held under a streak of stakeholder engagement initiatives within the theme '*Saaf Hawa mein Hissedaari, Hum Sabhi ki hai Zimmedaari*' campaign. Also present on the occasion were Union MoS (EFCC), Shri Kirti Vardhan Singh; Minister for Environment, Forest and Wildlife (GNCTD), Sardar Manjinder Singh Sirsa; besides senior officers from MoEFCC, MoHUA, MoAFW, Delhi government, CAQM, CPCB, DPCC, among others.



The interaction centred on translating innovative technologies into real-world, practically deployable and affordable solutions that can deliver measurable impact at source and in real time. Shri Yadav presented a set of **specific problem statements** covering 9 key areas of air pollution management and engaged with the innovators on how their technologies could be adapted, scaled and deployed on the ground. The Minister highlighted that the engagement sought to complement ongoing measures such as the Graded Response Action Plan, promotion of cleaner fuels and electric mobility, and strengthening of air-quality monitoring with source-level technological interventions.

The **proposed solutions** spanned the entire air-pollution management chain - from detection and monitoring to prediction, enforcement and mitigation. They included tamper-proof systems for Online Continuous Emission Monitoring Systems (OCEMS), Air Pollution Control Devices (APCD) and Pollution Under Control (PUC) testing; AI-enabled identification of industrial emission violations; real-time monitoring of combustion efficiency and diesel generator emission-control devices; and technologies for detecting and controlling dust at construction and demolition sites. Innovative approaches for low-cost mechanised road sweeping, monitoring road-dust resuspension, portable pothole repair and modular dust-containment systems were also discussed.



Addressing the meeting, Shri Bhupender Yadav highlighted that the interaction with start-ups is a novel, proactive initiative aimed at bridging the gap between policymakers and technology innovators. He said that such engagement can help bring greater uniformity in policy implementation and enhance transparency in governance. Stressing the need for stronger technology-enabled enforcement, he said that integration of OCEMS data with plant-operation data is essential to identify malpractices, and AI can play an important role in achieving this objective.

The Union Minister emphasised the importance of city-wide air-quality monitoring and called for cleaner vehicles and smoother traffic management, including tamper-proof PUC monitoring and AI-based prediction of traffic congestion hotspots. He said that start-ups need to focus on environment-friendly solutions for scientific management of crop-residue, solid-waste and construction & demolition waste. He also stressed the need for guidelines on parali storage involving MoAFW, CAQM and CPCB, along with development of an in-situ crop-residue storage model. Shri Yadav further highlighted the need for faster and more efficient road maintenance as an important measure for active road-dust control.





Briefing the media, Shri Yadav informed that the **major focus of the interaction** was on using artificial intelligence, sensors, remote sensing, satellite and drone-based technologies and data analytics to move towards real-time understanding of air pollution. He stated that solutions presented by the innovators include hyperlocal air-quality monitoring, city-wide pollution mapping, hotspot identification and forecasting, AI-based source apportionment, real-time identification of pollution sources and predictive traffic-congestion management. Technologies were displayed for 24x7 detection of stubble and open biomass burning, as well as automated identification of vehicles without valid PUC certificates and over-aged vehicles, which could further strengthen timely enforcement and intervention, he added.

The Minister also talked about the solutions that sought to address the waste and residue dimensions of air pollution. These included **technology-enabled systems** to connect recycled construction and demolition waste products with construction-sector demand, municipal solid waste management, and integrated systems for collection, transportation and productive utilisation of paddy straw for bioenergy, biomass fuel, composting and other value-added applications like environmental-friendly packaging, thereby reducing the need for open-field burning. Start-ups working on crop-residue-based materials and biochar-based solutions also brought about opportunities to convert agricultural residue into productive uses rather than treating it as waste.



Shri Yadav further informed that the participating innovators **showcased capabilities** ranging from AI and machine learning, IoT-based environmental monitoring and pollution analytics to drone-based aerial mapping, remote sensing, advanced sensing systems and source-level pollution-control technologies. The Minister noted that the interaction underscored the need to move beyond isolated technological solutions towards **integrated, scalable and economically viable interventions** that can be deployed across Delhi-NCR. He encouraged the innovators to align their technologies with clearly identified field-level requirements and explore how successful solutions can be taken to scale through appropriate implementation and monitoring mechanisms.

The engagement marks an effort to bring together government, technology innovators and field-level implementation in a **Jan Bhagidari** mode to develop actionable solutions for Delhi-NCR's air pollution challenge.



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