

## **Dr. SUNIL**

Senior Scientist, CSIR-NEERI Delhi Zonal Centre  
Ph.D. IIT Delhi (Air Pollution), M.Tech. (Env. Sc. & Engg)

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### ***Brief Biography***

Dr Sunil Gulia is working as Senior Scientist at CSIR-National Environmental Engineering Research Institute Delhi Zonal Centre. He has more than 15 years' experience in field of air quality management while working on academic and research institutes like IIT Delhi, CRRI and NEERI. He has coordinated many major international and national projects on urban air quality management, Agriculture stubble burning impact on air quality in Delhi NCR, Airshed Management Approach, Indoor Air Quality, Consultancy projects on Industrial Air pollution etc. He has sound knowledge of Air Pollution Dispersion Modeling Software such as CALPUFF, AERMOD, ADMS\_Urban, ISCST3 and CALINE-4. He has published more than 35 research articles/book chapter in peer reviewed journals. He has supervised >25 Master student's dissertation work and co-supervised one PhD student. His specialized area of expertized are in Air Quality Dispersion Modeling; Urban Air Quality Management, Vehicular Pollution Management, Pollution Emission Inventory Development, Environment Impact Assessment; Indoor Air Quality.

### ***CAREER CONTOUR***

1. Senior Scientist at CSIR-NEERI Delhi Zonal Centre: August, 2019- till date
2. **Scientist Fellow** at CSIR-NEERI Delhi Zonal Centre: October, 2016- August 2019
3. **Senior Project Scientist** at IIT Delhi: March, 2013 – September, 2016
4. **Senior Project Fellow** at Central Road Research Institute, New Delhi: March, 2013 – August, 2013
5. **Senior Research Fellow** at IIT Delhi: May, 2010 – February, 2013
6. **Assistant Manager- Environment** at M/s. Ireo Pvt. Ltd., Gurgaon: December, 2009 – April, 2010
7. **Assistant Manager-EMS**, M/s. Voyants Solution Pvt. Ltd., Gurgaon: July, 2008 – November, 2009

### ***Major Research/Consultancy Projects in Last Five Years***

1. Assessment of Contribution of Stubble Burning in Haryana and Punjab States on Air Quality of Delhi Sponsored by CPCB, Delhi, Budget: 210 Lakhs
2. Traffic Junction Air Pollution Abatement Plan Sponsored by DST, Delhi, Budget: 125 Lakhs
3. Deployment and Evaluation of Air Purification Units for Traffic Junction Pollution, Abatement in Delhi. Sponsored by CPCB, Delhi, Budget; 312 Lakhs
4. Training on Air Quality Monitoring (Ambient, Source, Noise) Analysis, Data Interpretation and Quality Assurance, Sponsored by CPCB, Budget: 3.2 Lakhs
5. Indian Air Quality Studies Interactive Repository (IndAIR) - Sponsored by Environment Defense Fund, USA, Busget: 27 Lakhs
6. Delineation of Airshed for Air Quality Management in Delhi-NCR Sponsored by CPCB, Delhi, Budget: 63 Lakhs
7. Quantification and Contribution of Paddy Stubble Burning emission in Haryana to PM<sub>2.5</sub> concentration in surrounding regions - Sponsored by HSPCB, Panchkula, Budget: 12 Lakhs
8. Assessment of Various Air Quality Issues Leading to Delineation and Evaluation of Integrated Air Quality Improvement Plans (IAQIP) for Tata Steel Plant and Jamshedpur City - Sponsored by Tata Steel, Jamshedpur, Budget: 174 Lakhs
9. Development of a Curriculum and Training Module for Air Quality Professionals, Sponsored by EDF, USA, Budget: 33 Lakhs

10. Air Purifications System at Traffic / Polluted Locations of Gurugram City. Sponsored by IPCA, Delhi , Budget: 17 Lakhs
11. Impact Assessment of Activities Existing within the 500 m of Taj Mahal Premises on the Taj Mahal and Suggestions thereby on Shifting or Closure of the Activities ( under the direction of Hon'ble Supreme court) -Sponsored by Agra Development Authority, Agra, Budget: 18 Lakhs
12. Study on Emission Sources Mapping and Preparation of Local Level Action Plans around Air Pollution Hotspots, Sponsored by EDF, USA, Budget: 48.1 Lakhs
13. Air Pollution Impact Assessment Study for Preparation of Sectorial Guidelines for the Glass industries in the Identified Industrial Area, Jalesar Road, Firozabad, UP, Sponsored by DIC, Firozabad, Budget: 20 Lakhs
14. Air Pollution Impact Assessment Study for Preparation of Sectorial Guidelines for the Stone Crusher in the Roopwas and Bayana Tehsils of Bharatpur District, Rajasthan, Sponsored by RSPCB, Jaipur, Budget 20 lakhs

### RESEARCH PUBLICATIONS (Latest Five Years)

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1. Gulia S., Goyal P., Goyal S.K. (2024). Estimation of pollutant baseline concentration in Delhi city: An opportunity from coupled effect of rainfall scavenging and lockdown restriction. *Atmospheric Pollution Research*, 15(5), 102097. <https://doi.org/10.1016/j.apr.2024.102097>
2. Khan A.A. Kumar P., Gulia S., Khare M. (2024). A critical review of managing air pollution through airshed approach. *Sustainable Horizons*, 9, 100090. <https://doi.org/10.1016/j.horiz.2024.100090>.
3. Shukla, N., Gulia, S., Goyal, P., Dey, S., Bosu, P., & Goyal, S. K. (2023). Performance-based protocol for selection of economical portable sensor for air quality measurement. *Environmental Monitoring and Assessment*, 195(7), 845.
4. Mishra, M., Gulia, S., Shukla, N., Goyal, S. K., & Kulshrestha, U. C. (2023). Review of Secondary Aerosol Formation and Its Contribution in Air Pollution Load of Delhi NCR. *Water, Air, & Soil Pollution*, 234(1), 47.
5. Shukla, N., Gulia, S., & Goyal, S. K. (2023). Regional scale air quality modelling system in India: issues, challenges and suggestive framework. *Arabian Journal of Geosciences*, 16(6), 387.
6. Goyal, P., Gulia, S., & Goyal, S. K. (2022). Development of strategic air quality improvement framework for urban hotspots. *Journal of Cleaner Production*, 134886.
7. Goyal, P., Gulia, S., & Goyal, S. K. (2022). Quantitative assessment and mitigation measures of air pollution from crematoria in NCT of Delhi. *Environmental Science and Pollution Research*, 1-13.
8. Gulia, S., Kaur, S., Mendiratta, S., Tiwari, R., Goyal, S. K., Gargava, P., & Kumar, R. (2022). Performance evaluation of air pollution control device at traffic intersections in Delhi. *International Journal of Environmental Science and Technology*, 19(2), 785-796.
9. Gulia, S., Shukla, N., Padhi, L., Bosu, P., Goyal, S. K., & Kumar, R. (2021). Evolution of Air Pollution Management Policies and Research Gap Assessment in India. *Environmental Challenges*, 100431.
10. Goyal, P., Gulia, S., & Goyal, S. K. (2021). Identification of air pollution hotspots in urban areas-An innovative approach using monitored concentrations data. *Science of The Total Environment*, 798, 149143.
11. Gulia, S., Goyal, P., Prakash, M., Goyal, S. K., & Kumar, R. (2021). Policy Interventions and Their Impact on Air Quality in Delhi City—an Analysis of 17 Years of Data. *Water, Air, & Soil Pollution*, 232(11), 1-13.

12. Kuppili, S. K., Alshetty, V. D., Diya, M., Nagendra, S. S., Ramadurai, G., Ramesh, A., Gulia, S., ... & De Vito, L. (2021). Characteristics of real-world gaseous exhaust emissions from cars in heterogeneous traffic conditions. *Transportation Research Part D: Transport and Environment*, 95, 102855.
13. **Gulia, S.**, Prasad, P., Goyal, S. K., & Kumar, R. (2020). Sensor-based Wireless Air Quality Monitoring Network (SWAQMN)-A smart tool for urban air quality management. *Atmospheric Pollution Research*, 11(9), 1588-1597.
14. Goyal, P., Gulia, S., & Goyal, S. K. (2021). Review of land use specific source contributions in PM<sub>2.5</sub> concentration in urban areas in India. *Air Quality, Atmosphere & Health*, 14(5), 691-704.
15. Gulia, S., Goyal, N., Mendiratta, S., Biswas, T., Goyal, S. K., & Kumar, R. (2021). COVID 19 Lockdown-air quality reflections in Indian cities. *Aerosol and Air Quality Research*, 21(5), 200308.
16. Mendiratta, S., Gulia, S., Goyal, P., & Goyal, S. K. (2021). Evaluation of Particulate Matter Pollution in Micro-Environments of Office Buildings—A Case Study of Delhi, India. In *Environmental Sustainability-Preparing for Tomorrow*. IntechOpen.
17. Gulia, S., Tiwari, R., Mendiratta, S., Kaur, S., Goyal, S. K., & Kumar, R. (2020). Review of scientific technology-based solutions for vehicular pollution control. *Clean Technologies and Environmental Policy*, 22(10), 1955-1966.
18. **Gulia, S.**, Khanna, I., Shukla, K., & Khare, M. (2020). Ambient air pollutant monitoring and analysis protocol for low and middle income countries: An element of comprehensive urban air quality management framework. *Atmospheric Environment*, 222, 117120.
19. **Gulia, S.**, Tiwari, R., Mendiratta, S., Kaur, S., Goyal, S. K., & Kumar, R. (2020). Review of scientific technology-based solutions for vehicular pollution control. *Clean Technologies and Environmental Policy*, 1-12.
20. Nair, M. M., Bherwani, H., Kumar, S., **Gulia, S.**, Goyal, S. K., & Kumar, R. (2020). Assessment of contribution of agricultural residue burning on air quality of Delhi using remote sensing and modelling tools. *Atmospheric Environment*, 117504.
21. Goyal, P., **Gulia, S.**, Goyal, S. K., & Kumar, R. (2019). Assessment of the effectiveness of policy interventions for Air Quality Control Regions in Delhi city. *Environmental Science and Pollution Research*, 26(30), 30967-30979.
22. Sunil Gulia, Prachi Goyal, S.K. Goyal, Rakesh Kumar (2018). Re-suspension of road dust: contribution, assessment and control through dust suppressants—a review. *Int. J. Environ. Sci. Technol.* <https://doi.org/10.1007/s13762-018-2001-7>
23. Sunil Gulia, SMS Nagendra, Jo Barnes, Mukesh Khare (2018) Urban local air quality management framework for non-attainment areas in Indian cities, *Science of the Total Environment*, 619, 1308-1318.
24. **Gulia, S.**, Nagendra, S. S., & Khare, M. (2017). A system based approach to develop hybrid model predicting extreme urban NO<sub>x</sub> and PM<sub>2.5</sub> concentrations. *Transportation Research Part D: Transport and Environment*, 56, 141-154.

### Training Program Coordinated

1. Three days Training Program on “*Air Pollution Emission Inventory, Modelling & Management and Air Monitoring as per EC Consent Requirements for Industrial Sectors*”, during Feb. 1-3, 2023. Venue of the training was CSIR-NEERI Zonal Centre, Naraina, New Delhi.
2. Three Days Interactive Training Programme on “*Field Personnel involved in Air Pollution Management in India*” during May 10-12, 2022. Venue of the training was CSIR-NEERI Zonal Centre, Naraina, New Delhi.
3. *Brainstorming Workshop on WHO Global Air Quality Guidelines 2021: Critical Review & Consideration for framing Ambient air quality standards in Indian context*, May 5, 2022. Jointly organized by CSIR-NEERI and IAAPC-DC at NEERI Delhi Zonal Centre

4. Online Training Program on Air Pollution Management in Urban Areas (including emission inventory, meteorology, modeling and management aspects), 2-4th February 2021, CSIR-Integrated Skill Initiative
5. National Workshop and Training Programme on Capacity Building for Indoor Air Quality Management (IAQM), February 11 to 13, 2021. This is jointly conducted with society of Indoor Environment under signed MoU
6. Online Training Program on Air Quality Monitoring for key Air Pollution Parameters, 16-18th December 2020, under CSIR-Integrated Skill Initiative
7. One day Brainstorming Workshop on “Strengthening Reliable Air Quality Forecasting System in India, July 3rd, 2018 at CSIR-Science Centre.
8. One day Awareness Conference Carrying Capacity Approaches in Environmental Management leading to Sustainable Development, 29th October 2018 at PUSA, New Delhi
9. One day workshop on Networking between Delhi and NCR Districts for Fighting Air Pollution Problems in the Region, at DZC, Naraina – 23rd August 2017.