

# A Review on Assessment of Ambient Air Quality of Hoshangabad and Itarsi of M.P.

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**Abstract:** *The study reveals that the level of air pollution is rapidly increasing. The reason for this is migration which results into growth of urbanization and transportation and the reason for this is industrialization ultimate the result is more pressure on the atmosphere. Due to emission various gases, this adversely affects the human health, plants and animals. According to this study some of the impacts on air making it pollute are those from mining areas, burning crop Residues and other household activities. These all result in the increased level of oxide of sulphur (SO<sub>x</sub>), volatile organic compounds (vocs) , oxide of Nitrogen (NO<sub>x</sub>) and ozone(O<sub>3</sub>). The study tell that the people who are directly exposed to and affected due to air pollution are traffic crop occurs road, shopkeepers, rickshaw pullers, public Transpiration employees as well as the residents closed to busy roads. as a result of this they are prone to lungs diseases*

**Keywords:** Ambient Air Quality; Air pollution; Urbanization; Transportation; Sulphur; Nitrogen; Ozone; Traffic; Gases; Industrialization

## REFERENCES

- [1] Gokul, P. R., Aneesh Mathew, Avadhoot Bhosale, and Abhilash T. Nair. "Spatio-temporal air quality analysis and PM2. 5 prediction over Hyderabad City, India using artificial intelligence techniques." *Ecological Informatics* 76 (2023): 102067.
- [2] CM, Arun Murali, V. M. Chowdary, Mohit Kesarwani, and Neeti Neeti. "Integrated drought monitoring and assessment using multi-sensor and multi-temporal earth observation datasets: a case study of two agriculture-dominated states of India." *Environmental Monitoring and Assessment* 195, no. 1 (2023): 1.
- [3] Dangayach, Ruchi, Mayank Pandey, Deepak Gusain, Arun Lal Srivastav, Ronak Jain, Brij Mohan Bairwa, and Ashutosh Kumar Pandey. "Assessment of Air Quality Before and During COVID-19-Induced Lockdown in Jaipur, India." *MAPAN* (2023): 1-11.
- [4] Sicard, Pierre, Evgenios Agathokleous, Susan C. Anenberg, Alessandra De Marco, Elena Paoletti, and Vicent Calatayud. "Trends in urban air pollution over the last two decades: A global perspective." *Science of The Total Environment* 858 (2023): 160064.
- [5] Badida, Pavanaditya, Arun Krishnamurthy, and Jayapriya Jayaprakash. "Meta analysis of health effects of ambient air pollution exposure in low-and middle-income countries." *Environmental Research* 216 (2023): 114604.
- [6] Ravindra, Khaiwal, Samsher Singh Bahadur, Varun Katoch, Sanjeev Bhardwaj, Maninder Kaur-Sidhu, Madhu Gupta, and Suman Mor. "Application of machine learning approaches to predict the impact of ambient air pollution on outpatient visits for acute respiratory infections." *Science of The Total Environment* 858 (2023): 159509.
- [7] Filonchyk, Mikalai, and Michael P. Peterson. "An integrated analysis of air pollution from US coal-fired power plants." *Geoscience Frontiers* 14, no. 2 (2023): 101498.
- [8] Aher, Satish Bhagwatrao, Subroto Nandi, Gondru Ramesh, Dharma Raj, Lokesh Patel, and Rajnarayan Tiwari. "Effects of COVID-19 lockdown on ambient air pollution in Madhya Pradesh, India." *International Journal of Environmental Studies* 79, no. 3 (2022): 401-416.

- [9] Trushna, Tanwi, Vikas Dhiman, Satish Bhagwatrao Aher, Dharma Raj, Rajesh Ahirwar, Swasti Shubham, Subroto Shambhu Nandi, and Rajnarayan R. Tiwari. "Environmental monitoring and health assessment in an industrial town in central India: A cross-sectional study protocol." *Plos one* 17, no. 6 (2022): e0264154.
- [10] Sharma, Gautam Kumar, Ankush Tewani, and Prashant Gargava. "Comprehensive analysis of ambient air quality during second lockdown in national capital territory of Delhi." *Journal of Hazardous Materials Advances* 6 (2022): 100078.
- [11] Natarajan, Narayanan, Mangottiri Vasudevan, Senthil Kumar Dineshkumar, Sivakkumar Shiva Nandhini, and Pandiyan Balaganesh. "Effects of air pollution on monumental buildings in India: An overview." *Environmental Science and Pollution Research* 29, no. 20 (2022): 29399-29408.
- [12] Mor, Sahil, Tanbir Singh, Narsi Ram Bishnoi, Santosh Bhukal, and Khaiwal Ravindra. "Understanding seasonal variation in ambient air quality and its relationship with crop residue burning activities in an agrarian state of India." *Environmental Science and Pollution Research* 29 (2022): 4145-4158.
- [13] Praveen Kumar, Roshini, Cyril Samuel, Shanmathi Rekha Raju, and Sneha Gautam. "Air pollution in five Indian megacities during the Christmas and New Year celebration amidst COVID-19 pandemic." *Stochastic Environmental Research and Risk Assessment* 36, no. 11 (2022): 3653-3683.
- [14] Sharma, Disha, and Denise Mauzerall. "Analysis of air pollution data in India between 2015 and 2019." *Aerosol and Air Quality Research* 22, no. 2 (2022): 210204.
- [15] Kuldeep, Kuldeep, Porush Kumar, Pawan Kamboj, and Anil K. Mathur. "Air Quality Decrement After Lockdown in Major Cities of Rajasthan, India." *ECS Transactions* 107, no. 1 (2022): 18479.
- [16] Yadav, Shailendra Kumar, Rajeev Kumar Mishra, and Bhola Ram Gurjar. "Assessment of the effect of the judicial prohibition on firecracker celebration at the Diwali festival on air quality in Delhi, India." *Environmental Science and Pollution Research* (2022): 1-13.
- [17] Balamadeswaran, P., J. Karthik, Ruthra Ramakrishnan, and K. Manikanda Bharath. "Impact of COVID-19 outbreak on tropospheric NO<sub>2</sub> pollution assessed using Satellite-ground perspectives observations in India." *Modeling Earth Systems and Environment* 8, no. 2 (2022): 1645-1655.
- [18] Markandeya, Pradeep Kumar Verma, Vibhuti Mishra, Neeraj Kumar Singh, Sheo Prasad Shukla, and Devendra Mohan. "Spatio-temporal assessment of ambient air quality, their health effects and improvement during COVID-19 lockdown in one of the most polluted cities of India." *Environmental Science and Pollution Research* 28, no. 9 (2021): 10536-10551.
- [19] Gautam, Alok Sagar, Nikhilesh Kumar Dilwaliya, Ayushi Srivastava, Sanjeev Kumar, Kuldeep Baudh, DevendraaSiingh, M. A. Shah, Karan Singh, and Sneha Gautam. "Temporary reduction in air pollution due to anthropogenic activity switch-off during COVID-19 lockdown in northern parts of India." *Environment, Development and Sustainability* 23 (2021): 8774-8797.
- [20] Pandey, Mayank, M. P. George, R. K. Gupta, Deepak Gusain, and Atul Dwivedi. "Impact of COVID-19 induced lockdown and unlock down phases on the ambient air quality of Delhi, capital city of India." *Urban climate* 39 (2021): 100945.
- [21] Naqvi, Hasan Raja, Manali Datta, Guneet Mutreja, Masood Ahsan Siddiqui, Daraksha Fatima Naqvi, and Afsar Raza Naqvi. "Improved air quality and associated mortalities in India under COVID-19 lockdown." *Environmental pollution* 268 (2021): 115691.
- [22] Dhanvijay, Roshani, and Savita Pohekar. "Assessment of Auto-Rickshaw Drivers Knowledge Regarding the Effects of Air Pollution on Health and Its Prevention." *Journal of Pharmaceutical Research International* (2021): 20-26.
- [23] Dutta, Shrabanti, Subrata Ghosh, and Santanu Dinda. "Urban air-quality assessment and inferring the association between different factors: A comparative study among Delhi, Kolkata and Chennai megacity of India." *Aerosol Science and Engineering* 5 (2021): 93-111.
- [24] Pandey, Anamika, Michael Brauer, Maureen L. Cropper, Kalpana Balakrishnan, Prashant Mathur, Sagnik Dey, Burak Turkoglu et al. "Health and economic impact of air pollution in the states of India: the Global Burden of Disease Study 2019." *The Lancet Planetary Health* 5, no. 1 (2021): e25-e38.

- [25] Dutta, Abhishek, and Wanida Jinsart. "Air quality, atmospheric variables and spread of COVID-19 in Delhi (India): an analysis." *Aerosol and Air Quality Research* 21, no. 3 (2021): 200417.
- [26] Bherwani, H., S. Gautam, and A. Gupta. "Qualitative and quantitative analyses of impact of COVID-19 on sustainable development goals (SDGs) in Indian subcontinent with a focus on air quality." *International Journal of Environmental Science and Technology* 18 (2021): 1019-1028.
- [27] Tabinda, Amtul B., Haider Ali, Abdullah Yasar, Rizwan Rasheed, Adeel Mahmood, and Anum Iqbal. "Comparative assessment of ambient air quality of major cities of Pakistan." *Mapan* 35 (2020): 25-32.
- [28] Garg, Anchal, and N. C. Gupta. "The great smog month and spatial and monthly variation in air quality in ambient air in Delhi, India." *Journal of Health and Pollution* 10, no. 27 (2020).
- [29] Dandotiya, Banwari, Harendra K. Sharma, and Nimisha Jadon. "Ambient Air Quality and meteorological monitoring of gaseous pollutants in urban areas of Gwalior City India." *Environmental Claims Journal* 32, no. 3 (2020): 248-263.
- [30] Hama, Sarkawt ML, Prashant Kumar, Roy M. Harrison, William J. Bloss, Mukesh Khare, Sumit Mishra, Anil Namdeo, Ranjeet Sokhi, Paul Goodman, and Chhemendra Sharma. "Four-year assessment of ambient particulate matter and trace gases in the Delhi-NCR region of India." *Sustainable Cities and Society* 54 (2020): 102003.
- [31] Mahato, Susanta, and Krishna Gopal Ghosh. "Short-term exposure to ambient air quality of the most polluted Indian cities due to lockdown amid SARS-CoV-2." *Environmental Research* 188 (2020): 109835.
- [32] Sathish, M. Narmatha, K. Immaculate Jeyasanta, and Jamila Patterson. "Monitoring of microplastics in the clam *Donax cuneatus* and its habitat in Tuticorin coast of Gulf of Mannar (GoM), India." *Environmental Pollution* 266 (2020): 115219.
- [33] Navinya, Chimurkar D., V. Vinoj, and Satyendra K. Pandey. "Evaluation of PM<sub>2.5</sub> surface concentrations simulated by NASA's MERRA version 2 aerosol reanalysis over India and its relation to the air quality index." *Aerosol and Air Quality Research* 20, no. 6 (2020): 1329-1339.
- [34] Beig, Gufran, Saroj K. Sahu, Vikas Singh, Suvarna Tikle, Sandeepan B. Sobhana, Prashant Gargeva, K. Ramakrishna, Aditi Rathod, and B. S. Murthy. "Objective evaluation of stubble emission of North India and quantifying its impact on air quality of Delhi." *Science of The Total Environment* 709 (2020): 136126.
- [35] Sembhi, H., M. Wooster, T. Zhang, S. Sharma, Nimish Singh, S. Agarwal, H. Boesch et al. "Post-monsoon air quality degradation across Northern India: assessing the impact of policy-related shifts in timing and amount of crop residue burnt." *Environmental Research Letters* 15, no. 10 (2020): 104067.
- [36] Yadav, Manish, Satya Prakash Sahu, and Nitin Kumar Singh. "Multivariate statistical assessment of ambient air pollution in two coalfields having different coal transportation strategy: a comparative study in Eastern India." *Journal of Cleaner Production* 207 (2019): 97-110.
- [37] Deep, Amar, Chhavi P. Pandey, Hemwati Nandan, K. D. Purohit, Narendra Singh, Jaydeep Singh, A. K. Srivastava, and Narendra Ojha. "Evaluation of ambient air quality in Dehradun city during 2011–2014." *Journal of Earth System Science* 128 (2019): 1-14.
- [38] Begum, Bilkis A., and Philip K. Hopke. "Identification of sources from chemical characterization of fine particulate matter and assessment of ambient air quality in Dhaka, Bangladesh." *Aerosol and Air Quality Research* 19, no. 1 (2019): 118-128.
- [39] Brauer, Michael, Sarath K. Guttikunda, K. A. Nishad, Sagnik Dey, Sachchida N. Tripathi, Crystal Weagle, and Randall V. Martin. "Examination of monitoring approaches for ambient air pollution: A case study for India." *Atmospheric Environment* 216 (2019): 116940.
- [40] Dobhal, Bhagwansing S., Ravindra P. Shimpi, and Mazahar Farooqui. "Evaluation of Ambient Air Quality of Jalna City (MS), India." *International Journal of Research and Review* 6, no. 12 (2019): 341-351.
- [41] Purohit, Pallav, Markus Amann, Gregor Kiesewetter, Peter Rafaj, Vaibhav Chaturvedi, Hem H. Dholakia, Poonam Nagar Koti et al. "Mitigation pathways towards national ambient air quality standards in India." *Environment international* 133 (2019): 105147.

- [42] Yatawara, Mangala, and Nalika Dayananda. "Use of corticolous lichens for the assessment of ambient air quality along rural–urban ecosystems of tropics: a study in Sri Lanka." *Environmental monitoring and assessment* 191 (2019): 1-14.
- [43] Sahu, C., and S. K. Sahu. "Ambient air quality and air pollution index of Sambalpur: a major town in Eastern India." *International Journal of Environmental Science and Technology* 16 (2019): 8217-8228.
- [44] Masih, Amit, Anurag S. Lall, Ajay Taneja, and Raj Singhvi. "Exposure levels and health risk assessment of ambient BTX at urban and rural environments of a terai region of northern India." *Environmental pollution* 242 (2018): 1678-1683.
- [45] Manju, A., K. Kalaiselvi, V. Dhananjayan, M. Palanivel, G. S. Banupriya, M. H. Vidhya, K. Panjakumar, and B. Ravichandran. "Spatio-seasonal variation in ambient air pollutants and influence of meteorological factors in Coimbatore, Southern India." *Air Quality, Atmosphere & Health* 11 (2018): 1179-1189.
- [46] Shaddick, Gavin, Matthew L. Thomas, Heresh Amini, David Broday, Aaron Cohen, Joseph Frostad, Amelia Green et al. "Data integration for the assessment of population exposure to ambient air pollution for global burden of disease assessment." *Environmental science & technology* 52, no. 16 (2018): 9069-9078.
- [47] Ugya, Adamu Yunusa, and Tijjani Sabiu Imam. "Assessment of ambient air quality resulting from anthropogenic emissions." *AMERICAN JOURNAL OF PREVENTIVE MEDICINE* 2, no. 1 (2018): 1-7.
- [48] Dadhich, Ankita P., Rohit Goyal, and Pran N. Dadhich. "Assessment of spatio-temporal variations in air quality of Jaipur city, Rajasthan, India." *The Egyptian Journal of Remote Sensing and Space Science* 21, no. 2 (2018): 173-181.
- [49] Hariram, Manisha, Ravi Sahu, and Suresh Pandian Elumalai. "Impact assessment of atmospheric dust on foliage pigments and pollution resistances of plants grown nearby coal based thermal power plants." *Archives of environmental contamination and toxicology* 74 (2018): 56-70.
- [50] Begum, Bilkis A., and Philip K. Hopke. "Ambient air quality in Dhaka Bangladesh over two decades: Impacts of policy on air quality." *Aerosol and Air Quality Research* 18, no. 7 (2018): 1910-1920.
- [51] Patel, Jagrutiben Arunkumar, Bhavesh I. Prajapati, and Viralben Panchal. "Assessment of ambient air quality and air quality index (AQI) in Dahej Area, Gujarat, India." *Nature Environment and Pollution Technology* 16, no. 3 (2017): 943.
- [52] Haque, Md Senaul, and R. B. Singh. "Air pollution and human health in Kolkata, India: A case study." *Climate* 5, no. 4 (2017): 77.
- [53] Thakur, Amrita. "Study of ambient air quality trends and analysis of contributing factors in Bengaluru, India." *Oriental journal of chemistry* 33, no. 2 (2017): 1051-1056.
- [54] Nandan, Abhishek, S. M. Tauseef, and N. A. Siddiqui. "Assessment of Ambient Air Quality Parameters in Various Industries of Uttarakhand, India." In *Materials, Energy and Environment Engineering: Select Proceedings of ICACE 2015*, pp. 279-290. Springer Singapore, 2017.
- [55] Datta, Arindam, R. Suresh, Akansha Gupta, Damini Singh, and Priyanka Kulshrestha. "Indoor air quality of non-residential urban buildings in Delhi, India." *International Journal of Sustainable Built Environment* 6, no. 2 (2017): 412-420.