



# **Atmospheric Pollution & Climate Change (APCC) Environmental Information System (ENVIS) Resource Partner**

(Sponsored by Ministry of Environment, Forest & Climate Change, Govt. of India)

## **ARTICLES IN MEDIA**

**National  
2021-22**

**INDIAN INSTITUTE OF TROPICAL METEOROLOGY  
PUNE - 411 008**

***CONTRIBUTED BY***

**DR. B.S MURTHY**

**MR. SAMIR DHAPARE**

**MR. GAURAV SHINDE**

**MS. BHAGYASHRI KATRE**

## **PREFACE**

Indian Institute of Tropical Meteorology (IITM, Pune) a Resource Partner to Ministry of Environment, Forest & Climate Change's scheme- Environmental Information System's (ENVIS) on Atmospheric Pollution & Climate Change (APCC). IITM-ENVIS is compiling the news articles in media for air pollution and climate change categories, for the year 2021. This book has articles which were published in media showcasing important environmental news events which was happened in 2021-22 and its impact on the environment and human health.

Since the middle of the twentieth century, India has witnessed a rise in average temperature; a decrease in monsoon precipitation; a rise in extreme temperature and rainfall events, droughts, and sea levels; and an increase in the intensity of severe cyclones, alongside other changes in the monsoon system. There is compelling scientific evidence that human activities have influenced these changes in regional climate.

| Sr. No. | Title  | Page No. |
|---------|--|----------|
| ▪       | <b>Articles in Media - National</b>  |          |
| ▪       | <b>January 2021</b>  | <b>1</b> |
| 1       | "Severe" Air Quality In Noida, Ghaziabad, Faridabad  | 1        |
| 2       | India's environment shows improvement  | 2        |
| 3       | Delhi assembly's environment committee summons MCD commissioners over dust pollution           | 6        |
| 4       | "Moderate" Air In Ghaziabad, Greater Noida After 37 Days                                       | 7        |
| 5       | Sporadic rainfall keeps air quality satisfactory, to dip again soon                            | 8        |
| 6       | Air Quality "Moderate" In Noida, Gurgaon, "Poor" In Ghaziabad, Faridabad                       | 10       |
| 7       | At 313, Mumbai beats Delhi with 'very poor' AQI  | 11       |
| 8       | Delhi's air quality improves, to become better over the weekend: IMD                           | 13       |
| 9       | Air Quality "Poor" In Gurgaon, "Very Poor" In Ghaziabad, Noida, Faridabad                      | 14       |
| 10      | Mumbai air quality turned worst in October 2020, says MPCB data                                | 15       |
| 11      | Patna grapples with 'severe' air pollution after 2 years of clean action plan                  | 17       |
| 12      | Air quality very poor in Ghaziabad, Greater Noida, poor in Faridabad, Gurgaon                  | 19       |
| 13      | Chennai pollution levels on Bhogi kept in check this year thanks to clear skies, say officials | 20       |
| 14      | Air pollution shot up in some northern towns last year despite lockdown                        | 22       |
| 15      | Air quality in Delhi, neighboring areas 'severe', visibility low due to fog                    | 24       |
| 16      | Delhi: Air quality severe for third day in row, fog leads to delay of 40 flights               | 25       |
| 17      | Air quality remains 'severe' in Delhi-NCR, AQI falls to 428                                    | 27       |
| 18      | Delhi's Air Quality Improves Slightly To "Very Poor" Category                                  | 28       |
| 19      | Dhanbad starts using sprinklers to curb air pollution  | 30       |
| 20      | The persistence of the pollution threat  | 31       |
| 21      | Air Quality Improves But Still "Very Poor" In Ghaziabad, Noida, Faridabad                      | 32       |
| 22      | Air Quality panel tasks agencies to develop tool for targeted pollution control                | 34       |
| 23      | As temperatures remain low, Mumbai records very poor air quality                               | 35       |
| 24      | Govt approves proposal for 'green tax' on old vehicles to contain air pollution                | 36       |
| 25      | Air "very poor" in Ghaziabad, Noida, Faridabad & Gurgaon                                       | 38       |
| 26      | Plastic burning main cause behind reduced visibility in Delhi: IIT Madras study                | 39       |
| 27      | IMD issues yellow alert for Delhi-NCR; cold wave conditions prevail                            | 42       |
| 28      | IIT-Kanpur submits proposal for study on real-time air pollution sources in the city           | 43       |



| Sr. No. | Title   | Page No.  |
|---------|---|-----------|
| 29      | Air quality 'very poor' in Ghaziabad, Noida, Gurgaon and Faridabad  | 45        |
| ▪       | <b>February 2021</b>  | <b>47</b> |
| 30      | Air quality turns 'severe' in Ghaziabad, 'very poor' in Noida, Faridabad                                  | 47        |
| 31      | Action on old vehicles, traffic congestion in Delhi's plan against air pollution                          | 48        |
| 32      | Punjab witnessed 44.5 % increase in stubble burning incidents in 2020: Centre tells SC                    | 51        |
| 33      | Cleaner Air During Covid-19 Pandemic Caused Brief Temperature Spike: Study                                | 52        |
| 34      | After a month, AQI 'satisfactory' in Ghaziabad, 'moderate' in Noida                                       | 54        |
| 35      | Air "Poor" In Ghaziabad, "Moderate" In Noida, Faridabad, Gurgaon  | 55        |
| 36      | AQI 'very poor' in Delhi despite rise in wind speed, 'worst' in Ghaziabad and Noida                       | 56        |
| 37      | Noida's air quality drops to 'very poor' again  | 58        |
| 38      | Nearly 5 Deaths Per Minute In India Due To Fossil Fuels Burning: Report                                   | 59        |
| 39      | Pune to get six more air quality monitoring systems   | 62        |
| 40      | "Very Poor" Air Quality In Ghaziabad, Noida, "Poor" In Gurgaon, Faridabad                                 | 63        |
| 41      | Dense fog likely, air quality gets worse  | 64        |
| 42      | Air slips to 'severe' levels in Ghaziabad, 'very poor' in Noida, Gurugram, Faridabad                      | 65        |
| 43      | Air quality 'severe' in Ghaziabad, Noida, 'very poor' in Faridabad  | 66        |
| 44      | Mumbai breathes cleanest air of the year, pollution levels drop   | 68        |
| 45      | Deadly smog over India won't lift until March, Copernicus says  | 69        |
| 46      | A deadly smog covers much of India, threatening 400 million people  | 71        |
| 47      | Noida struggles for clean air as wind speed drops   | 73        |
| 48      | To tackle dust pollution, Delhi govt to prepare comprehensive action plan                                 | 74        |
| 49      | 5,534 new electric three-wheelers register for Switch Delhi campaign                                      | 76        |
| 50      | Foggy February: Experts explore reasons behind 'unusual' weather phenomenon                               | 76        |
| 51      | Delhi air quality in poor category, significant improvement unlikely                                      | 79        |
| 52      | Deteriorating air quality in Chennai cause for serious concern, say doctors                               | 82        |
| 53      | Air pollution higher this winter than previous year, finds report   | 85        |
| 54      | Air quality deteriorates sharply Delhi's Bawana industrial area   | 87        |
| 55      | Winds keep Delhi mercury from breaking February record, temperature to dip this weekend                   | 88        |
| 56      | Incoming Dust from Rajasthan to Worsen Delhi's Air Quality from February 28; AQI to Deteriorate to 'Poor' | 89        |
| 57      | Delhi largely neglected pollution hotspots in Dwarka, Narela in favour of carrying out plantation         | 91        |

| Sr. No. | Title  | Page No.  |
|---------|--|-----------|
| ▪       | <b>March 2021</b>  | <b>93</b> |
| 58      | Tackling stubble burning could reduce high BP risk, save \$2 billion over 5 years — study  | 93        |
| 59      | Delhi air quality 'moderate'   | 95        |
| 60      | Mercury on rise in Noida, air quality improves   | 96        |
| 61      | Delhi Witnessed Higher Pollution Levels, Fewer Smog Episodes This Winter: CSE Analysis   | 97        |
| 62      | CPCB records 'very poor' air quality in Greater Noida, 'poor' in Ghaziabad, Faridabad, and Gurugram  | 100       |
| 63      | Air Quality "Poor" In Ghaziabad, "Moderate" In Noida, Faridabad  | 101       |
| 64      | Delhi records maximum temperature at 34 degrees Celsius, air quality poor  | 102       |
| 65      | Exposure to air pollution can cause anaemia in very young children, says new study   | 103       |
| 66      | Parliamentary panel underlines lack of quality data on air pollution in smaller cities   | 106       |
| 67      | UPPCB, traffic dept to identify pollution hotspots in UP cities  | 108       |
| 68      | Navi Mumbai: To tackle pollution menace, Kalamboli, Kharghar, MIDC Taloja to get three air quality monitors  | 109       |
| 69      | Dr. Harsh Vardhan Inaugurates Four Pyres Of The Green Crematoria,'Air Pollution Control System For Crematoria', Developed By CSIR-NEERI At Delhi's Nigam Bodh Ghat Crematorium | 111       |
| 70      | Action plan to reduce air pollution in Madurai   | 113       |
| 71      | Air quality in Delhi 'poor', 'moderate' in Ghaziabad, Noida, Faridabad, Gurgaon  | 114       |
| 72      | Delhi Aims To Become India's "EV Capital" As Key Reforms Gain Momentum   | 116       |
| 73      | Delhi is the most polluted capital city globally, says report  | 121       |
| 74      | Ludhiana's rank improves by 15 slots in world pollution chart, better air quality  | 122       |
| 75      | Delhi Is Most Polluted Capital Of The World; 73% Of Top Polluted Cities Are In India!  | 124       |
| 76      | Air pollution in Delhi: Govt has taken number of steps to bring down pollution, says Javadekar   | 126       |
| 77      | Air quality improves in Noida, Ghaziabad, Faridabad, and gurgaon   | 128       |
| 78      | Over half of India lives with hazardous levels of air pollution  | 129       |
| 79      | Partly Cloudy Skies Bring Mercury Down Slightly In Delhi: Weather Office   | 130       |
| 80      | Light rain in Delhi-NCR, temperature to rise by weekend  | 131       |
| 81      | Delhi records maximum temperature of 34.2 deg C; air quality 'moderate'  | 133       |
| 82      | Cleaner air for Bengaluru as BBMP installs city's first smog tower   | 134       |
| 83      | Delhi has bent pollution curve, annual level of particulate matter on decline: Report  | 135       |

| Sr. No. | Title  | Page No.   |
|---------|--|------------|
| 84      | Mercury to touch 38 degrees Celsius on Holi  | 137        |
| 85      | IIT-Delhi to help Ghaziabad, Noida tackle air pollution  | 138        |
| 86      | This Indian City Ditches Cars Every Saturday to Protect the Planet   | 140        |
| 87      | UP, Maharashtra have most critically polluted industrial regions: CSE  | 142        |
| ▪       | <b>April 2021</b>  | <b>145</b> |
| 88      | How Poor Indoor Air Quality Affects Your Lifestyle   | 145        |
| 89      | Environment ministry sets new deadlines for thermal plants to meet norms   | 147        |
| 90      | India Delays Anti-Pollution Rules for Coal Power Plants Again  | 149        |
| 91      | Plants Remove Toxic Mercury Gas From Atmosphere By Absorbing, Depositing In Soil: Study                                  | 151        |
| 92      | Bihar blacklists over 2,000 farmers for stubble burning  | 152        |
| 93      | Climate change is real: Six months on, Uttarakhand forests still ablaze  | 153        |
| 94      | Air Pollution Continues To Be A Major Cause Of Mortality For Non-Communicable Diseases In India – Fedo                   | 155        |
| 95      | Hyderabad: City air unsafe again as toxic emissions rising   | 157        |
| 96      | Himachal Pradesh yet to notify policy on polluting industrial fuel   | 158        |
| 97      | Delhi temperature to touch 40 degrees coming week  | 160        |
| 98      | Delhi govt to organise conference on reducing air pollution: Gopal Rai   | 161        |
| 99      | Forest fires in Uttarakhand: Absence of real-time air quality monitoring plagues Himalayas                               | 162        |
| 100     | Delhi Government To Focus On Public Participation To Curb Air Pollution: Gopal Rai                                       | 166        |
| 101     | NGT forms National Task Force to combat air pollution  | 167        |
| 102     | Air pollution by brick kilns in Mathura, NGT seeks action taken report   | 168        |
| 103     | Strong winds spark dust storm in national capital, air quality worsens   | 170        |
| 104     | Sulphur dioxide from Caribbean volcano reaches India, WMO confirms   | 172        |
| 105     | Air pollution costs Indian businesses \$95 b every year: Report  | 174        |
| 106     | Here's why Indian businesses should not ignore 'pollution pandemic'  | 176        |
| 107     | UP govt to set up 600 pollution check centres, hire 1k youth   | 178        |
| 108     | Air pollution is back with a vengeance as industries play catch up — and that could further worsen the COVID-19 pandemic | 179        |
| 109     | In India and Nepal, forest fires across the Himalayas are threatening lives and biodiversity                             | 181        |
| 110     | Haze in Delhi during lockdown caused by western disturbance, study finds   | 185        |
| 111     | Hidden air pollutants on the rise in cities in India and the UK – study  | 186        |
| 112     | Air pollution on rise in Indian cities: study  | 187        |
| 113     | Delhi air in trouble again: Should farm fires be in focus  | 189        |
| ▪       | <b>May 2021</b>  | <b>193</b> |
| 114     | Amid Covid surge, Delhi's pollution levels rise sharply  | 193        |
| 115     | Hidden air pollutants rising in Indian cities like Delhi and Kanpur, study finds   | 194        |
| 116     | Long-term NO2 exposure affects lung function: Study  | 195        |
| 117     | Time to Take On the Increasing Air Pollution in Indian Cities  | 197        |

| Sr. No. | Title  | Page No.   |
|---------|--|------------|
| 118     | Hyderabad: Continuous downpour improves air quality index  | 200        |
| 119     | Delhi Records Maximum Temperature Of 36.7 Degrees Celsius  | 201        |
| 120     | Kolkata air quality improves with the dip in number of vehicles  | 202        |
| 121     | Ennore power plants violate emission norms, pose serious health risks: Study                                 | 203        |
| 122     | Air pollution from crematorium irks residents of Gnanapuram  | 206        |
| 123     | Coronavirus Lockdown in India Results in Reduction of Air Pollutants   | 207        |
| 124     | City Risk Analysis Shows 43 of World's 100 Most Environmentally Vulnerable Cities Are in India               | 209        |
| 125     | Light rains bring down mercury in Delhi; Squalls likely in NCR region on Wednesday                           | 210        |
| 126     | Thursday likely to be cloudy, rainy in Noida   | 211        |
| 127     | Delhi air quality 'good' for first time in 2021: Factors behind the improvement                              | 212        |
| 128     | Himalayas visible from UP's Saharanpur as pollution levels dip, see amazing pics                             | 214        |
| 129     | In Pune, increase of 70% in PM2.5, 61% in PM10 in seven years: Report  | 215        |
| 130     | Fresh Air And Clear Sky After Heavy Rain During Lockdown Made Delhi Look Like A Hill Station                 | 218        |
| 131     | Hyderabad residents breathe easy as air quality improves post COVID lockdown                                 | 219        |
| 132     | Power Ministry decides to set up National Mission on use of biomass in coal based thermal power plants       | 220        |
| 133     | Delhi experienced highest spike in PM2.5 on Diwali, reveals CPCB report                                      | 222        |
| 134     | Delhi records maximum temperature of 41.2 degrees Celsius  | 223        |
| 135     | Telangana: Air Pollution falls drastically in Hyderabad amid lockdown  | 224        |
| 136     | Corona curfew curbs, rain help improve air quality of UP cities  | 225        |
| 137     | World No-Tobacco Day: How Breathing in Indian Cities is Equivalent to Smoking Packs of Cigarettes in One Day | 226        |
| ▪       | <b>June 2021</b>   | <b>230</b> |
| 138     | Air quality improved during India lockdown, study shows  | 230        |
| 139     | Air quality improved during Covid lockdown in India, study shows   | 231        |
| 140     | Delhi breathes easy as Covid-19 lockdown lowers pollution levels again                                       | 234        |
| 141     | Slight dip in Lucknow's air pollution due to Corona Curfew: IITR report                                      | 235        |
| 142     | Punjab signs pact to launch use of emissions trading scheme  | 237        |
| 143     | Delhi's air quality to deteriorate to 'poor' category  | 239        |
| 144     | New study to help accurate estimation of black carbon over Himalayas   | 240        |
| 145     | Despite COVID Pandemic, Carbon Dioxide In The Air At Highest Level Since Measurements Began                  | 242        |
| 146     | Noida sizzles at 42 degrees Celsius; air quality 'very poor  | 243        |
| 147     | AQI of Bihar cities worsens despite huge investment, policy support  | 244        |

| Sr. No. | Title   | Page No.   |
|---------|---|------------|
| 148     | Delhi aims to prevent air pollution in October-November   | 245        |
| 149     | Delhi aims to prevent air pollution in October-November   | 246        |
| 150     | Monsoon breaks speed limits, what it means for agriculture, pollution in North India                            | 249        |
| 151     | 11 thermal plants in NCR accounted for 7% of Delhi air pollution in Oct-Jan: Study                              | 251        |
| 152     | Household Heating, Cooking Behind 40% Of Delhi's Pollution: Study   | 254        |
| 153     | Delhi's air pollution documentary to be a part of climate issues section at Cannes                              | 255        |
| 154     | COVID-19 Lockdown Reduced Atmospheric Nitrogen Oxide Levels in India  | 257        |
| 155     | Delhi pollution: 10-unit rise in PM2.5 causes 7 hospital admissions with respiratory disease a week, says study | 259        |
| 156     | Cross country study finds link between air pollution and Covid-19   | 261        |
| 157     | Experts flag air quality management in Punjab   | 263        |
| 158     | Vehicular emissions in Mumbai double in five years, says study  | 264        |
| 159     | Study links Black Carbon with premature deaths  | 266        |
| ▪       | <b>July 2021</b>  | <b>268</b> |
| 160     | How to Reduce Vehicle Pollution in India?   | 268        |
| 161     | People living in cities with high PM2.5 levels more likely to get Covid   | 271        |
| 162     | Noida weather: Respite from heat wave to continue, more rains likely  | 273        |
| 163     | Maximum temperature settles at 39.8 degrees C in Delhi  | 274        |
| 164     | Our children are at risk of air pollution. Now is the time to act   | 275        |
| 165     | Delhi's NO2 pollution increased by 125% in one year, finds study  | 277        |
| 166     | Indian cities witnessed spike in NO2 pollution between April 2020 and 2021: Report                              | 279        |
| 167     | Chennai air quality: City sees 94% spike in NO2 pollution   | 281        |
| 168     | Monsoon expected to hit Delhi today; rain, thundershowers likely  | 283        |
| 169     | Yellow veil dims stars in 75% of Ahmedabad sky  | 285        |
| 170     | Post unlock, air pollution surges in Madhya Pradesh   | 286        |
| 171     | Fly ash from power stations in Bihar wreaks havoc on human health, crops: Study                                 | 288        |
| 172     | Delhi weather: IMD predicts light rain today and tomorrow   | 290        |
| 173     | Covid-19 virus piggybacks only black carbon emission, says study  | 291        |
| 174     | 11% rise in Kolkata's nitrogen dioxide pollution this year; least among 8 state capitals: Report                | 293        |
| 175     | India burns: Air pollution & how to control it  | 294        |
| 176     | Delhi weather: Cloudy sky with a chance of light rain today   | 297        |
|         | 'India, China most vulnerable to joint risks of climate change, air pollution'                                  | 298        |
| 177     | Decision Support System to help Delhi fight air pollution   | 301        |
| 178     | Bending Delhi's air pollution curve   | 302        |
| 179     | Ban BS-III vehicles in MMR to prevent air pollution: MPCB panel   | 306        |
| 180     | Inequity in the Air of India  | 307        |
| 181     | High level of metals, PM 2.5 found in Chennai's air   | 309        |

| Sr. No. | Title  | Page No.   |
|---------|--|------------|
| 182     | Jaipur: Study Among 10 most polluted places in the Rajasthan, 3 are in                                       | 311        |
| 183     | Delhi weather: Moderate rain expected today, says IMD  | 312        |
| 184     | Pune ring road to curtail pollution by nearly 25%, says Maharashtra minister                                 | 314        |
| 185     | Air Pollution in Delhi-NCR Shows Decreasing Trend Over Last 4 Years: CPCB                                    | 315        |
| ▪       | <b>August 2021</b>   | <b>317</b> |
| 186     | Delhi-NCR breaching ozone limits more often, says study  | 317        |
| 187     | World Lung Cancer Day: 'Exposure to air pollution, particularly of biomass fuel, kerosene, can damage lungs' | 318        |
| 188     | Hyderabad air quality improved during lockdown   | 320        |
| 189     | Delhi: New rules to curb dust pollution at construction site   | 322        |
| 190     | Chennai's air quality improves from 'satisfactory' to 'good'   | 323        |
| 191     | Rain in excess, but Delhi yet to get any good air day this year  | 324        |
| 192     | Delhi: After rain delay, Connaught Place smog tower ready to help in pollution fight                         | 327        |
| 193     | 'Orange' alert in Gurugram today; mercury to rise next week  | 328        |
| 194     | Concentration of air pollutants significantly increasing over India: IPCC                                    | 329        |
| 195     | Mumbai: BMC to set up five air quality monitoring stations   | 332        |
| 196     | China's Hotan most polluted city in 2020, Ghaziabad at 2nd place: Report                                     | 332        |
| 197     | Delhi to see partly cloudy sky today, mercury to remain high: IMD  | 334        |
| 198     | 2021 vs 2020: August gasps for one 'good' air day in Gurugram this year                                      | 335        |
| 199     | India to recalibrate air quality standards next year   | 337        |
| 200     | Ahmedabad gets bronze for dust pollution   | 338        |
| 201     | Delhi Will Breathe Fresh Air Soon, First Smog Tower to be Inaugurated on August 23   All You Need to Know    | 340        |
| 202     | CM Arvind Kejriwal To Inaugurate Delhi's First Smog Tower On August 23 To Curb Pollution                     | 342        |
| 203     | Madhya Pradesh: Air pollution doubles in August, thanks to dry spell, road dust                              | 344        |
| 204     | Stubble burning: Air quality commission asks states to follow protocol developed by ISRO                     | 345        |
| 205     | IIT Delhi researchers develop modified cotton fabric which adsorbs air pollutants                            | 347        |
| 206     | Air pollution could hit monsoon rains by as much as 15%  | 349        |
| 207     | Delhi transport department to focus on procuring electric buses  | 350        |
| 208     | Soon: 'Mission' to improve air quality   | 352        |
| 209     | Not much action, Delhi-NCR may choke again on farm fires   | 353        |
| 210     | 'Vehicles, construction works and brick kilns causing high particle air pollution in Patna': Study           | 355        |
| 211     | Air pollution in 13 Andhra Pradesh cities to be cut  | 357        |
| 212     | Report on source of Vasco pollution after Chaturthi: GSPCB   | 358        |
| 213     | Sigh of relief for residents as Patna's AQI turns 'good'   | 359        |



| Sr. No. | Title  | Page No.   |
|---------|--|------------|
| ▪       | <b>September 2021</b>  | <b>361</b> |
| 214     | People in Maharashtra can lose 2.5-2.9 years of life expectancy due to air quality: Report                                     | 361        |
| 215     | U'khand among top 3 'most polluted' Himalayan states, Tripura first: Report  | 363        |
| 216     | After heavy showers, Gurgaon sees 'good' air day   | 364        |
| 217     | Karnataka pollution board to set up 11 air quality monitoring stations in industrial clusters                                  | 365        |
| 218     | As cities choke  | 366        |
| 219     | Hidden air pollutants on the rise in cities in India and the UK – study  | 370        |
| 220     | Air pollution levels in central, south Mumbai higher than western parts of city: Report  | 372        |
| 221     | Air quality a serious concern in Haryana, says GJUST study   | 373        |
| 222     | Chandigarh gets country's tallest air purifier   | 375        |
| 223     | Winter coming, action plan to fight bad air by next week   | 377        |
| 224     | Study recommends planting of Ashoka and cluster fig trees in Shivajinagar and Pashan to combat air pollution                   | 378        |
| 225     | Pollution season: DPCC to focus on 'bad fuel'  | 380        |
| 226     | Battling air pollution   | 381        |
| 227     | MoEFCC launches PRANA portal for regulation of air pollution   | 383        |
| 228     | Delhi must cut PM2.5 by 58% to meet annual standards   | 384        |
| 229     | Delhi Orders Ban on Pollutive Firecrackers Ahead of Diwali to 'Save Lives'   | 387        |
| 230     | Delhi: 80% commercial vehicles using RFID tags to enter the Capital, say SDMC officials  | 388        |
| 231     | Corporation puts in place air quality management plan  | 390        |
| 232     | Record rain, clear sky, but no good air day  | 391        |
| 233     | Mumbai: Combined impact of climate, agriculture and air pollution leading to heart, lung and nutrition-related diseases: Study | 393        |
| 234     | Steep Rise in Pune's Air Pollution as PM2.5 has Increased by 70% in 6 Years, Finds Study                                       | 395        |
| 235     | India's air quality forecasting model gets global nod  | 397        |
| 236     | Mumbai's PM 2.5 levels 8 times higher than new WHO norms   | 399        |
| 237     | Northern States Check their Preparedness Ahead of Stubble Burning Season   | 400        |
| 238     | How WHO's new air quality norms will impact India  | 402        |
| 239     | India asks coal plants around Delhi to use biomass   | 403        |
| 240     | Delhi orders 'complete ban' on sale, bursting of firecrackers till January 1   | 405        |
| 241     | Mumbai citizens may experience severe health impacts of coal pollution: Study  | 406        |
| 242     | Delhi pollution: Gopal Rai urges citizens to promote carpooling ahead of winters   | 409        |
| ▪       | <b>October 2021</b>  | <b>411</b> |
| 243     | Delhi smog tower: Primary results show 80% reduction in pollution, says Rai  | 411        |

| Sr. No. | Title  | Page No.   |
|---------|--|------------|
| 244     | Gurugram takes steps to curb air pollution   | 412        |
| 245     | As winter nears, Gurgaon issues guidelines to combat air pollution                               | 414        |
| 246     | Arvind Kejriwal announces 10-point winter action plan to curb pollution                          | 415        |
| 247     | Partly overcast weather, light rain likely in Delhi  | 417        |
| 248     | Delhi government to start 'anti-dust campaign' from October 7                                    | 418        |
| 249     | Every year, Delhi breathes its worst air from Nov 1 to 15: DPCC data                             | 419        |
| 250     | Ghaziabad municipal corporation readies equipment to tackle air pollution in city                | 420        |
| 251     | An eight-point urban agenda for pollution control in India                                       | 422        |
| 252     | Air quality starts falling, pollution board cites temperature dip                                | 425        |
| 253     | Gautam Budh Nagar, Ghaziabad air quality starts deteriorating slightly                           | 427        |
| 254     | Loni's air quality monitoring station may be relocated to city forest                            | 429        |
| 255     | Delhi air pollution: 75% of children experience breathlessness, says study                       | 431        |
| 256     | Greater Noida authority sets up control room to mitigate air pollution in city                   | 432        |
| 257     | Delhi's Air Quality Remains "Moderate", Likely To Deteriorate In Next 2 Days                     | 434        |
| 258     | A day after Dussehra, Ghaziabad and Greater Noida most polluted across country                   | 435        |
| 259     | Delhi government to initiate 'Red Light on Gaadi Off' campaign from Oct 18 to curb air pollution | 437        |
| 260     | Noida air quality only improves to 'poor' despite showers, rain likely today                     | 438        |
| 261     | And the air in Delhi was 'good' — after 413 days   | 440        |
| 262     | Centre launches Air Quality Early Warning System to fight pollution in Delhi                     | 443        |
| 263     | Good to poor in 48 hours: Bad air back in Delhi, and set to get worse                            | 444        |
| 264     | Hyderabad's air quality drops as monsoon weakens   | 447        |
| 265     | IIT-Kanpur to study Delhi's air pollution, give solutions to curb winter smog spike              | 448        |
| 266     | Fight is on: Delhi govt to review hotspots to check pollution                                    | 450        |
| 267     | Delhi's air quality improves to 'moderate' with rains; cloudy sky on forecast today              | 451        |
| 268     | Delhi's air quality has been surprisingly good in Oct, but smog may be on way                    | 453        |
| 269     | Stubborn stubble: Delhi's agony set to return  | 457        |
| 270     | Delhi: In first for the season, temp below 15°C as AQI worsens                                   | 459        |
| 271     | City's air quality likely to be 'very poor' today  | 461        |
| 272     | All 'green crackers' have toxic heavy metals: Awaaz Foundation                                   | 462        |
| 273     | Delhi's October Air Quality Best In 4 Years, Courtesy Record Rainfall                            | 464        |
| ▪       | <b>November 2021</b>   | <b>466</b> |
| 274     | Delhi Air Pollution: Air quality turns 'very poor' ahead of Diwali, likely to improve today      | 466        |
| 275     | Air quality set to plummet in India's capital after clean spell                                  | 467        |

| Sr. No. | Title  | Page No.   |
|---------|--|------------|
| 276     | Delhi News highlights: Capital's air quality enters red zone first time this season                    | 469        |
| 277     | Toxic smog chokes Indian capital during Diwali celebrations  | 470        |
| 278     | Air quality, fog condition to improve once wind speed picks up; expert's view on Delhi's air pollution | 472        |
| 279     | Stubble burning emissions account for 36% of Delhi's pollution: SAFAR                                  | 474        |
| 280     | Delhi: Farm fires at season's high, share in bad air jumps too   | 475        |
| 281     | World's worst air pollution blankets India's capital in smog   | 477        |
| 282     | Delhi's air quality continues to remain in 'very poor' category  | 478        |
| 283     | Delhi govt comes up with five-point plan to combat local sources of pollution                          | 480        |
| 284     | Noida's air improves, Ghaziabad still the most polluted in the country                                 | 482        |
| 285     | Bengaluru records dip in air pollution this Deepavali  | 484        |
| 286     | As Delhi pollution nears emergency level, CPCB advises people to skip outdoors, cut vehicle use        | 486        |
| 287     | Noida most polluted for second day in a row, no respite in sight                                       | 487        |
| 288     | Air quality panel suggests Rajasthan, UP to close schools amid deteriorating air quality               | 490        |
| 289     | Soaring pollution has Delhi considering full weekend lockdown  | 491        |
| 290     | Delhi Pollution: No Entry for Trucks with Non-essential Items, Schools and Colleges to Remain Shut     | 494        |
| 291     | Schools in India's Delhi close as smog envelops city   | 497        |
| 292     | Air quality in Delhi could remain 'very poor' till Saturday  | 499        |
| 293     | Gurugram air quality 'very poor' for 5th straight day  | 499        |
| 294     | More people fall ill as air pollution suffocates New Delhi   | 500        |
| 295     | Jaipur: Respite after 10 days as air turns 'moderate'  | 502        |
| 296     | Delhi pollution: Winds of change may boost AQI to 'poor'   | 503        |
| 297     | Delhi Schools, Colleges To Reopen From Nov 29 As Air Quality Slightly Improves                         | 504        |
| 298     | NO2 levels hazardous in many traffic-heavy areas   | 505        |
| 299     | Delhi pollution: Air quality continues to be in 'very poor' category                                   | 508        |
| 300     | Delhi air pollution: Only CNG and electric vehicles allowed entry from today                           | 509        |
| 301     | Increase in wind speed may improve air quality in Noida, Ghaziabad                                     | 510        |
| 302     | India's farmers happy as ban on smoky stubble burning repealed   | 512        |
| 303     | Delhi's pollution drops to 7-day low but stays in 'very poor' zone                                     | 513        |
| ▪       | <b>December 2021</b>   | <b>516</b> |
| 304     | Delhi air pollution: No relief in sight till Thursday  | 516        |
| 305     | Local pollution sources at fault as stubble fire season wraps up                                       | 517        |
| 306     | Haryana schools to remain closed in 4 NCR districts amid rising air pollution                          | 519        |
| 307     | Farm fires gone, weather now polluting Delhi's air?  | 520        |
| 308     | Delhi Metro tackles air pollution with 14 anti-smog guns   | 523        |
| 309     | Delhi air quality slightly improves but still in 'very poor' category                                  | 525        |

| Sr. No. | Title  | Page No. |
|---------|--|----------|
| 310     | Kolkata's air quality improves by 80-90% after cyclone-induced rainfall                      | 526      |
| 311     | Delhi's air quality improves slightly from 'very poor' to 'poor', AQI at 235                 | 528      |
| 312     | Delhi's indoor pollution levels way above WHO limit: Study                                   | 529      |
| 313     | Delhi: Mercury dips to season's low, pollution up  | 531      |
| 314     | AQI in Delhi back to very poor as winds get slower   | 532      |
| 315     | Air pollution: AQI of UP cities improves to "moderate" from "severe"                         | 534      |
| 316     | Delhi air pollution: Ban on construction and entry of trucks to continue till further orders | 535      |
| 317     | Bihar's air quality deteriorates with dip in mercury   | 537      |
| 318     | Pollution: Air quality in Delhi, Noida in 'very poor' category                               | 538      |
| 319     | India has 9 of 10 most polluted cities, but few air quality monitors                         | 539      |
| 320     | At 326, Ghaziabad's air quality worst in 12 days   | 544      |
| 321     | City's air quality plummets to 'poor', south Mumbai most polluted                            | 545      |
| 322     | Construction curbs likely to be eased in Delhi as air quality improves: Report               | 547      |
| 323     | Delhi pollution: Construction ban over but dust control a priority, says Rai                 | 548      |
| 324     | Delhi to see shallow fog; Capital's air quality in 'very poor' zone                          | 550      |
| 325     | AQI 'very poor' in Delhi, slips to 'critical' in Noida: Check details                        | 551      |
| 326     | 94% in Chandrapur feel pollution taking toll on health: Study                                | 552      |
| 327     | Rise in air pollution increases COPD cases in Pune   | 554      |
| 328     | Delhi's air quality improves slightly from 'severe' to 'very poor,' AQI at 398               | 556      |
| 329     | Gurugram: Air 'very poor', may improve tomorrow  | 557      |
| 330     | Air pollution in several parts of north, west India up during pandemic                       | 558      |
| 331     | Best of times, worst of times: Delhi's air see-sawed in 2021                                 | 560      |
| 332     | Deadly 'pollutant from beyond Bengal' has engulfed Kolkata, rest of state: IIT Delhi study   | 562      |
| 333     | 25% of PM 2.5 load in Kolkata from outside, says study                                       | 564      |
| 334     | Vehicular pollution bigger factor than dust in Vasco air, finds IIT-Bombay                   | 565      |

## Articles in Media - National

January 2021

### "Severe" Air Quality In Noida, Ghaziabad, Faridabad

*Date: -1-Jan-2021, Source: ndtv.com*



**The average AQI on Thursday was 317 in Gurugram**

The AQI for each city is based on the average value of all stations there. Noida, Faridabad, Ghaziabad have four stations each, while Gurgaon has three and Greater Noida two.

New Delhi: The air quality plunged to the "severe" level in Ghaziabad, Noida, Greater Noida and Faridabad while it stayed in the "very poor" zone in Gurgaon

on the first day of 2021, according to the 24-hour data issued by a government agency on Friday.

Presence of pollutant PM 2.5 and PM 10 remained high in the five neighbouring areas of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

The average 24-hour AQI at 4 pm on Friday was 470 in Ghaziabad, 434 in Greater Noida, 455 in Noida, 421 in Faridabad and 376 in Gurgaon, according to CPCB's Sameer app.

The CPCB states that an AQI in the "severe" category affects healthy people and seriously impacts those with existing diseases while the air quality in the "very poor" zone may lead to respiratory illness on prolonged exposure.

The average AQI on Thursday was 343 in Ghaziabad, 394 in Greater Noida, 369 in Noida, 344 in Faridabad and 317 in Gurgaon. On Wednesday, it was 310 in Ghaziabad, 315 in Greater Noida, 302 in Noida, 289 in Faridabad and 227 in Gurgaon.

On Tuesday it was 283 in Ghaziabad, 272 in Greater Noida, 258 in Noida, 291 in Faridabad and 214 in Gurgaon. On Monday it was 256 in Ghaziabad, 237 in Greater Noida, 225 in Noida, 296 in Faridabad and 226 in Gurgaon.

On Sunday it was 407 in Ghaziabad, 418 in Greater Noida, 405 in Noida, 404 in Faridabad and 359 in Gurgaon, according to CPCB.

The AQI for each city is based on the average value of all stations there. Noida, Faridabad, Ghaziabad have four stations each, while Gurgaon has three and Greater Noida two, according to the app.

## **India's environment shows improvement**

*Date:-2-Jan-2021, Source: thehansindia.com*

The Covid-19 pandemic battered and bruised the world in 2020, teaching the value of human life, but an evident positive impact was that it helped the environment bounce back to its glory, even if temporarily. While schools, workplaces, transport and industry remained closed for a large part of the year as people stayed put in their houses, the grey skies started turning blue and pollutants in the air began to settle.

According to the Central Pollution Control Board, there was a significant improvement in air quality during lockdown (from March 22 to May 18) as PM2.5 in Delhi reduced by almost 50 per cent as compared to levels observed during 2019. The pollution level in India's five most-polluted cities - Ghaziabad, Delhi, Noida, Greater Noida and Gurgaon - which are also in the top 10 globally, came down by over 50 per cent during the first 10 days of the lockdown imposed to combat Covid-19 outbreak, said Greenpeace India.

Besides the air quality, there was improvement in water quality of seven rivers - Yamuna, Brahmani, Godavari, Cauvery, Krishna, Tapi and Brahmaputra - which was attributed to minimal industrial effluent discharges in view of closure of almost all industries, no human activities involving disposal of



worshipped puja materials and garbage, no anthropogenic activities such as outdoor bathing, washing of clothes, vehicle washing and cattle washing, no pilgrimage activities etc. during lockdown phase, the CPCB had said.

The panic caused by the pandemic came as a blessing in disguise for animals as the government kept humans away from them and their habitats. Swinging into action after a tiger at a US zoo tested positive for Covid-19, the environment ministry had asked all states and union territories to restrict the movement of people in various national parks and sanctuaries to avoid any human-animal contact.

However, as per a study conducted by wildlife trade monitoring network TRAFFIC, incidents of wildlife poaching in India more than doubled during the Covid-19 lockdown with 88 animals being killed for meat and trade during this time compared to 35 in the pre-lockdown days. The brutal killing of a pregnant elephant in Kerala, after she was fed firecrackers-filled pineapple, took social media by the storm, prompting the government to investigate the matter. The fear of the pandemic also led people to believe at one point that migratory birds were spreading the disease.

However, the government busted the myth saying that "fear psychosis" was being created by people and that there was no connection of coronavirus with migratory birds. The year gone by also saw India taking the presidency of the 13th Conference of Parties to the Convention on the Conservation of Migratory Species of Wild Animals (CMS COP 13) which was held in Gujarat in February, just a month before the coronavirus began wreaking its havoc in the country. During the conference, the countries adopted an accord, the Gandhinagar Declaration that maintaining and restoring ecological connectivity is one of the top priorities for CMS.

Three migratory birds - Great Indian Bustard, Asian Elephant and Bengal Florican - were also classified as "endangered migratory species" by a UN body, paving the way for trans-boundary conservation efforts. The conference saw participation from over 100 countries except China as it opted out of it due to travel restrictions in the wake of coronavirus outbreak, which began from a single case in its city of Wuhan.

Fear of the impact of Covid-19 on the world economy also caused the government to worry about achieving the climate goals under the Paris Agreement making Environment Minister Prakash Javadekar ask people not to get "too romantic" about the blue skies, fresh air and the green earth. Noting there was a direct link between Covid-19 and Sustainable Development Goal

(SDG) of wellbeing and health, which is a part of the SDGs set in 2015 by the United Nations General Assembly and intended to be achieved by 2030, the minister had said that the economic consequences of the pandemic may lead to weakening India's commitment to climate action. However, few months later, the minister announced that India was the only G20 country in compliance with the Paris Agreement targets and that none of the developed nations are compliant.

The government remained on its toes in tackling waste generated due to the coronavirus cases in the country with the central pollution watchdog CPCB repeatedly issuing guidelines on waste disposal. As the cases continued to rise, the CPCB directed all health care centres across the country to keep separate colour-coded bins or containers in wards and maintain proper segregation of waste as per the Bio-Medical Waste (BMW) Management Rules 2016 as amended. It said the biomedical waste, if any, generated from quarantine centres or camps should be collected separately in yellow coloured bags and bins.

The Environment Ministry also expedited clearances to bulk drug projects to fight coronavirus by issuing a notification which said the expeditious environmental clearances given to units involving active pharmaceutical ingredients (API) and bulk drug intermediates will ensure overall preparedness and availability of drugs to reduce the impact of the outbreak.

The year 2020 also saw a huge tussle between the Centre and environmentalists over the amendments to the environment impact assessment (EIA) with the latter alleging that it intended to bring in controversial amendments such as post-facto grant of approval, exemption of several large industries from public hearings, permission for industries to submit just one compliance report a year rather than two, increased validity of the environment clearances for mining projects and river valley projects, and many more.

While some students from universities and institutions across the country sought that the draft EIA be put on hold as it was published during the pandemic and people could not give their opinions, some sought withdrawal of the draft alleging it was controversial, but the government denied all allegations and responded in negative saying it had already extended the deadline by over a month.

Another decision by the Centre that drew sharp criticism was its grandiose plan to redevelop the Central Vista, which recently got the nod of expert appraisal committee (EAC) bringing it a step closer to getting environmental

clearance. Experts contended that the Rs 13,450 crore project was government's way of "pampering itself" without considering that the project is going to sacrifice huge green cover and make the air toxic with its construction and demolition dust.

Several jaw-dropping reports were released this year, with one of them claiming that India would need a total land footprint roughly the size of Himachal Pradesh or Chhattisgarh to achieve its ambitious target of 175 giga watts (GW) renewable energy by 2022. This report was based on the research conducted by environmental think tanks working closely with the government - The Nature Conservancy and the Centre for Study of Science, Technology and Policy (CSTEP). Another report claimed that over 4.5 crore people will be forced to migrate from their homes in India by 2050 due to climate disasters including floods, droughts and cyclones, three times more than the present figures.

The report based on a study conducted by International agencies ActionAid International and Climate Action Network South Asia, said that by 2050, over 6 crore people will be displaced in South Asia alone. It said that in 2020, the number of people displaced in India is 1.4 crore. A report by Greenpeace Southeast Asia with inputs from the Centre for Research on Energy and Clean Air (CREA) said that the cost of air pollution borne by India from fossil fuels is 5.4 per cent of the country's annual GDP and is estimated at USD 150 billion annually, the third highest worldwide.

The year ended on a proud note for the country with 42 wetlands from India, the highest in South Asia, being added to the list of recognised sites of international importance under the treaty of Ramsar Convention, which has 170 countries party to it and over 2,000 designated sites recognised under it.

The latest site to be added from India is a high-altitude wetland complex of two connected lakes, Startsapuk Tso and Tso Kar, in Ladakh. In last three months, four wetlands, the Lonar lake in Maharashtra and Sur Sarovar, also known as Keetham lake, in Agra, Kabartal in Bihar's Begusarai district and Asan Conservation Reserve in Dehradun were added to the list.

The government also made it clear this year that India's approach will be positive and constructive at the crucial 26th UN Climate Change Conference (COP 26) scheduled to be held in Glasgow, UK in November 2021, and it will make all efforts to make it a success.

## **Delhi assembly's environment committee summons MCD commissioners over dust pollution**

*Date:-3-Jan-2021, Source: timesofindia.indiatimes.com*



NEW DELHI: The Delhi assembly's environment committee has summoned the commissioners of the three BJP-ruled municipal corporations here over the problem of dust pollution, asking them to appear on Monday.

Road dust is a major contributor to Delhi's pollution, yet the

Municipal Corporations of Delhi (MCDs) are not deploying mechanical sweeping, the committee's chairperson and AAP MLA Atishi said in a statement on Sunday.

"MCD is responsible for rising dust levels in Delhi. A TERI report shows that MCD is not using the mechanical sweeping machines as mandated by the National Green Tribunal," she charged.

The environment committee had received several complaints from different parts of the city on rising levels of dust and ensuing air pollution caused by the manual sweeping of roads carried by the corporations, she added.

The MCD commissioners have also been asked by the committee to file a report on the implementation of NGT orders and TERI recommendations, use of mechanical sweepers, and steps taken to eliminate manual sweeping of roads in Delhi.

## **"Moderate" Air In Ghaziabad, Greater Noida After 37 Days**

*Date:-4-Jan-2021, Source: ndtv.com*



### **The AQI for each city is based on the average value of all stations there**

Gurgaon and Faridabad last had a 'moderate' air day on December 15, Noida on December 14, Greater Noida and Ghaziabad on November 27, official figures from corresponding dates showed.

Noida: After a spell of rain, the average air quality improved from "very poor" to "moderate" levels in Ghaziabad, Noida, Greater Noida and Faridabad, while it reached "satisfactory" category in Gurgaon, according to a 24-hour data issued by a government agency on Monday.

Gurgaon and Faridabad last had a 'moderate' air day on December 15, Noida on December 14, Greater Noida and Ghaziabad on November 27, official figures from corresponding dates showed.

Pollutants PM 2.5 and PM 10 although remained prominent in the air of the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

The average 24-hour AQI at 4 pm on Monday was 168 in Ghaziabad, 134 in Greater Noida, 152 in Noida, 179 in Faridabad and 65 in Gurgaon, according to CPCB's 'Sameer' application.

On Sunday, it was 384 in Ghaziabad, 348 in Greater Noida, 364 in Noida, 358 in Faridabad and 260 in Gurgaon. On Saturday, it was 462 in Ghaziabad, 450 in Greater Noida, 448 in Noida, 415 in Faridabad and 336 in Gurgaon.

The CPCB states that an AQI in the "satisfactory" category may cause minor breathing discomfort to sensitive people, while "moderate" may lead to breathing discomfort to those with lungs, asthma and heart diseases.

The AQI for each city is based on the average value of all stations there. Ghaziabad and Gurgaon have three such stations, while Noida, Greater Noida and Faridabad have two stations each, according to the application.

### **Sporadic rainfall keeps air quality satisfactory, to dip again soon**

*Date:-5-Jan-2021, Source: hindustantimes.com*

Sporadic showers continued in the city for the third consecutive day on Tuesday, persevering its cleansing effort on the city's air by retaining the air quality in the satisfactory zone for a second consecutive day. However, experts said that the relief will be short-lived as temperatures are expected to dip again from January 7.

As per the data shared by the district administration, Gurugram district received between 11 to 17mm of rainfall until 8am on January 5.

Among the tehsils (administrative division) in the area, Gurugram received the least rainfall, at 11mm, followed by Sohna (12mm), Pataudi (14mm), Wazirabad (15mm) and Farrukhnagar (17mm), as per the data.

The automatic weather station (AWS) in Gurugram did not record the day's minimum and maximum temperature readings, but data from the IMD's nearest AWS in Delhi's Palam area showed the minimum temperature to be at 14.4 degrees Celsius, up from 12.3 degrees Celsius on Monday, and the



maximum to be at 19.2 degrees Celsius, down from 20.4 degrees Celsius the day prior, on Tuesday.

The India Meteorological Department's (IMD) seven-day forecast for Gurugram predicts a steep drop in temperature from January 7. From a predicted minimum and maximum temperature readings of 13 degrees Celsius and 21 degrees Celsius, respectively, on January 6, the mercury is expected to drop to a minimum of 9 degrees Celsius and a maximum of 19 degrees Celsius on January 7.

"Cloudy skies will help trap the temperature for another day. Thursday onwards, we will have clearer conditions in Delhi-NCR. There is also a lot of moisture in the atmosphere after these rains, and once the clouds have passed, the heat will also dissipate much quicker.

The residual moisture will drive down the minimum temperature more sharply, and there will be periods of dense fog in the mornings for about a week," said Kuldeep Srivastava, head of IMD's regional weather forecasting centre.

This phenomenon will also cause air quality to deteriorate rapidly, said experts.

While the city saw satisfactory air for a second consecutive day on Tuesday, with a reading of 83 on the Central Pollution Control Board's (CPCB) daily air quality index (AQI) bulletin, experts said that the AQI would return to the upper end of the very poor category within a week.

"Already, wind speeds have slowed down from 20kmph on the weekend, to just about 6 to 8kmph on Tuesday. When the temperature falls, wind speeds will become negligible and particles will remain suspended due to residual moisture.

This will result in an airlock over NCR, and pollutants will accumulate with little chance of dispersal," said Sachin Panwar, a city-based independent air quality scientist.

## **Air Quality "Moderate" In Noida, Gurgaon, "Poor" In Ghaziabad, Faridabad**

*Date:-6-Jan-2021, Source: ndtv.com*

Pollutants PM 2.5 and PM 10 although remained prominent in the air of the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).



**The AQI for each city is based on the average value of all stations there.**

Noida: The average air quality stayed "moderate" in Noida but dipped to "poor" in Greater Noida, Ghaziabad and Faridabad, while it dropped to "moderate" from "satisfactory" in Gurgaon, according to a 24-hour data issued by a government agency on Wednesday.

Pollutants PM 2.5 and PM 10 although remained prominent in the air of the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

An AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

The average 24-hour AQI at 4 pm on Wednesday was 234 in Ghaziabad, 239 in Greater Noida, 200 in Noida, 203 in Faridabad and 175 in Gurgaon, as per the CPCB's Sameer app.

On Tuesday, it was 148 in Ghaziabad, 120 in Greater Noida, 149 in Noida, 138 in Faridabad and 83 in Gurgaon.

On Monday, it was 168 in Ghaziabad, 134 in Greater Noida, 152 in Noida, 179 in Faridabad and 65 in Gurgaon.

The CPCB states that an AQI in the "moderate" may lead to breathing discomfort to the people with lungs, asthma and heart diseases, while "poor" may cause breathing discomfort to most people on prolonged exposure.

The AQI for each city is based on the average value of all stations there.

Ghaziabad and Gurgaon have three such stations while Noida, Greater Noida and Faridabad have two stations each, according to the app.

### **At 313, Mumbai beats Delhi with 'very poor' AQI**

*Date:-7-Jan-2021, Source: indianexpress.com*

Mumbai's AQI has been in the 'very poor' category since January 1, with few days of a slight drop in the pollution level this week.

Mumbai's air quality dropped to its worst so far this year with the Air Quality Index (AQI) – a pollutant measuring indicator- at 313 (very poor) on Thursday, worse than Delhi's. The AQI, recorded by the System of Air Quality Weather Forecasting And Research (SAFAR), for Delhi was 256 on Thursday, which falls in the "poor" category. Mumbai's AQI has been in the "very poor" category since January 1, with few days of a slight drop in the pollution level this week.

The SAFAR categorises AQI levels for PM2.5 in the 0-50 range as good; 51-100 as satisfactory; 101-200 as moderate; 201-300 as poor; 301-400 as very poor and above 400 as severe.

Of the 10 Air Quality monitoring stations, eight stations recorded "very poor" AQI, with Colaba as the most polluted at 337 AQI. It was followed by Navi Mumbai at 329 AQI, Borivali at 326 AQI and BKC and Andheri at 319.



**PM 10 includes dust from construction sites, landfills and agriculture, wildfires and brush/waste burning, industrial sources, wind-blown dust from open lands, pollen and fragments of bacteria. Depending on the site/cities, the concentration of the source of PM 10 pollutant can differ.**

According to the Short Range Forecast by SAFAR, AQI in Mumbai is likely to remain “very poor” for the next two days. “Due to drop in the temperature and the pollutants trapped near the surface and a slow dispersion of accumulated pollutants is leading to very poor AQI,” said SAFAR.

Meanwhile, the India Meteorological Department (IMD) has forecast light rain/drizzle in the next 48 hours in the city. Thunderstorm with lightning is very likely in parts of Konkan including Raigad, Sindhudurg and Ratnagiri in the next three days, said the weather bureau.

Marginal rise in the minimum temperature was recorded in the last 24 hours. The IMD’s Santacruz observatory recorded the minimum temperature of 20 degrees Celsius, which is two degrees above normal. Colaba recorded one degree above the normal minimum temperature at 21 degrees Celsius.

Maximum temperature in Mumbai remained below normal. The partly cloudy sky was recorded on Thursday, with a maximum temperature of 30.7 degrees Celsius at the Santacruz observatory.

## **Delhi's air quality improves, to become better over the weekend: IMD**

*Date:-8-Jan-2021, Source: hindustantimes.com*



**A morning walker near India Gate on a winter morning at Rajpath in New Delhi.**

There is a possibility of light rain in some parts of Delhi on January 9, after which the wind speeds is likely to reach around 25kmph

Delhi's air quality improved slightly on Friday morning, will with the hourly average air quality index (AQI) at 7am reaching 223, in the "poor" zone.

Central Pollution Control Board (CPCB) recorded an AQI of 255 in Delhi, in the "poor" zone on Thursday. On Wednesday, the AQI was 226, also in the "poor" zone. On a scale of 0 to 500, a reading between 200 and 300 is considered poor.

Scientists said from Saturday, the wind speed is likely to pick up significantly, which will improve the air quality.

"There is a possibility of light rain in some parts of Delhi on January 9, after which the wind speeds is likely to reach around 25kmph. The AQI will improve

over the weekend,” said VK Soni, head of India Meteorological Department (IMD)’s environment monitoring and research centre.

Union ministry of earth science’s air quality monitoring centre, System of Air Quality and Weather Forecasting and Research (Safar), also said the ventilation condition is expected to improve marginally in the next two days.

“The AQI is likely to marginally improve and be in the ‘poor’ or ‘moderate’ range on January 9 and January 10. No sudden deterioration of AQI is expected in the next few days,” the Safar forecast read.

### **Air Quality "Poor" In Gurgaon, "Very Poor" In Ghaziabad, Noida, Faridabad**

*Date:-9-Jan-2021, Source: ndtv.com*



**The AQI for each city is based on the average value of all stations there**

Pollutants PM 2.5 and PM 10 were prominent in the air of the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

Noida: The average air quality was recorded in the "very poor" category in Ghaziabad, Noida, Greater Noida and Faridabad, while it was "poor" in Gurgaon, according to data for a 24-hour period issued by a government agency on Saturday.

Pollutants PM 2.5 and PM 10 were prominent in the air of the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

As per the index, an AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

The average 24-hour AQI at 4 pm on Saturday was 348 in Ghaziabad, 360 in Greater Noida, 346 in Noida, 311 in Faridabad and 230 in Gurgaon, according to the CPCB's Sameer app.

On Friday it was 304 in Ghaziabad, 312 in Greater Noida, 261 in Noida, 256 in Faridabad and 163 in Gurgaon.

The CPCB states that an AQI in the "very poor" category may cause respiratory illness on prolonged exposure, while that in "poor" category may cause breathing discomfort to most people on prolonged exposure.

The AQI for each city is based on the average value of all stations there. Ghaziabad and Gurgaon have three such stations while Noida, Greater Noida and Faridabad have two stations each, according to the app.

## **Mumbai air quality turned worst in October 2020, says MPCB data**

*Date:-10-Jan-2021, Source: indianexpress.com*

Experts noted that the gradual reopening of the city, which coincided with the onset of winter, resulted in rise in pollution levels

According to the Maharashtra Pollution Control Board (MPCB), October was the most polluted month in terms of Mumbai's air pollution in 2020. During that month, the average air quality index (AQI) was 149 (moderate) in Mumbai, followed by 147 in November.

The MPCB released a month-wise datasheet of AQI for 20 locations in the state. Experts noted that the gradual reopening of the city, which coincided with the onset of winter, resulted in rise in pollution levels.





**In Delhi, the share of CO emitted from household cooking is 4 per cent (1.38 Gigagram/month), while it is 31 per cent (13.67 Gigagram/month) in Mumbai, according to the study published in the Environmental Pollution journal on Tuesday.**

Thane and Dombivli had the worst air quality last year, with the average AQI crossing 200 in November. The cleanest air was recorded in Nashik, with the average AQI of 21 in July. This is also the lowest AQI recorded across the state in 2020.

However, January 2019 recorded high levels of air pollution in the city, with an AQI of 193 (moderate), followed by February and March at 164 and 140 (moderate), respectively. The best AQI was in August (54) 2019.

AQI is a mean of pollutants such as particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>), ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>) and carbon monoxide (CO) emissions as a single value. The higher the AQI value, the greater the level of air pollution and the greater the health concern.

The best air quality in the city was recorded in July when the AQI was 45 (good). The MPCB said that the monsoon, combined with nationwide lockdown triggered by the pandemic's outbreak, resulted in good AQI in July when air pollution was much lower than the previous year.



In a coastal city like Mumbai, AQI is greatly affected by weather parameters irrespective of human-induced emissions. Factors like rise in wind speed and increase in temperature among others impact the air quality.

Ronak Sutaria, founder and director of Mumbai-based Respirer Living Sciences (RLS) Pvt Ltd, said: “In addition to human-induced emissions, one should also consider strong regional influences, resulting in higher pollution levels. Our data show that not just Mumbai but areas around are also recording a spike in pollution levels.”

In a study titled ‘Impact of Lockdown (March 25 to April 19, 2020) on Air Quality’ by the Central Pollution Control Board (CPCB), the CPCB noted that major sectors that contribute to air pollution are transport, industries, power plants, construction activities, biomass and refuse-burning, road dust re-suspension and residential activities. Also, certain activities such as restaurants and landfill fires among others cause air pollution. Under the nationwide lockdown, all transport services – road, air and rail were suspended with exceptions for essential ones.

Educational institutions, industrial establishments and hospitality services were also suspended. As a result, air quality improvement was noticed in many towns and cities across the nation.

### **Patna grapples with ‘severe’ air pollution after 2 years of clean action plan**

*Date:-11-Jan-2021, Source: hindustantimes.com*

As per the Central Pollution Control Board (CPCB) assessment, AQI of Patna was found in the range of ‘poor’ to ‘very poor’ on Sunday.

Patna’s air quality index hovered in the range of ‘poor’ to ‘severe’ in the first week of January despite two years of clean air action plan for the state capital and two other cities by the Bihar State Pollution Control Board (BSPCB).

The air quality index (AQI) is a measure of five chief pollutants: particulate matter with a diameter less than 10 micrometres (PM10), particulate matter with a diameter of less than 2.5 micrometers (PM2.5), ozone (O3), Nitrogen Dioxide (NO2), and Carbon Monoxide (CO).



**Straw and stubble burning by farmers are a major cause of air pollution in north India.**

The Central government has released ₹102 crore to the BSPCB in November last year) to ensure enforcement of the clean air action plan and empower local bodies to reduce the level of pollutants in the air. As per the

Central Pollution Control Board (CPCB)

assessment, AQI of Patna was found in the range of 'poor' to 'very poor' on Sunday. BSPCB chairman Ashok Ghosh said that the board had written to all the concerned departments to take prompt action to check release of pollutants in the air. "Enforcement of the plan lies in the hands of various government departments," Ghosh said.

The BSPCB has also recently tied up with the United Nation Development Programme (UNDP) to launch a crackdown on brick-kilns not following the newer zigzag technique to reduce emission. "The UNDP would provide real time data on stubble burning also," said Ghosh.

Air quality analyst of the Centre for Environment and Energy Development (CEED), citing AQI data of the past three years of Patna, claimed that people of the state capital were forced to breathe the worst quality of air in the month of January. "AQI of Patna on January 1 at 4pm was found to be in the severe category, which is considered the worst," said the CEED official.

The CEED analyst said that lack of coordination among rule enforcing departments, burning of solid fuel, unrestrained plying of polluting vehicles, open burning of wastes and poor management of dust at the contraction sites were the major factors responsible for 'low hanging fruits' that led to severe degradation of air quality. "Low hanging fruits can be managed with serious intervention of the law enforcing machineries," he said.

Another environmental activist said that dust particles, which is a bane for Gangetic plains, could be managed by regular spraying of water on under construction roads and roads with heavy traffic. "Water shall be sprayed on trees along the road to improve the AQI," he said. Ghosh said that the board

had allotted funds to the Patna municipal corporation (PMC) to purchase water sprinklers.

## **Air quality very poor in Ghaziabad, Greater Noida, poor in Faridabad, Gurgaon**

*Date:-12-Jan-2021, Source: hindustantimes.com*



**Gurugram: Vehicles ply on roads, amid hazy weather conditions, in Gurugram, Saturday, Oct. 31, 2020. The concentration of major air pollutants PM 2.5 and PM 10 are high in the five immediate neighbours of Delhi including Gurugram, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).**

The air quality Index (AQI) maintained by the Central Pollution Control Board (CPCB) showed the presence of high levels of pollutants PM2.5 and PM10 in the air of the five immediate neighbours of Delhi

The average air quality was recorded in the "poor" category in Noida, Gurgaon and Faridabad, while it was "very poor" in Greater Noida and Ghaziabad, according

to the data issued by a government agency on Tuesday.

The air quality Index (AQI) maintained by the Central Pollution Control Board (CPCB) showed the presence of high levels of pollutants PM2.5 and PM10 in the air of the five immediate neighbours of Delhi.

An AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

The average 24-hour AQI at 4 pm on Tuesday was 324 in Ghaziabad, 312 in Greater Noida, 278 in Noida, 260 in Faridabad and 213 in Gurgaon, according to the CPCB's Sameer mobile application.

On Monday, it was 283 in Ghaziabad and Greater Noida, 264 in Noida, 235 in Faridabad and 200 in Gurgaon.

The CPCB states that a "poor" AQI causes breathing discomfort to most people on a prolonged exposure, while a "very poor" AQI may cause respiratory illnesses on a prolonged exposure.

The AQI for each city is based on the average of the readings recorded by the air quality monitoring stations there. Ghaziabad and Gurgaon have three such stations while Noida, Greater Noida and Faridabad have two each, according to the app.

### **Chennai pollution levels on Bhogi kept in check this year thanks to clear skies, say officials**

*Date:-13-Jan-2021, Source: newindianexpress.com*



**The city was engulfed in a blanket of smog as people burned waste and unused clothes celebrating Bhogi ahead of Pongal in Chennai on Wednesday morning**

Senior Tamil Nadu Pollution Control Board (TNPCB) officials told The New Indian Express that this year the climatic conditions were favourable for faster dispersion of pollutants

CHENNAI: The pollution levels associated with the customary Bhogi bonfire celebrations remained in check on Wednesday, when compared to previous years, largely due to clear skies which helped in faster dispersion of air pollutants.

Chennai recorded an Air Quality Index (AQI) of 121. As per the National Air Monitoring Programme, AQI between 101-200 is categorised as "moderately polluted" and may cause breathing discomfort to people with lung disease such as asthma, and discomfort to people with heart disease, children and older adults. Till 6 am, AQI was around 84 but as the vehicular movement started and industries began operating, the levels gradually increased by noon.

Chennaiites woke up to smog-like conditions, but after sunrise the situation eased substantially. Senior Tamil Nadu Pollution Control Board (TNPCB) officials told The New Indian Express that this year the climatic conditions were favourable for faster dispersion of pollutants. Besides, the Bhogi bonfire celebration itself was subdued due to dedicated teams patrolling hotspots and thwarting the burning of rubber and plastics.

"Last Bhogi, chilly weather was prevailing in Chennai with the temperature dropping below normal by 2.5 degrees and there was no wind which pushed the AQI levels closer to the 200 mark. But this year, the sun is bright and shining which is why the smog disappeared by 8 am. We were told that only a few early flights got delayed," the official said.

The official data shows that of the eight Continuous Ambient Air Quality Monitoring Stations (CAAQMS), Alandur has recorded the highest pollution levels with AQI clocking 159 and Particulate Matter (PM 2.5) peaking at 383 ug/m<sup>3</sup> (micrograms per cubic meter) as against the permissible 60 ug/m<sup>3</sup>. Kodungaiyur has recorded AQI of 141, Perungudi 133, Manali 111, Royapuram 98, and Velachery 92, while data for Arumbakkam was not available.

Meanwhile, Shweta Narayanan of Healthy Energy Initiative has refused to come to the conclusion that Chennai had a clear Bhogi compared to previous years.

"Our pollution monitors in North Chennai are popping massive numbers. For instance, our monitor in Arunodaya School in Royapuram has registered PM 2.5 of 834 at around 6 am and the TNPCB monitor in the same locality was not catching one-third of the pollution. Firstly, Chennai does not have enough monitors to assess the actual pollution levels. Secondly, the locations of the existing monitors have to be reviewed and calibrated. Thirdly, there is an urgent need for localised monitoring," she said.

Experts say the power plants in North Chennai are the major source of pollution. Almost all coal fired power plant operators in India have missed the deadline for compliance with the NO<sub>x</sub> and SO<sub>x</sub> limits.

### **Air pollution shot up in some northern towns last year despite lockdown**

*Date:-14-Jan-2021, Source: hindustantimes.com*

The analysis by the Centre for Science and Environment suggests air pollution levels spiked in certain parts of the Indo-Gangetic plains mainly because of a combination of reopening of the economy after the nationwide lockdown and adverse meteorology in winter.



### **Straw and stubble burning by farmers are a major cause of air pollution in north India**

A new analysis has found that air pollution increased in small towns and cities outside Delhi and NCR in the Indo-Gangetic Plain region last year.

Even though the average PM 2.5 levels for summer and monsoon months last year is considerably lower than in 2019, winter pollution levels increased in Punjab and Haryana (north of NCR) leading to an increase in their annual average PM 2.5 levels.



Bigger cities and towns including Delhi recorded a significant reduction in annual PM 2.5 concentrations during the pandemic year. Delhi for example recorded an almost 13% improvement in 2020 compared to 2019.

The analysis by the Centre for Science and Environment suggests air pollution levels spiked in certain parts of the Indo-Gangetic plains mainly because of a combination of reopening of the economy after the national lockdown (March 25 to May 31 and phased reopening till December) and adverse meteorology in winter.

Several bigger cities have witnessed a reduction in annual PM 2.5 levels, smaller towns and cities have recorded an increase: Fatehabad in northern Haryana is the worst performer with 35% increase from 2019 level. It is followed by Bhatinda at 14%; Agra 9%; Khanna 7%; Mandi Gobindgarh 6%; Moradabad 5.5% and Kurukshetra recorded a 1% increase.

Sirsa recorded a 44% decrease in PM 2.5 levels; Varanasi 31%; Gaya 27%; Muzaffarpur 13%; Delhi 13% and Hisar recorded a 12% reduction among others.

CSE used real-time data (15-minute averages) for 26 cities in the IGP region from the Central Pollution Control Board's (CPCB) Central Control Room for Air Quality Management for the analysis. The analysis highlights that Fatehabad which recorded the highest increase in PM 2.5 concentrations last year and Sirsa which recorded the highest improvement are only 40 km apart.

"Therefore, this massive variation cannot be attributed to meteorology and has to do with local factors. The annual average of these towns along with other smaller towns like Hisar and Jind in the north-west is heavily influenced by episodic pollution caused by burning of crop stubbles. The influence is so strong that it can elevate their monthly PM2.5 levels for November to that of Delhi's, but unlike Delhi, these towns are directly exposed to the smoke. The elevated November levels do not linger on for the rest of the winter in these towns (as is the case in Delhi)," said Avikal Somvanshi, programme manager in CSE's Urban Lab team of the Sustainable Cities programme.

"This brings out the impact of the extraordinary disruption that 2020 has caused. Despite the dramatic reduction in air pollution during the lockdown, pollution has bounced back across the region post-lockdown unmasking the high impacts of local and regional pollution. This demands quicker regional reforms and action to curb pollution from vehicles, industry, power plants and waste burning to further bend the air pollution curve on a regional scale,"

explained Anumita Roychowdhury, executive director, Centre for Science and Environment.

## **Air quality in Delhi, neighboring areas ‘severe’, visibility low due to fog**

*Date:-15-Jan-2021, Source: scroll.in*



**A man pulls his loaded rickshaw along a street amid heavy smog conditions in Delhi on Friday.**

Parts of Rajasthan, Punjab, Haryana and Bihar also saw heavy fog on Friday morning.

The air quality in Delhi and its neighbouring areas was in the “severe” category on Friday. Visibility in the Capital was also low due to a dense layer of fog.

Delhi’s average air quality index at 1 pm was 462, according to the Central Pollution Control Board. At 4 pm on Thursday, the Capital’s AQI was 429. This value was an average of 24 hours. According to the agency’s air quality index or AQI, any reading above 100 on a scale of 500 is progressively unsafe for health.

The minimum temperature in Delhi on Friday – 6.7 degrees Celsius – was higher than normal due to cloudy weather, PTI reported, citing the Indian Meteorological Department.



Meanwhile, AQI value at 1 pm at Noida's Sector 62 was 470 and 486 in Ghaziabad's Indirapuram area. Gurugram's Vikas Sadan registered an air quality index value of 420.

Parts of Rajasthan, Punjab, Haryana and Bihar also saw heavy fog on Friday morning, ANI reported. As many as 14 trains were running late because of the weather.

Kuldeep Srivastava, the head of the Regional Weather Forecasting Centre in Delhi, said the reduction of wind speed across North West India has contributed to the poor air quality, Hindustan Times reported. "In Delhi, it [wind speed] is only around 6 mph and the wind direction is south-westerly," he added. "So, the air quality has deteriorated and there is little possibility of pollutants dispersing."

Minimum temperatures in North West India are likely to remain below normal over the next few days, the newspaper reported, citing the weather office. Punjab and Haryana, Delhi, Uttar Pradesh, and Bihar are likely to experience severe cold in the next few days.

### **Delhi: Air quality severe for third day in row, fog leads to delay of 40 flights**

*Date:-16-Jan-2021, Source: indianexpress.com*

Poor visibility led to delay of over 40 flights at the Delhi airport and 24 trains.

Delhi's air quality was severe for a third day in a row on Saturday, aided by poor weather conditions which are forecast to improve Sunday onwards.

The city also witnessed very dense fog in the early morning hours from 1 am to 9 am, during which visibility dropped up to 0 metres, as per the India Meteorological Department (IMD).

Poor visibility led to delay of over 40 flights at the Delhi airport and also 24 trains, officials said. A Delhi airport official said, "There were no diversions or cancellations but flight operations at the airport had become very slow."

In view of the severe air quality, the Central Pollution Control Board (CPCB) Friday directed closure of stone crushers and hot mix plants in Delhi-NCR until January 20 under the Graded Response Action Plan (GRAP).



**The IMD has again forecast very dense fog in the city on Sunday**

It also directed state pollution control boards to increase frequency of mechanised cleaning of roads, sprinkling water on stretches with high dust generation and ensuring that guidelines for dust mitigation at construction sites are followed.

“Agencies must ensure that there are no incidences of open burning of wood,

garbage, biomass or industrial waste. In case of violation, penalty should be imposed in accordance to law,” a letter from CPCB chairman to state pollution control boards in the NCR said.

The 24-hour average air quality index (AQI) of Delhi on Saturday was 407 in the severe range, as per the CPCB. It was lower than 460 recorded on Friday and 429 on Thursday.

AQI of NCR towns Ghaziabad, Faridabad and Noida were also in the severe category on Saturday, while that of Gurgaon was very poor.

VK Soni, head of the IMD’s Environment Monitoring and Research Centre, said, “Air quality has deteriorated due to calm winds, which do not help in dispersion of pollutants suspended in the air. The wind speed is expected to pick up Sunday onwards, which would improve the AQI to the very poor category.”

A bulletin from the Ministry of Earth Sciences’ air quality monitor SAFAR said the AQI would be in the higher end of the very poor category on Sunday and Monday and further improvement is expected later.

The IMD has again forecast very dense fog in the city on Sunday. The minimum and maximum temperature in Delhi was 6.6 and 19.1 degrees Celsius and is forecast to rise by one degree on Sunday.

### **Air quality remains 'severe' in Delhi-NCR, AQI falls to 428**

*Date:-17-Jan-2021, Source: dnaindia.com*



**According to the forecast by the SAFAR, Delhi will see some improved air quality on Monday.**

People in Noida also suffered because of poor air quality where both PM10 and PM2.5 pollutants remained in the 'severe' category, according to SAFAR.

Delhi and the national capital region (NCR) continued to reel under the hazards of air pollution as the air quality index (AQI) remained in the 'severe' category third day in a row. The overall AQI in Delhi was recorded at 428 on Sunday (January 17), which is a small improvement over the AQI of 492 on Saturday (January 16), according to the System of Air Quality and Weather Forecasting And Research (SAFAR).

The Centre-run air quality monitor suggested that both PM10 and PM2.5 pollutants remained in the 'severe' category in Delhi as well. While the PM10 pollutants were recorded at 436, the PM2.5 pollutants were recorded at 278.

According to the forecast by the SAFAR, Delhi will see some improved air quality on Monday (January 18) as the PM10 pollutants are predicted to reduce to 371 and the PM2.5 pollutants to 237. The AQI will be in the 'very poor' category, suggesting the first extended air pollution event of the year.

"The SAFAR forecast reveals that AQI will continue at the high end of the Very Poor category for 18th January. This is likely to be the first extended extreme air pollution event for 2021. Further improvement is expected on 19th and 20th January," said SAFAR.

As for the AQI in different areas of Delhi, PM10 pollutants and PM2.5 pollutants at Mathura road were both at a 'severe' 494 and 481 respectively. In Pusa, they were recorded at 418 and 458 respectively.

People in Noida also suffered because of poor air quality. Both PM10 and PM2.5 pollutants were in the 'severe' category in Noida. They were recorded at 511 and 487 respectively.

It is to be noted that an AQI between zero and 50 is considered good and AQI between 51 and 100 is deemed satisfactory. It is moderate at 101-200, poor at 201-300, very poor at 301-400, severe at 401-500.

## **Delhi's Air Quality Improves Slightly To "Very Poor" Category**

*Date:-18-Jan-2021, Source: ndtv.com*

It predicted a slight increase in pollutants for Tuesday and further improvement is expected on January 20 in the lower end from the "very poor" to 'poor' category.

New Delhi: Air pollution levels in Delhi on Monday dipped slightly, leading to a marginal improvement in the overall Air Quality Index (AQI) which was in the "very poor" category, that experts have attributed to moderate surface winds dispersing surface pollutants.

The overall Air Quality Index (AQI) in Delhi this morning improved to "very poor" category from the "severe" category that it had been for the past few days. The air quality is likely to remain in the same category for the next two days, according to System of Air Quality and Weather Forecasting And Research (SAFAR).

PM10 pollutants were recorded at 237 and PM2.5 pollutants were recorded at 158, SAFAR said



**The national capital also continued to witness dense to moderate fog with low visibility**

It predicted a slight increase in pollutants for Tuesday and further improvement is expected on January 20 in the lower end from the "very poor" to 'poor" category.

The national capital also continued to witness dense to moderate fog with low visibility.

Visibility levels in Palam and Safdarjung parts of the city recorded at 500 meters, according to India Meteorological Department (IMD).

The Met Department has predicted that the current spell of dense to very dense fog across Indo-Gangetic plains is very likely to reduce during next two to three days with likely occurrence of dense to very dense fog in isolated to some pockets very likely over Punjab, Haryana, Chandigarh and Delhi among other areas. The minimum temperature at Safdarjung was recorded at 9 degree Celsius.



## **Dhanbad starts using sprinklers to curb air pollution**

*Date:-19-Jan-2021, Source: telegraphindia.com*



### **A truck mounted water sprinkler at work in Dhanbad on Tuesday.**

Pollution board seeks utilisation certificate for Rs 3cr provided under clean air mission

The coal capital of India, one of the most polluted towns of the country, has finally started using truck mounted sprinklers that sends out atomized (tiny droplets) water up to a height of 50 meter to create an artificial mist which sticks with pollutants that ultimately settles to the ground.

Dhanbad Municipal Corporation (DMC) bought these vehicles at a total cost of Rs 50 lakh after the town was included in the Centre's National Clean Air Programme under which pollution is to be curbed by 50 per cent in three years in 100 cities and towns of the country.

Assistant engineer cum transport department in-charge of Dhanbad Municipal Corporation Uday Kachhap said on Tuesday, "We received the two sprinklers on January 15 and started using them from the next day after training drivers. The vehicles are being used in the town on a pilot basis," he said, adding that their services would be extended to other towns under DMC, including Jharia, Katras, Sindri and Chhatatand.

Jharkhand State Pollution Control Board (JSPCB) sanctioned funds to the tune of Rs 10 crore in 2019 for Dhanbad Municipal Corporation to buy mechanical dust sweepers, water sprinklers and other gear. Of this, Rs 3 was provided to DMC in January last year.

DMC sanitary inspector Arjun Ram said, “We are operating sprinkler vehicles during morning hours when there is less rush of vehicles and commuters. Additionally, we are also operating all five mechanized dust sweepers purchased by DMC in 2019 on a regular basis.” JSPCB member Rajiv Sharma, however, termed the DMC’s anti-pollution measures inadequate. He suggested the corporation adopt more proactive steps to control air pollution so that more funds could be provided by JSPCB for buying more equipment.

“Until and unless the utilisation certificate for Rs 3 core provided by JSPCB during the last year is not submitted by DMC more funds cannot be released,” said Sharma, who is also general secretary of Jharkhand Industries and Trade Association.

## **The persistence of the pollution threat**

*Date:-20-Jan-2021, Source: hindustantimes.com*



**Delhi’s air quality slipped into the “severe” category on Tuesday, for the sixth time this month**

As Parliament prepares to take up a full-fledged Bill for approval to back the newly formed Commission for Air Quality Management by law, it is time to re-evaluate the non-meteorological reasons that are responsible for bad air in the National Capital

Region.

Delhi’s air quality slipped into the “severe” category on Tuesday, for the sixth time this month. The overall Air Quality Index (AQI) of the city was 404, deteriorating from Monday’s AQI of 372 (very poor). Scientists from the India Meteorological

Department said this deterioration in air quality was caused by the dense fog that enveloped the city on Tuesday.

While meteorological conditions and the geographical location of the city are responsible for the bad air, the inability of the authorities to contain and reduce local pollution sources in Delhi and the adjoining areas (vehicle exhaust, heavy industry such as power generation, illegal and small-scale industries such as brick kilns, suspended dust on the roads due to vehicular movement and construction activities, open waste burning, combustion of fuels for cooking, lighting, and heating) are also equally to blame for the crisis. In addition, state pollution boards and local urban bodies (which get funds from the Centre to fight air pollution) are severely understaffed to take immediate action against local sources of pollution on a real-time basis. This needs to be rectified. It will also be a good idea to work on a hi-resolution emission inventory, a sort of a crowd-sourcing platform, to document local sources of pollution, which often go unaddressed.

As Parliament prepares to take up a full-fledged Bill for approval to back the newly formed Commission for Air Quality Management by law, it is time to re-evaluate the non-meteorological reasons that are responsible for bad air in the National Capital Region and the kind of coordinated effort needed by all states to tackle the threat.

### **Air Quality Improves But Still "Very Poor" In Ghaziabad, Noida, Faridabad**

*Date:-21-Jan-2021, Source: ndtv.com*

Air quality remained in the "very poor" category in the five immediate neighbours of Delhi: Ghaziabad, Noida, Greater Noida, Gurgaon and Faridabad.

Noida: The air quality improved significantly but was in the "very poor" category in Ghaziabad, Noida, Greater Noida and Faridabad, while it was "poor" in Gurgaon, according to data issued by a government agency on Wednesday. Pollutants PM 2.5 and PM 10 remained prominent in the air of the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).





### **Air quality improved but was in the "very poor" category around Delhi**

According to the index, an AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

The average 24-hour AQI at 4 pm on Wednesday was 336 in Ghaziabad, 321 in Greater Noida, 310 in Noida, 201 in Faridabad and 207 in Gurgaon, according to CPCB's Sameer app. On Tuesday it was 436 in Ghaziabad, 434 in Greater Noida, 432 in Noida, 416 in Faridabad and 366 in Gurgaon. On Monday it was 381 in Ghaziabad, 360 in Greater Noida, 363 in Noida, 332 in Faridabad and 292 in Gurgaon.

The CPCB states that an AQI in the "very poor" category may cause respiratory illness on prolonged exposure. The AQI for each city is based on the average value of all stations there. Ghaziabad and Gurgaon have three stations while Noida, Greater Noida and Faridabad have two stations each, according to the app.

## **Air Quality panel tasks agencies to develop tool for targeted pollution control**

*Date:-22-Jan-2021, Source: hindustantimes.com*

The interventions suggested by the tool can be implemented by the pollution control boards and its implementation can be monitored by citizen watch groups and NGOs.

The Commission for Air Quality Management in NCR and adjoining areas has commissioned the development of a Decision Support System tool to capture the nature and source of emissions in the region for interventions to control them.

“This tool will help immensely in capturing the static and dynamic features of the emissions from various sources. It will have an integrated framework to handle both primary and secondary pollutants using [a] chemical transport model. The system will also be able to handle the source-specific interventions with the framework to estimate benefits of interventions,” the Commission said in a statement on Friday.

The tool will integrate an emissions inventory development application and database. The sources of emissions covered will include industries, transport, power plants, residential, road dust, agricultural burning, refuse burning, construction dust, ammonia, volatile organic compounds, landfills, etc.

The interventions suggested by the tool can be implemented by the pollution control boards and its implementation can be monitored by citizen watch groups and NGOs, the statement said.

India Meteorological Department and Indian Institute of Tropical Meteorology, Pune, will forecast air quality using weather models. The Energy and Resources Institute will develop a fine resolution emission inventory. Indian Institute of Technology Delhi and National Environmental Engineering Research Institute will develop short- and long-term control interventions to identify hotspots. The Centre for Development of Advanced Computing, Pune, has been assigned the job of integrating the physical, chemical, and engineering aspects of the tool.

## **As temperatures remain low, Mumbai records very poor air quality**

*Date:-24-Jan-2021, Source: hindustantimes.com*



### **Mumbai skyline**

On Sunday, Mumbai's overall air quality was only slightly behind Delhi's air quality where an AQI of 339 was measured.

After a week's respite from poor quality air, Mumbai's air quality deteriorated over the weekend. As temperatures remained relatively low, an overall air quality index (AQI) in Mumbai was measured at 310 on Sunday, which was in the 'very poor' category.

On Sunday, Mumbai's overall air quality was only slightly behind Delhi's air quality where an AQI of 339 was measured. Last Monday, Mumbai had recorded the cleanest air this year with an AQI of 156 (moderate). However, on Saturday, the AQI dropped to 320 and continued to remain 'very poor' on Sunday.

The AQI is a pollutant measuring indicator that is calculated by the System of Air Quality Weather Forecasting and Research (SAFAR) as the average of indices recorded across 10 locations in the city and the suburbs. SAFAR

categorises AQI levels for PM2.5 in the 0-50 range as 'good'; 51-100 as 'satisfactory'; 101-200 as 'moderate'; 201-300 as 'poor'; 301-400 as 'very poor' and above 400 as 'severe'.

Six of the 10 locations measured an AQI that was in the 'very poor' category. Navi Mumbai recorded the worst air quality with an AQI of 374, closely followed by Andheri where an AQI of 340 was recorded.

“Owing to the presence of high pressure in western India, calm winds are prevailing in Mumbai and the surrounding regions. Additionally, regional contribution of winds in Mumbai is predominantly from oceanic air which is carrying pollution and dust from north-west India. This condition is leading to very poor AQI in Mumbai. With movement of high-pressure system to the west, the condition will be relaxed slightly which is going to improve the AQI to 'poor' for Mumbai in the next two days,” said a spokesperson from SAFAR.

Days and nights were pleasant in the city and the suburbs with temperatures remaining low. The minimum temperature at Santacruz station of the Indian Meteorological Department (IMD) was 17.4 degree Celsius, which was a degree above normal. At Colaba, the minimum temperature was 20 degrees Celsius, also a degree above normal.

Maximum temperature at Santacruz was recorded at 31.3 degrees, which was a degree above normal. At Colaba, the maximum temperature was 29.6 degrees Celsius, which was at par with normal.

KS Hosalikar, deputy director-general of western region, IMD, said, “From Monday, minimum temperatures are likely to fall in parts of north-central Maharashtra and Mumbai, Thane regions.”

## **Govt approves proposal for 'green tax' on old vehicles to contain air pollution**

*Date:-25-Jan-2021, Source: livemint.com*

- Scrapping Policy for govt vehicles older than 15 years also approved; to come into effect from April 1, 2022
- Transport vehicles older than 8 years could be charged Green Tax at the time of renewal of fitness certificate, at the rate of 10 to 25 % of road tax



The Ministry of Road Transport and Highways on Monday approved a proposal to levy 'Green Tax' on old vehicles which are polluting the environment.

The proposal will now go to the states for consultation before it is formally notified, said Union Minister for Road Transport and Highways Nitin Gadkari.

Along with that, the minister also approved the policy of deregistration and scrapping of vehicles owned by government department and PSU, which are above 15 years in age. Prasad also said that it would come into effect from 1st April, 2022.

Transport vehicles older than 8 years could be charged Green Tax at the time of renewal of fitness certificate, at the rate of 10 to 25 % of road tax;

Personal vehicles to be charged Green Tax at the time of renewal of Registration Certification after 15 years;

- Public transport vehicles, such as city buses, to be charged lower Green tax;

- Higher Green tax (50% of Road Tax) for vehicles being registered in highly polluted cities

Differential tax, depending on fuel (petrol/diesel) and type of vehicle;

- Vehicles like strong hybrids, electric vehicles and alternate fuels like CNG, ethanol,LPG etc to be exempted;

- Vehicles used in farming, such as tractor, harvester, tiller etc to be exempted;
- Revenue collected from the Green Tax to be kept in a separate account and used for tackling pollution, and for States to set up state-of-art facilities for emission monitoring.

To dissuade people from using vehicles which damage the environment

- To motivate people to switch to newer, less polluting vehicles

Green tax will reduce the pollution level, and make the polluter pay for pollution.

It is estimated that commercial vehicles, which constitute about 5% of the total vehicle fleet, contribute about 65-70% of total vehicular pollution. The older fleet, typically manufactured before the year 2000 constitute less than 1 % of the total fleet but contributes around 15% of total vehicular pollution. These older vehicles pollute 10-25 times more than modern vehicles, the ministry added.

### **Air "very poor" in Ghaziabad, Noida, Faridabad & Gurgaon**

*Date:-26-Jan-2021, Source: outlookindia.com*

Noida (UP), Jan 26 (PTI) The air quality was recorded in the “very poor” category in Ghaziabad, Noida, Greater Noida, Faridabad and Gurgaon, according to data issued by a government agency on Tuesday.

Pollutants PM 2.5 and PM 10 remained prominent in the air of the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

The average 24-hour AQI at 4 pm on Tuesday was 395 in Ghaziabad, 370 in Noida, 366 in Greater Noida, 372 in Faridabad and 314 in Gurgaon, according to CPCB's Sameer app.

The CPCB states that an AQI in the “very poor” category may cause respiratory illness on prolonged exposure.



On Monday, it was 360 in Ghaziabad, 352 in Noida, 372 in Greater Noida, 336 in Faridabad and 280 in Gurgaon.

On Sunday, it was 390 in Ghaziabad, 322 in Noida, 388 in Greater Noida, 353 in Faridabad and 300 in Gurgaon.

The AQI for each city is based on the average value of all monitoring stations there. Ghaziabad, Gurgaon and Noida have four such stations while Greater Noida and Faridabad have two stations each, according to the app.

### **Plastic burning main cause behind reduced visibility in Delhi: IIT Madras study**

*Date:-27-Jan-2021, Source: hindustantimes.com*



**Dense fog rolls on to National Highway-24(NH24) in New Delhi on January 14. Cold wave conditions are expected to continue in Delhi-NCR for at least the next four days, according to scientists at the India Meteorological Department (IMD), while pollution levels are likely to further worsen and may even reach the “severe” zone in the coming days.**

Many studies in the past have identified particulate matter or aerosol particles with diameter less than 2.5 micrometre (PM<sub>2.5</sub>) as a major pollutant, responsible for haze and fog formation over Indo-Gangetic plain, including Delhi.

Chloride-rich particles resulting from plastic burning may be primarily responsible for haze and fog formation in Northern India, including Delhi, during the winter months, according to an international study led by researchers from the Indian Institute of Technology (IIT) Madras.

The study, published in the journal Nature Geoscience, may help develop better policies to improve the air quality and visibility in North India.

Many studies in the past have identified particulate matter or aerosol particles with diameter less than 2.5 micrometre (PM<sub>2.5</sub>) as a major pollutant, responsible for haze and fog formation over Indo-Gangetic plain, including Delhi.

However, the role of PM<sub>2.5</sub> and detailed chemistry of haze and fog formation over national capital was poorly understood.

The new study found that chloride-rich particles were the highest inorganic fraction in particulate matter, primarily responsible for haze and fog formation in the region.

"We realised that despite absolute PM<sub>2.5</sub> mass burden over Delhi being much less than other polluted megacities around the world, including Beijing, the pollution and atmospheric chemistry of Delhi is much more complex to understand," said Sachin S Gunthe, Associate Professor, Department of Civil Engineering, IIT Madras, who led the study.

"This work put forward importance of measurements and modelling approaches to scientifically conclude that half of the water uptake and visibility reduction by aerosol particles around Delhi is caused by the hydrochloric acid (HCl) emissions, which is locally emitted in Delhi potentially due to plastic contained waste burning and other industrial processes," Gunthe said.

The latest study greatly enhances our understanding about the precise role of PM<sub>2.5</sub> in chemistry of fog formation, which will help policy makers to frame the better policies for improving the air quality and visibility over the national capital.

The researchers noted that during winter season, most of the Indo Gangetic Plain invariably is engulfed in a dense fog and haze, particularly during the months of December and January.



Over the national capital, dense fog negatively impacts the air and surface transport resulting in huge financial losses and jeopardise human lives, they said.

The study explained that complex chemical reactions involving HCl, which is directly emitted in the atmosphere from plastic contained waste burning and few industrial processes, is primarily responsible for high PM<sub>2.5</sub> chloride and subsequent haze and fog formation over Delhi during chilly winter nights.

The team, including researchers from the Harvard University, US, and Manchester University in the UK, deployed state-of-the-art instruments to measure the chemical composition and other important properties of PM<sub>2.5</sub>, and the relative humidity and temperature in Delhi.

Professor R Ravikrishna, from Department of Chemical Engineering, IIT Madras, noted that with the results from first couple of days, it was very clear to us that Delhi is different.

"Generally for a polluted urban region like Delhi, one would expect sulfate to be highest inorganic fraction of particulate matter, however, we found chloride to be the highest inorganic fraction of particulate matter," Ravikrishna, who was also part of the study, said.

The researchers explained that HCl from various sources combines with ammonia, which is emitted in great amounts over this region.

The resulting ammonium chloride (NH<sub>4</sub>Cl) condenses to aerosol and exponentially increase the water uptake ability of aerosol particles resulting in the increase in size, eventually leading to dense fog formation, they said.

In the absence of the excess chloride, the fog formation otherwise would be suppressed significantly, according to the researchers.

The study emphasised that plastic burning emits toxic substances in the atmosphere impacting human health, and these emissions are for the first time linked to visibility and climate.

Plastic-contained waste burning can emit highly toxic chemicals called 'dioxins', which can accumulate in food chain causing severe problems with reproduction and immune system, the researchers said.

"Given that we find plastic burning as a potential cause of the reduced visibility, we hope these findings will help policy makers to efficiently enforce

and implement policies that are already in place towards regulating open burning of plastic contained-waste and other potential chlorine sources," Gunthe added.

### **IMD issues yellow alert for Delhi-NCR; cold wave conditions prevail**

*Date:-29-Jan-2021, Source: [financialexpress.com](https://www.financialexpress.com)*



**The minimum temperature recorded in the national capital was recorded at 3.8 degrees Celsius, which is five degrees lesser than what the normal temperature is expected to be for this time.**

In the daily weather updates provided by the Indian Meteorological Department (IMD), a 'yellow alert' has been issued for Delhi-NCR region on Friday.

In the daily weather updates provided by the Indian Meteorological Department (IMD), a 'yellow alert' has been issued for Delhi-NCR region on Friday. Some cold wave conditions have also been forecasted along with the presence of dense fog. The weather forecast department has noted the maximum

temperature to remain around 17 degrees Celsius whereas the minimum is likely to drop till 3 degrees Celsius in the region.

“Dense to very dense fog reported at isolated pockets of Punjab, Haryana, northwest Madhya Pradesh, Uttar Pradesh and Bihar. Moderate fog observed at isolated pockets over Chandigarh, Delhi, Sub-Himalayan West Bengal and Sikkim and Tripura,” the IMD said. As the dense fog takes over many parts of Northern India, media reports citing the Chief Public Relations Officer (CPRO) of Northern Railway (NR) claimed that as many as 27 trains were delayed due to low visibility along with other operational reasons.

The minimum temperature recorded in the national capital was recorded at 3.8 degrees Celsius, which is five degrees lesser than what the normal temperature is expected to be for this time. After recording such weather conditions, the met department has issued a yellow alert. IMD said that the foggy conditions will continue to prevail for the next few days across north India and parts of central India.

“Dry northwesterly winds over plains of North India and adjoining parts of central India are likely to prevail during next 3 to 4 days” the IMD said on Thursday.

Meanwhile, the air quality index for Delhi-NCR, which has been bad in the last couple of days, is likely to improve over the next two days. The System of Air Quality and Weather Forecasting And Research (SAFAR) said that improvement in wind speed is likely to reduce the air pollution across Delhi-NCR. However, this improvement will only be marginally.

### **IIT-Kanpur submits proposal for study on real-time air pollution sources in the city**

*Date:-30-Jan-2021, Source: indianexpress.com*

The proposal by IIT-Kanpur was cleared by the chairman of the Delhi Pollution Control Committee (DPCC) this week and has been sent to Deputy Chief Minister Manish Sisodia’s office for approval, Delhi government officials said.

Weeks after a study by the University of Washington to determine real-time air pollution sources in the city was terminated, a proposal for a similar project “that is larger in scope and cost” has been submitted to the Delhi government by the Indian Institute of Technology (IIT) Kanpur, officials said.



**The panel will be given a week's time to give their decision, the official said.**

The proposal by IIT-Kanpur was cleared by the chairman of the Delhi Pollution Control Committee (DPCC) this week and has been sent to Deputy Chief Minister Manish Sisodia's office for approval, Delhi government officials said.

"If the study is approved, the project team will set up their infrastructure here which can be used by the Delhi government. This includes multiple monitoring stations and a super station of 20-30 metre height," a Delhi government official said.

"Although this study is on similar lines of the previous study by Washington University — which could not be taken forward — it is larger in scope and also in cost," the official added.

The cost of this study is around Rs 11 crore, significantly higher than the Rs 1.2-crore budget for the University of Washington study, which was terminated by Sisodia earlier this month after a panel of experts raised multiple shortcomings in it. These shortcomings were about the methodology used, findings about the concentration of pollutants and other limitations that the panel found.

"The methodology and infrastructure being used in the new study is different from the previous one — which involved shipping of equipment from the United

States. The infrastructure now being developed can be used by the Delhi government later,” the official said.

The new study will be undertaken by a team that includes experts from IIT-Kanpur and The Energy and Resources Institute (TERI) and would take about a year to 18 months to complete if it is approved, another Delhi government official said.

If the approval from Sisodia’s office is granted, a panel comprising representatives of IITs, other than IIT- Kanpur, will be formed to study the proposal before it can be taken forward. The panel will be given a week’s time to give their decision, the official said.

A Delhi government spokesperson did not respond to queries on whether the Deputy CM’s office was currently studying the proposal.

Sources of pollution in the capital have been identified in previous studies by institutions including IIT-Kanpur, TERI and the Central Pollution Control Board (CPCB). However, technology to determine them in real time — to develop better mitigation strategies — is being sought by the Delhi government. The basic outline of the study, if approved, is to determine the chemical composition of fine particles suspended in the air — called particulate matter (PM) — in real time, which would help trace their sources and influence policies and decisions to control them.

### **Air quality 'very poor' in Ghaziabad, Noida, Gurgaon and Faridabad**

*Date:-31-Jan-2021, Source: livemint.com*

- Pollutant PM 2.5 and PM 10 remained prominent in the air of the five immediate neighbours of Delhi
- As per the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

The air quality was recorded in the "very poor" category in Ghaziabad, Noida, Greater Noida, Gurgaon and Faridabad, according to data issued by a government agency on Sunday.



**Vehicles seen on a road while the area covered with smog as the air quality deteriorates due to air pollution, in New Delhi on Friday.**

Pollutant PM 2.5 and PM 10 remained prominent in the air of the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

As per the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

The average 24-hour AQI at 4 pm on Sunday was 394 in Ghaziabad, 331 in Noida, 352 in Greater Noida, 311 in Faridabad and 303 in Gurgaon, according to the CPCB's Sameer app.

The CPCB states that an AQI in the “very poor” category may cause respiratory illness on prolonged exposure.

On average, AQI on Saturday was 338 in Ghaziabad, 302 in Noida, 308 in Greater Noida, 278 in Faridabad and 281 in Gurgaon.

On Friday, it was 423 in Ghaziabad, 415 in Noida, 420 in Greater Noida, 392 in Faridabad and 342 in Gurgaon.

The AQI for each city is based on the average value of all monitoring stations there. Ghaziabad, Gurgaon and Noida have four such stations, while Greater Noida and Faridabad have two stations each, according to the app.

## **February 2021**

### **Air quality turns 'severe' in Ghaziabad, 'very poor' in Noida, Faridabad**

*Date:-1-Feb-2021, Source: hindustantimes.com*



**Commuters crossing a foot over bridge amid dense fog on a cold winter day, at IFFCO Chowk in Gurugram on December 24. North-western India, including Delhi, Noida and Ghaziabad, mostly recorded “very poor” to “severe” air quality on December 25 amid a drop in wind speed that has slowed down the dispersal of pollutants.**

Pollutant PM 2.5 and PM 10 remained prominent in the air of the five immediate neighbours of Delhi, the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB) stated.

The air quality deteriorated to reach "severe" levels in Ghaziabad, "very poor" in Noida, Greater Noida and Faridabad and "poor" in Gurgaon, according to data issued by a government agency on Monday.

Pollutant PM 2.5 and PM 10 remained prominent in the air of the five immediate neighbours of Delhi, the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB) stated.

As per the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

The average 24-hour AQI at 4 pm on Monday was 412 in Ghaziabad, 369 in Noida, 384 in Greater Noida, 352 in Faridabad and 271 in Gurgaon, according to the CPCB's Sameer app.

On Sunday, it was 394 in Ghaziabad, 331 in Noida, 352 in Greater Noida, 311 in Faridabad and 303 in Gurgaon.

The CPCB states that an AQI in the “poor” causes breathing discomfort to most people on prolonged exposure, while “very poor” may cause respiratory illness on prolonged exposure. AQI in “severe” category affects healthy people and badly impacts those with existing diseases.

The AQI for each city is based on the average value of all monitoring stations there.

Ghaziabad, Gurgaon and Noida have four such stations while Greater Noida and Faridabad have two stations each, according to the app.

### **Action on old vehicles, traffic congestion in Delhi's plan against air pollution**

*Date:-2-Feb-2021, Source: hindustantimes.com*

It was strongly reiterated that overaged petrol/diesel vehicles more than 15/10 years of age must not be allowed to ply in NCR.

The task of curbing air pollution in Delhi will now require even state governments of Uttar Pradesh, Rajasthan and Haryana to report action taken against polluting diesel and petrol vehicles that are over 10/15 years old once in every two months to the Commission on Air Quality Management, the body set up by the Central government to curb pollution in Delhi and adjoining areas.

This was stated by the Ministry of Environment, Forests and Climate Change (MoEFCC) in an affidavit submitted before the top court during the hearing of a set of petitions dealing with air pollution in Delhi.





The affidavit highlighted the steps taken by the broad-based Commission having representatives from states adjoining Delhi along with representatives from Central ministries and representatives of Central Pollution Control Board (CPCB) and state pollution control authorities.

The Commission, appointed in November 2020, identified five focus areas while tackling the issue of pollution in Delhi-NCR. These included industrial pollution, agricultural stubble burning, municipal solid waste management and biomass burning, construction and demolition activities and vehicular pollution.

During the interactions with representatives from Delhi and neighbouring states, the Commission noticed lack of enforcement against polluting, over-aged vehicles not just in Delhi but in neighbouring districts of the national capital. The neighbouring states also did not have a traffic management plan in place to tackle vehicular pollution.

The affidavit said, “It was strongly reiterated that such overaged petrol/diesel vehicles more than 15/10 years of age, must not be allowed to ply in NCR at any cost and if found doing so, shall be taken off the roads immediately.”

Accordingly, the Sub-Committee on “Safeguarding and Enforcement” working under the Commission on January 8 this year, prepared a reporting format to

be submitted by Delhi and adjoining states every two months. This format has details about over-aged vehicles impounded, traffic congestion spots identified and resolved, new pollution under control (PUC) centres added, existing and proposed car parking facilities, and additional CNG fuelling stations.

On industrial polluting units, the Commission examined nearly 6,642 units operating in Delhi-NCR, of which 3,138 were found to be using clean fuel (CNG/PNG). The Commission set a deadline of January 31 for remaining 2,904 units (Haryana -2220, UP- 420, Rajasthan-151) to convert to clean fuel.

On stubble burning, the affidavit said that the Commission's focus was on crop residue management by which the paddy straw, that is usually burnt, could be cut using farm machinery and used by other industries as the source of fuel. The affidavit said, "Stubble burning and pollution arising therefrom is a major area of concern, particularly during the months of October-November... The Commission identified Crop Residue Management as one of the priority areas."

To facilitate this, the Department of Agriculture Cooperation and Farmer Welfare, under the Central government, has developed an app-based aggregator platform for hiring and renting of farm machinery required for stubble cutting. The app called FARMS (Farm Machinery Solutions) has nearly 1.47 lakh individual farmers and over 22,000 custom hiring centres (CHC) across Punjab, Haryana, Uttar Pradesh. Nearly 1.58 lakh machines have been supplied to individual farmers and CHCs through the app and other financial incentive schemes, the affidavit stated.

Though the issue of stubble burning affects the quality of air in Delhi during the winter months, the Commission is focusing on crop residue management as a technique to curb stubble burning incidents. The top court has expressed concerns over stubble burning after a public interest litigation (PIL) filed before the Court pointed out that pollution caused by stubble burning can impact mortality rate due to the coronavirus disease.

In 2020, Haryana and Uttar Pradesh reported a decline in stubble burning incidents but Punjab reported a 15 per cent increase. In Haryana last year, 5,000 farm fires were reported as compared to 6,652 in 2019. Punjab reported 76,590 farm fires as against 52,991 in 2019.

On Tuesday, the apex court took up the PILs on stubble burning and air pollution in Delhi but adjourned the matter after two weeks. The Centre's affidavit will be examined by the Court on the next date of hearing.

## **Punjab witnessed 44.5 % increase in stubble burning incidents in 2020: Centre tells SC**

*Date:-3-Feb-2021, Source: thehindu.com*



### **Stubble being burnt by farmers at a field in Mohali district of Punjab.**

Punjab witnessed an increase of 44.5 % incidents of stubble burning in 2020 despite getting 46 % of the total funds from the central government for checking crop burning residue, the Centre has told the Supreme Court.

In an affidavit, the Ministry of Environment and Forests (MoEF) informed that Punjab saw 76,590 incidents of fire in 2020 as compared to 52,991 instances in 2019 which indicates an increase of 44.5 % as compared to the earlier year.

It said that in Haryana in the year 2020, the total active fire events reported was 5,000 while in 2019, it was 6,652 which indicates a decrease of 25 %.

The MoEF said that in order to address the issue of air pollution and subsidise machinery required for in situ management of crop residue, the Department of Agriculture Cooperation and Farmers Welfare has implemented a special Central Sector Scheme which is 100 % centrally funded, in states of Punjab, Haryana, Uttar Pradesh and NCT Delhi for the period from 2018-19 to 2020-21.

The Centre allocated ₹ 1,726.67 crore, of which Punjab got ₹ 793.18 crore, Haryana ₹ 499.90 crore, UP ₹ 374.08 crore, Delhi ₹ 4.52 crore and Indian Council of Agricultural Research and other central agencies ₹ 54.99 crore.

The top court was apprised that an ordinance was promulgated for setting up a broad based Commission for Air Quality Management in National Capital Region and adjoining areas to provide for coherent approach in order to tackle the problem of air pollution.

The ministry told the top court that commission has asked all thermal power plants in NCR and adjoining areas to strictly adhere to the timelines for installation of Flue Gas Desulfurization (FGD) system and upgrade other infrastructure for control of sulphur oxide, nitrogen oxide and particulate matter levels.

On the issue of switch to cleaner fuel by industrial units, the ministry told the apex court that a review meeting was conducted with the representatives of the government of Delhi, DPCC, GAIL, IGL on the progress of shifting to use of cleaner fuels.

"Necessary decisions were taken in consultation with concerned agencies to target the complete switch over to cleaner fuels in all industrial units of Delhi. It may be noted that as per latest information, out of 6,042 identified industries in NCR, only 3138 have converted to PNG as of January 2021. The number of industries remaining for the conversion is 2,220 in Haryana, 420 in UP and 151 in Rajasthan," it said.

With regard to overaged vehicles in Delhi-NCR, the MoEF told the top court that petrol and diesel vehicles which are more than 10 and 15 years old respectively are still being allowed to ply and traffic authorities are issuing challans.

It was strongly reiterated that such vehicles must not be allowed to ply in NCR and shall be taken off roads immediately, the ministry said.

### **Cleaner Air During Covid-19 Pandemic Caused Brief Temperature Spike: Study**

*Date:-4-Feb-2021, Source: firstpost.com*

Earth spiked a bit of a fever in 2020, partly because of cleaner air from the pandemic lockdown, a new study found.



**A civic worker, wearing an anti-pollution mask, sweeps the road amid heavy smog, in New Delhi, Friday, Nov. 15, 2019. A thick layer of toxic smog engulfed Delhi as the pollution level continued to remain in the 'severe' category for the fourth consecutive day in the capital**

For a short time, temperatures in some places in the eastern United States, Russia and China were as much as

half to two-thirds of a degree (0.3 to 0.37 degrees Celsius) warmer. That's due to less soot and sulfate particles from car exhaust and burning coal, which normally cool the atmosphere temporarily by reflecting the sun's heat, Tuesday's study in the journal *Geophysical Research Letters* reported.

Overall, the planet was about .05 degrees (.03 degrees Celsius) warmer for the year because the air had fewer cooling aerosols, which unlike carbon dioxide is pollution you can see, the study found.

"Cleaning up the air can actually warm the planet because that (soot and sulfate) pollution results in cooling" which climate scientists have long known, said study lead author Andrew Gettelman, an atmospheric scientist at the National Center for Atmospheric Research. His calculations come from comparing 2020 weather to computer models that simulated a 2020 without the pollution reductions from pandemic lockdowns.

This temporary warming effect from fewer particles was stronger in 2020 than the effect of reduced heat-trapping carbon dioxide emissions, Gettelman said. That's because carbon stays in the atmosphere for more than a century with long-term effects, while aerosols remain in the air about a week.

Even without the reduction in cooling aerosols, global temperatures in 2020 already were flirting with breaking yearly heat record because of the burning of coal, oil and natural gas — and the aerosol effect may have been enough to help make this the hottest year in NASA's measuring system, said top NASA climate scientist Gavin Schmidt, who wasn't part of this study but said it confirms other research.

"Clean air warms the planet a tiny bit, but it kills a lot fewer people with air pollution," Gettelman said.

### **After a month, AQI 'satisfactory' in Ghaziabad, 'moderate' in Noida**

*Date:-5-Feb-2021, Source: business-standard.com*



The air quality in Ghaziabad reached satisfactory level while it was recorded as moderate in Noida, Greater Noida, Faridabad and Gurgaon following a spell of mild rain in NCR.



After a month, the air quality in Ghaziabad reached satisfactory level while it was recorded as moderate in Noida, Greater Noida, Faridabad and Gurgaon following a spell of mild rain in NCR, according to data issued by a government agency on Friday.

Pollutants PM 2.5 and PM 10, though, remained in the air in the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

The average 24-hour AQI at 4 pmon Friday was 91 in Ghaziabad, 114 in Noida, 144 in Greater Noida, 105 in Faridabad and 160 in Gurgaon, according to CPCB's Sameer app.

On Thursday, it was 338 in Ghaziabad, 322 in Noida, 312 in Greater Noida, 308 in Faridabad and 303 in Gurgaon.

The CPCB states that an AQI in the satisfactory category causes minor breathing discomfort to sensitive people, while moderate may lead to breathing discomfort to the people with asthma, lung and heart diseases.

The last time the average air quality was recorded in satisfactory and moderate levels was on January 5, after which the AQI has been oscillating in poor, very poor and severe categories, according to the CPCB.

The AQI for each city is based on the average value of all monitoring stations there. Ghaziabad, Gurgaon and Noida have four such stations while Greater Noida and Faridabad have two stations each, according to the app.

## **Air "Poor" In Ghaziabad, "Moderate" In Noida, Faridabad, Gurgaon**

*Date:-6-Feb-2021, Source: ndtv.com*

Pollutant PM 2.5 and PM 10 remained in the air of the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

Noida: The air quality in Ghaziabad worsened to reach the "poor" category while it was recorded in the "moderate" zone in Noida, Greater Noida,

Faridabad and Gurgaon, according to data issued by a government agency on Saturday.

Pollutant PM 2.5 and PM 10 remained in the air of the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

The average 24-hour AQI at 4 pm on Saturday was 218 in Ghaziabad, 167 in Noida, 180 in Greater Noida, 198 in Faridabad and 170 in Gurgaon, according to CPCB's Sameer app.

On Friday it was 91 in Ghaziabad, 114 in Noida, 144 in Greater Noida, 105 in Faridabad and 160 in Gurgaon.

The CPCB states that an AQI in the "moderate" zone may lead to breathing discomfort to the people with asthma, lung and heart diseases while the AQI in the "poor" category may cause breathing discomfort to most people on prolonged exposure.

The last time the average air quality was recorded in the "satisfactory" and "moderate" levels was on January 5, after which the AQI has been oscillating between "poor", "very poor" and "severe" categories, according to the CPCB.

The AQI for each city is based on the average value of all monitoring stations there. Ghaziabad, Gurgaon and Noida have four such stations while Greater Noida and Faridabad have two stations each, according to the app.

### **AQI 'very poor' in Delhi despite rise in wind speed, 'worst' in Ghaziabad and Noida**

*Date:-7-Feb-2021, Source: thestatesman.com*

The Ministry of Earth Sciences has advised sensitive groups to reduce prolonged or heavy exertion and if asthmatic, keep relief medicine handy.

The air quality index (AQI) of the national capital has dipped to 'very poor' category with the hourly average air quality index at 316 micrograms per cubic meter on Sunday afternoon. This is despite the strong wind speed.





**The air quality index is likely to marginally deteriorate and remain in the poor to very poor category on February 7.**

The Ministry of Earth Sciences has advised sensitive groups to reduce prolonged or heavy exertion and if asthmatic, keep relief medicine handy.

The air quality index (AQI) is highest in Jahangirpuri area in the northwest district, followed by 276 at Bawana, while it is the least at IGI airport at 68 micrograms per cubic meter. This is out of 39 pollution monitoring stations in the city.

“Surface winds are high and West-Southwesterly direction and forecasted to stay high for the next 24 hours and gradually decrease,” said the System of Air Quality and Weather Forecasting And Research (SAFAR).

The air quality index is likely to marginally deteriorate and remain in the poor to very poor category on February 7. Very Poor air quality is forecasted on February 9 and 10, the forecast further stated.

Delhi’s neighbouring regions, Faridabad, Noida, Greater Noida, Ghaziabad and Gurugram are also logging ‘very poor’ quality of air.

Ghaziabad and Noida's air quality remained the worst amongst all with very poor air quality of 338 and 322 micrograms per cubic meter, respectively.

An AQI within the limit of 0-5 is regarded as good, 51-100 is satisfactory, 101-200 is moderate, 201-300 is very poor and 401-500 is considered severe.

### **Noida's air quality drops to 'very poor' again**

*Date:-8-Feb-2021, Source: hindustantimes.com*

Noida: After oscillating between 'moderate' and 'poor' category for three days, the air quality of Noida and adjoining areas on Monday dropped to 'very poor' levels again.

According to the Central Pollution Control Board (CPCB), the air quality index (AQI) of Noida on Monday was 310 against 238 a day earlier. Similarly, Greater Noida's AQI value also went up to 319 against 224 a day earlier, while Ghaziabad recorded an AQI of 329 against 251 on Sunday.

AQI between 101 to 200 is considered 'moderate', between 201 and 300 is 'poor', between 301 and 400 is 'very poor' and above 400 is considered 'severe'.

Weather analysts stated that the wind speed dropped on Monday, while parts of the national capital region (NCR) also saw mist in the morning leading to accumulation of the particle pollutants in the air.

"The wind speed dropped on Monday and is expected to drop further," said an official at the India Meteorological Department (IMD).

According to the System of air quality and weather forecasting and research (SAFAR), the pollution levels are likely to increase. "Surface winds are calm and forecasted to decrease gradually. The dip in ventilation is likely to influence air quality negatively. AQI is likely to marginally deteriorate but predicted to remain within the very poor category for the next two days. The high end of very poor AQI is forecasted by February 11," said a SAFAR statement on Monday.

Meanwhile, mercury is likely to hover around season's average which is around 8 degrees Celsius for minimum temperature and 24 degrees for maximum, IMD said. "The region may see moderate fog during early morning hours," said the IMD official quoted above.

On Monday, the minimum temperature for Noida was recorded at 10.1 degrees Celsius against 12.3 degrees Celsius a day earlier. The maximum temperature for Noida was recorded at 24.1 degrees Celsius which is same as a day earlier. The maximum and minimum temperatures on Tuesday is likely to hover around 8 degrees and 25 degrees Celsius, respectively.

## **Nearly 5 Deaths Per Minute In India Due To Fossil Fuels Burning: Report**

*Date:-9-Feb-2021, Source: ndtv.com*

In 2018, more than 8.7 million people around the globe died from fossil fuel pollution, the report estimates.



**In 2018, more than 8.7 million people around the globe died from fossil fuel pollution.**

New Delhi: India has the highest number of premature deaths in the world due to emissions from burning fossil fuels, according to a new study published in the Environmental Research journal, conducted by researchers at Harvard University, University of Birmingham and the University of Leicester and University College London.

In 2018, more than 8.7 million people around the globe died from fossil fuel pollution, the report estimates. That's twice as many as the 4.2 million people suggested by the previous research - the Global Burden of Disease. This means that air pollution from burning fossil fuels such as coal and diesel was responsible for about one in five deaths worldwide, as per the report.

Of this 8.7 million, India has almost 2.46 million deaths, that's almost five deaths every minute. This means 30.7 per cent of total deaths in India above the age of 14 years can be attributed to exposure to fine particulate matter (PM2.5) in 2012. In comparison, China was estimated to have 3.9 million deaths or 40.2 per cent of total deaths above the age of 14.

However, this has been revised downwards, below India's figure. The figure was based on the original study of 2012 data and since then China has cut its PM 2.5 emissions from fossil fuels by 43.7 per cent because of which the researchers now estimate deaths to be 2.36 million, which is 24.2 per cent of deaths of people above 14 years old.

In sharp contrast for India, the report says there's likely to have been a sustained increase in PM 2.5 across the country from 2012 to 2018, so the estimate of mortality in India in 2012 could be conservative - i.e. the actual impact may be greater. In fact a related report, which studied trends from 2008-18 shows that concentrations of all pollutants increased in Delhi, suggesting no air quality improvements there, despite a rollout of controls on industrial and transport sectors.

One of the authors, Dr Eloise Marais of University College London, says "the findings are consistent with mounting evidence that air pollution has a greater impact on health than previously thought... We can't in good conscience continue to rely on fossil fuels when we know that there are such severe effects on health and viable, cleaner alternatives."

Researchers tapped into a global 3-D model of atmospheric chemistry, then divided it into a grid with boxes as small as 50x60 km and looked at pollution levels in each box to model PM 2.5 emissions by burning fossil fuel. PM 2.5 are toxic particulate matter pollution of 2.5 microns in diameter, that's about a thirtieth of a hair's breadth. These are lethal as they defeat the human body's defence mechanisms and settle deep into the lungs, spreading through the bloodstream into other vital organs causing ailments ranging from asthma to strokes, and even linked to cognitive impairment and harmful to foetuses.

## 10 STATES ACCOUNT FOR THREE-FOURTHS OF 2.46 MILLION DEATHS ESTIMATED

| RANK | STATE          | EXCESS DEATHS FROM FOSSIL FUEL PM2.5 (AGES >14) |
|------|----------------|---|
| 1    | Uttar Pradesh  | 4,71,546  |
| 2    | Bihar          | 2,88,821  |
| 3    | West Bengal    | 2,76,312  |
| 4    | Maharashtra    | 1,78,594  |
| 5    | Madhya Pradesh | 1,24,914  |
| 6    | Tamil Nadu     | 1,20,852  |
| 7    | Haryana        | 1,03,045  |
| 8    | Karnataka      | 98,324  |
| 9    | Jharkhand      | 96,574  |
| 10   | Odisha         | 95,910  |

Source: Global Mortality From Outdoor Fine Particle Pollution  
Generated by Fossil Fuel Combustion

**NDTV.com**

The scientists say the takeaway from the report is that fossil fuel combustion can be more readily controlled than other sources, so this is a clear message to policymakers and stakeholders to further incentivise a shift to clean sources of energy.

What the study does is to further build on our understanding of not only how interlinked climate change-inducing green-house gases and air pollution are but also its devastating effects on mortality. An Indian Government's study on climate change impact accepted that "phasing out" fossil fuels and transition to renewable energy is key in reducing India's climate risk. A recent report by the

Global Climate Risk Index (2021) ranked India as the seventh worst-affected by extreme weather events in 2019, both in terms of fatalities and economic loss suffered.

This week, two of the stars of America's ruling party are pushing for President Biden to declare climate change a 'national emergency', giving him powers to take immediate steps to limit if not reverse the damage done. India has two sides to its version of such an environmental emergency - climate change and air pollution. At stake, as the report shows, are millions of lives.

### **Pune to get six more air quality monitoring systems**

*Date:-10-Feb-2021, Source: hindustantimes.com*

PUNE The Maharashtra Pollution Control Board (MPCB) will be setting up six more air quality monitoring systems in the city.

The city will receive ₹50 crore funds from the Union budget to set up the continuous ambient air quality monitoring system (CAAQMS) and undertake other works. The funding will be done in a phase-wise manner, said officials.

Other cities which will be receiving funds from the state are Mumbai, Vasai-Virar, Nashik and Nagpur.

Mumbai has been allocated with a budget of ₹232 crore while other cities will get ₹50 crore each.

“Till now there was only one system in Pune city. Now that the area has widened in past few years, installation of six new systems will help to monitor air quality in a better way,” said an official from Maharashtra Pollution Control Board (MPCB), Pune, on condition of anonymity.

Along with Pune, MPCB has also decided to add 41 new stations across the state. Currently, there are 101 air inspection quality centres in the state out of which 78 centres are manual and 23 are monitored via continuous ambient air quality monitoring system.

According to officials, there are also other criteria like controlling industrial smoke, vehicular emission, biomass burning which should be checked to improve air quality.

The urbanisation and increase of vehicular movement have deteriorated the air quality of the city. “MPCB undertakes preventive measures to control air pollution, but lack of public support has made things harder for us. In the

coming days, we will also launch a few more programmes in the city to raise awareness about air pollution,” said the official quoted above.

Last year, in the same initiative, Pune city had received funds of ₹62 crore.

### **"Very Poor" Air Quality In Ghaziabad, Noida, "Poor" In Gurgaon, Faridabad**

*Date:-11-Feb-2021, Source: ndtv.com*



#### **The average 24-hour AQI at 4 pm on Thursday was 294 in Gurgaon**

Pollutants PM 2.5 and PM 10 also remained in the air of the five immediate neighbours of Delhi, according to the air quality index maintained by Central Pollution Control Board.

Noida: The average air quality was recorded in the "very poor" category in Ghaziabad, Noida and Greater Noida on Thursday, while it was "poor" in Gurgaon and Faridabad for the second consecutive day, data issued by a government agency showed.

Pollutants PM 2.5 and PM 10 also remained in the air of the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

The average 24-hour AQI at 4 pm on Thursday was 345 in Ghaziabad, 313 in Noida, 358 in Greater Noida, 290 in Faridabad and 294 in Gurgaon, according to the CPCB's Sameer app.

On Wednesday, it was 356 in Ghaziabad, 311 in Noida, 348 in Greater Noida, 294 in Faridabad and 247 in Gurgaon.

The CPCB states that an AQI in the "very poor" category may cause respiratory illness to people on prolonged exposure, while that in "poor" category may lead to breathing discomfort to most people on prolonged exposure.

The AQI for each city is based on the average value of all monitoring stations there. Ghaziabad, Gurgaon and Noida have four such stations while Greater Noida and Faridabad have two stations each, according to the app.

### **Dense fog likely, air quality gets worse**

*Date:-12-Feb-2021, Source: hindustantimes.com*

Noida: The city and its adjoining areas are likely to witness dense fog and haze for the next two days due to low wind speed, leading to rise in the air pollution levels, India Meteorological Department (IMD) said on Friday.

On Friday, Noida, Ghaziabad and Greater Noida were the top three polluted cities of country -- a second in the past four days -- with the pollution monitoring agencies seeing no respite for the next three days.

According to the Central Pollution Control Board (CPCB), the air quality index (AQI) of Ghaziabad on Friday was 375 ('very poor') -- worst in the country just like on February 9 and 10 -- against 356 on Thursday. Similarly, Noida's AQI was 363 -- second most polluted city in country -- against 311 a day earlier, followed by Greater Noida with an AQI value of 352 against 344 a day earlier.

An AQI between 101 to 200 is considered 'moderate', between 201 and 300 is 'poor', between 301 and 400 is 'very poor' and above 400 is considered 'severe'.

According to weather analysts, the wind speed on Friday dropped as the region fell into a low pressure area and is likely to continue to be so till Sunday.



“The region will see dense fog on Saturday, bringing down the visibility to around 100 metres,” said Kuldeep Srivastava, head, regional weather forecasting centre, IMD.

The experts said that temperatures are around season’s average only but the wind speed are very low. “Due to low wind speed during the morning hours, the condensation of moisture would continue. Also, since the low speed of winds leads to accumulation of particles, the haze formatting will be there. This could bring the visibility down to less than 100 metres from early morning hours to about 9am,” said Mahesh Palawat, vice-president (meteorology and climate change) at Skymet, a private weather forecasting agency.

Meanwhile, the minimum and maximum temperatures for Noida were recorded at 12.6 degrees and 26 degrees Celsius, respectively.

According to the System of Air Quality and Weather Forecasting and Research (SAFAR), not much change in the pollution situation is expected over the next few days. “Surface winds are low and wind speed is likely to marginally improve during day time. The ventilation is likely to stay in the same range and no significant change in AQI is expecting for the next couple of days. AQI is likely to stay in the very poor category for the next two days. AQI likely to marginally improve to lower end of very poor to poor category is forecasted for February 15,” said a SAFAR statement on Friday.

### **Air slips to 'severe' levels in Ghaziabad, 'very poor' in Noida, Gurugram, Faridabad**

*Date:-13-Feb-2021, Source: timesofindia.indiatimes.com*

NOIDA: The average air quality slipped to reach "severe" levels in Ghaziabad while it was recorded as "very poor" in Noida, Greater Noida, Gurugram and Faridabad, according to data issued by a government agency on Saturday. Pollutants PM 2.5 and PM 10 also remained in the air of the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.



The average 24-hour AQI at 4 pm on Saturday was 401 in Ghaziabad, 386 in Noida, 363 in Greater Noida, 362 in Faridabad and 310 in Gurugram, according to CPCB's Sameer app.

On Friday it was 372 in Ghaziabad, 363 in Noida, 352 in Greater

Noida, 326 in Faridabad and 347 in Gurugram.

The CPCB states that an AQI in the "severe" category affects healthy people and seriously impacts those with existing diseases, while "very poor" may cause respiratory illness to people on prolonged exposure

The AQI for each city is based on the average value of all monitoring stations there. Ghaziabad, Gurugram and Noida have four such stations while Greater Noida and Faridabad have two stations each, according to the app.

### **Air quality 'severe' in Ghaziabad, Noida, 'very poor' in Faridabad**

*Date:-14-Feb-2021, Source: livemint.com*

Pollutants PM 2.5 and PM 10 also remained in the air of the five immediate neighbours of Delhi

An AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

The average air quality was recorded "severe" in Ghaziabad, Noida, Greater Noida, while it was "very poor" in Faridabad and "poor" in Gurgaon, according to data issued by a government agency on Sunday.

Pollutants PM 2.5 and PM 10 also remained in the air of the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).



**Vehicles move amid the dense fog with low visibility as the air quality decreases, in New Delhi**

According to the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

The average 24-hour AQI at 4 pm on Sunday was 416 in Ghaziabad, 416 in Noida, 402 in Greater Noida, 366 in Faridabad and 288 in Gurgaon, according to CPCB's Sameer app.

On Saturday it was 401 in Ghaziabad, 386 in Noida, 363 in Greater Noida, 362 in Faridabad and 310 in Gurgaon.

The CPCB states that an AQI in the "severe" category affects healthy people and seriously impacts those with existing diseases, while "very poor" may cause respiratory illness to people on prolonged exposure. An AQI in the "poor" range causes breathing discomfort to most people on prolonged exposure, it states.

The AQI for each city is based on the average value of all monitoring stations there. Ghaziabad, Gurgaon and Noida have four such stations while Greater Noida and Faridabad have two stations each, according to the app.

## **Mumbai breathes cleanest air of the year, pollution levels drop**

*Date:-15-Feb-2021, Source: hindustantimes.com*



### **Mumbai's air quality improved on Monday.**

Mumbai recorded an Air Quality Index (AQI) of 115 on Monday, significantly down from Sunday's 186. The city breathed its cleanest air so far this year as rising temperatures and wind from the sea cleared up pollution levels.

Mumbai recorded an Air Quality Index (AQI)—a pollution measuring indicator—of 115 on Monday, significantly down from 186 on Sunday. The AQI was in the 'moderate' category. Before this, the city's lowest AQI was 156 (moderate) on January 19.

The AQI was calculated by the System of Air Quality Weather Forecasting and Research (SAFAR) as the average of indices recorded across 10 locations in the city and suburbs. SAFAR categorises AQI levels for PM<sub>2.5</sub> in the 0-50 range as 'good'; 51-100 as 'satisfactory'; 101-200 as 'moderate'; 201-300 as 'poor'; 301-400 as 'very poor' and above 400 as 'severe'.

Of the 10 locations measured, only Andheri recorded poor quality air with an AQI of 208. Malad recorded an AQI of 173 and Navi Mumbai recorded 157 but both were in the moderate category.

On September 4, 2019, Mumbai recorded its all-time best AQI of 12 since SAFAR began measuring air quality in June 2015. Last year on June 30, the city equalled its best AQI of 12.

“Temperatures have been on the rise for some time now, bringing down pollution levels. Clean winds from the ocean have further improved the air quality in Mumbai. It is expected to remain in the moderate category for the next two days,” said a SAFAR spokesperson.

Meanwhile, minimum temperatures increased slightly. At the Colaba station of the Indian Meteorological Department (IMD), minimum temperature of 21.2 degrees Celsius was recorded, up from Sunday’s 20.5 degrees Celsius and a degree above normal. At Santacruz, the minimum temperature was up from Sunday’s 19.4 degrees Celsius to 20.2 degrees Celsius, 2 degrees above normal. The maximum temperature at Colaba was 29.4 degrees Celsius, at par with normal. At Santacruz, the maximum temperature was 29.9 degrees Celsius, a degree below normal.

### **Deadly smog over India won’t lift until March, Copernicus says**

*Date:-16-Feb-2021, Source: livemint.com*



**The Harvard study published this month in Environmental Research concluded that previous estimates of deaths caused by long-term exposure to airborne toxic particles were too low**

This winter haze could potentially continue until the spring when increased temperature and changes in the weather will help to dissipate the pollution, said Mark Parrington of Copernicus Climate Change Service said.

A toxic-dust cocktail that has engulfed large swathes of India since October isn't expected to lift until next month, prolonging the exposure of people to emissions that can dramatically reduce their lifespan.

This week's forecast by the Copernicus Climate Change Service follows a new study by scientists at Harvard University showing that some 2.5 million Indians die annually from air pollution. Smog season recurs yearly in cities like New Delhi as burning farmland combines with fossil fuel exhaust, enveloping urban centers during cold months when demand for heat is high and air circulation is muted.

"This winter haze could potentially continue until the spring when increased temperature and changes in the weather will help to dissipate the pollution," said Mark Parrington, a senior scientist at Copernicus. The danger arises from "activities such as traffic, cooking, heating and crop stubble burning which are able to accumulate over the region due to topography and cold stagnant conditions."

The Harvard study published this month in *Environmental Research* concluded that previous estimates of deaths caused by long-term exposure to airborne toxic particles were too low.

"Often, when we discuss the dangers of fossil fuel combustion, it's in the context of carbon dioxide and climate change and overlook the potential health impact of the pollutants co-emitted with greenhouse gases," author Joel Schwartz said in a statement. "By quantifying the health consequences of fossil fuel combustion, we can send a clear message to policymakers and stakeholders of the benefits of a transition to alternative energy sources."

Populations in Lahore, Dhaka and Kathmandu are being similarly impacted by the smog, according to Copernicus, which estimates that chronic exposure to pollution can reduce lifespans by two years in the worst-impacted cities.



## **A deadly smog covers much of India, threatening 400 million people**

*Date:-17-Feb-2021, Source: zmescience.com*



### **Smog on Delhi, India's capital.**

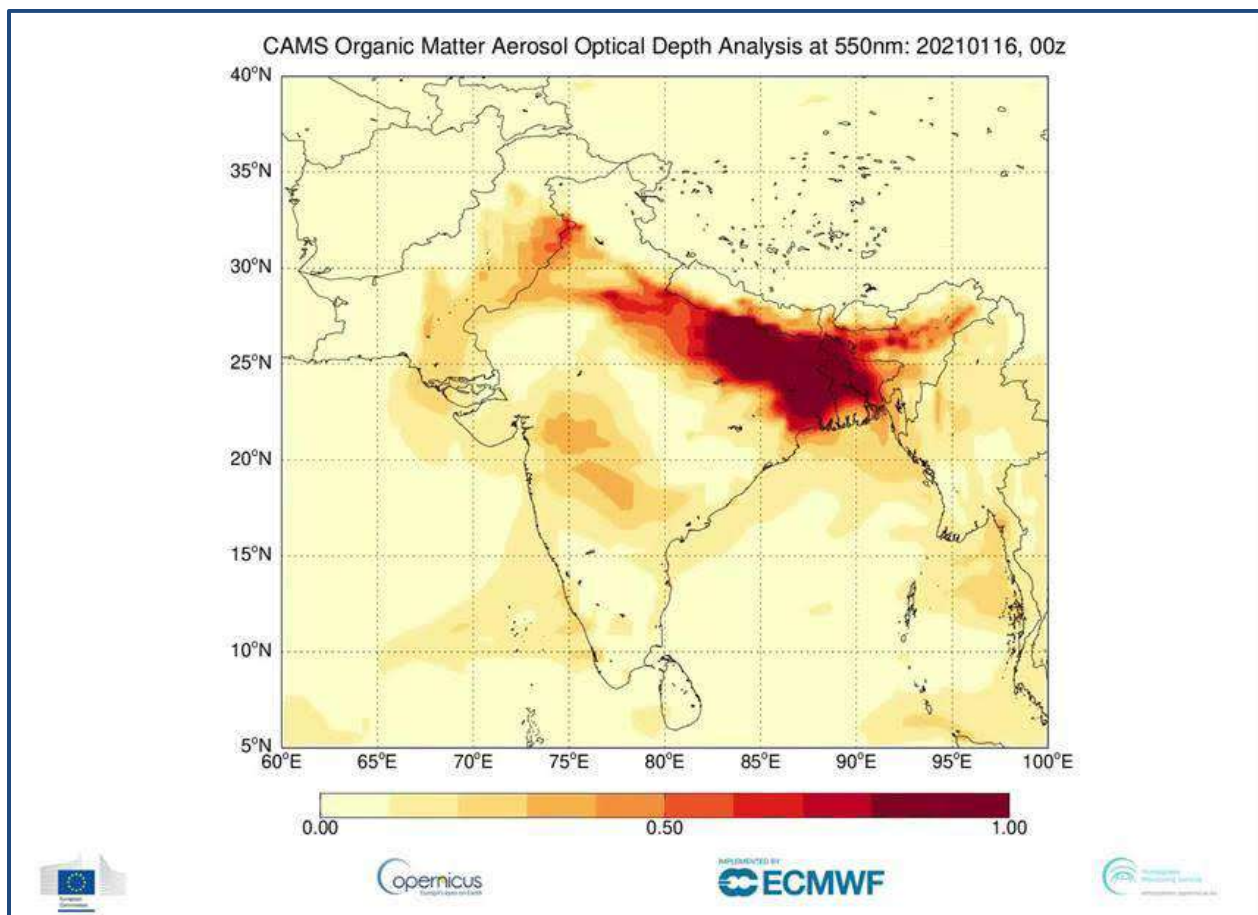
A widespread haze and pollution that has affected large parts of India since October is likely to remain there for at least another month, according to a forecast by the Copernicus Atmosphere Monitoring Service (CAMS). This means people will continue to be exposed to dangerous emissions that can significantly reduce their lifespan and cause multiple health issues.

The phenomenon has affected several countries across South Asia but India has been the most severely hit, especially in its north-eastern areas. High levels of fine particulate matter known as PM2.5 were reported in cities like New Delhi, India, Lahore, Pakistan, and Kathmandu, Nepal. The air quality in New Delhi has remained in the “poor” category since January, worsened by the current cold temperatures which favor the appearance of smog.

Scientists from Copernicus regularly monitor air pollution using satellite information, ground-based observation, and detailed computer models. They have been regularly tracking the phenomenon in South Asia and identified

sulfate and organic matter as the main contributors to the haze. They believe it will come to an end in spring thanks to warmer temperatures and changes in the weather.

Many studies have shown that chronic exposure to harmful gases and small particles such as PM<sub>2.5</sub> can have adverse health effects, reducing life expectancy by more than eight months on average and by two years in the most polluted cities and regions. A study earlier this year even suggested air pollution could be responsible for 1 in 5 adult deaths worldwide.



Cities across India frequently make the top of the ranking of the most polluted cities worldwide, and this isn't random. New Delhi and many others are subject to a severe smog season every year as burning farmland combines with fossil fuel pollution, enveloping urban centers during cold months when demand for heat is high and air circulation is reduced.

Copernicus' report follows a recent study by Harvard University researchers, who found that 2.5 million Indians died from air pollution in 2018. The study concluded that previous estimates of deaths caused by long-term exposure to



airborne toxic particles were too low. Instead of the previously estimated 4.2 million global deaths, they said the number was closer to eight million.

Previous research used satellite and surface observations to estimate the average global annual concentrations of airborne particulate matter – neither of which allows to distinguish the difference between fossil fuel emissions and those from other sources. To overcome this challenge, the Harvard researchers used a global 3-D model of atmospheric chemistry called GEOS-Chem.

## **Noida struggles for clean air as wind speed drops**

*Date:-18-Feb-2021, Source: hindustantimes.com*

Noida and neighbouring Ghaziabad and Greater Noida suffered “very poor” air for 11th straight day on Thursday, according to the central pollution control board’s (CPCB’s) air quality index (AQI).

According to the data, Noida had suffered 14 days of very poor air, one day of severe air till date this February, as against only six days of very poor and no severe day in the same period last year. There has been only one day of satisfactory air this month.

Analysts at the India Meteorological Department (IMD) say that the air is likely to remain very poor for the next few days due to slow wind.

“The city’s air quality is likely to see only a slight improvement during the afternoons when the wind speed is at its peak. Overall, though, wind speed is very low. On Thursday, the maximum wind speed was 10 kmph, that too for only a few hours. The rest of the time it was almost calm. Due to this the particle pollutants don’t disperse leading to pollution,” said Kuldeep Srivastava, head, regional weather forecasting centre, IMD.

Experts say that consistent wind of at least 8kmph is required to ventilate the region. They, however, added that there was more to the air pollution this year than just the meteorological factors.

“Other cities too have suffered more highly polluted days this year. People talk of meteorology as the sole reason, but last year the Environment Pollution (Prevention and Control) Authority (EPCA) was active and monitored the ground situation and the graded response action plan (GRAP) was effectively implemented. In the absence of a larger powerful monitoring agency, measures like ensuring curbs on construction activities seem not to be that effective,”

said Shambhavi Shukla, program officer, air pollution, centre for science and environment (CSE).

The Supreme Court-appointed Epca was replaced last year with the central government-appointed Commission for Air Quality Management.

According to the AQI, on a scale of 0 to 500, Noida recorded was 315 against 322 a day earlier, Greater Noida was 336 against 337 and Ghaziabad was 325 against 328.

The AQI between 101 to 200 is considered 'moderate', between 201 and 300 is 'poor', between 301 and 400 is considered 'very poor' and above 400 is considered 'severe'.

According to the System of air quality and weather forecasting and research (SAFAR), the air quality is likely to improve from February 20.

"Surface winds are low and forecasted to improve and change in direction to easterly. Better ventilation is likely to influence AQI positively. AQI is likely to stay in the lower end of Very Poor for the next two days. AQI is likely to further improve on 20th Feb," said the SAFAR statement on Thursday.

### **To tackle dust pollution, Delhi govt to prepare comprehensive action plan**

*Date:-19-Feb-2021, Source: livemint.com*

The Air Quality Index (AQI) continued to remain in the very poor category in the national capital on Friday.

The Delhi government will make a comprehensive action plan to tackle dust pollution in the city, state environment minister Gopal Rai said. A seven-member committee including experts from Delhi Pollution Control Committee, IIT Delhi and Delhi Metro Rail Corporation (DMRC) has been formed by Arvind Kejriwal government.

"A round table conference is scheduled for March 4 to discuss over anti-pollution campaign till September," Rai told news agency ANI.

"The smog tower at Connaught Place is expected to be completed in June. The Public Works Department (PWD) and Municipal Corporation of Delhi (MCD) have been directed to speed up the sprinkling work. Delhi government is also looking to strengthen the monitoring of 'Green War Room'," added the minister.



**If Delhi's air pollution could be lowered to the national standard, it would increase the life expectancy of Delhi's citizens by six years.**

The Air Quality Index (AQI) continued to remain in the very poor category in the national capital on Friday.

"The overall Delhi air quality is in the low-end of the 'very poor' category as forecast. AQI is likely to stay in the lower end of 'very poor' for the next two days and it is likely to further improve on February 20," the System of Air Quality and Weather Forecasting And Research (SAFAR) said in its bulletin.

The average air quality in neighbouring states Ghaziabad, Noida, Greater Noida and Gurgaon was recorded "very poor", while it was "poor" in Faridabad, according to data issued by a government agency on Friday.

Pollutants PM2.5 and PM10 also remained in the air of the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

## **5,534 new electric three-wheelers register for Switch Delhi campaign**

*Date:-20-Feb-2021, Source: hindustantimes.com*

As many as 5,534 new electric three-wheelers have been registered in Delhi after the Delhi government launched the “Switch Delhi” campaign around two weeks ago, the government said in a press statement issued on Saturday.

“The second week of the campaign focused on outreach related to three wheelers and many users came forward sharing their positive experience. The Delhi government will soon initiate the process for registration of e-autorickshaws. By switching to e-autorickshaws, people will be able to save around ₹29,000 per year annually on fuel as compared to their CNG equivalents,” said Delhi’s transport minister Kailash Gahlot.

The Switch Delhi campaign was launched by chief minister Arvind Kejriwal earlier this month. On the launch of the campaign, Kejriwal also said that his government will, in the next six months, change its policy to lease only electric cars as part of an effort to accelerate the adoption of electric cars in the Capital. The campaign is in lines with the government’s long-term plans to reduce air pollution in Delhi.

## **Foggy February: Experts explore reasons behind ‘unusual’ weather phenomenon**

*Date:-21-Feb-2021, Source: hindustantimes.com*

Noida: The national Capital region, as well as parts of western Uttar Pradesh, has been seeing an unusually dense cover of fog in the morning and evening hours this month, leaving commuters stuck and weather analysts perplexed.

Noida: The national Capital region, as well as parts of western Uttar Pradesh, has been seeing an unusually dense cover of fog in the morning and evening hours this month, leaving commuters stuck and weather analysts perplexed. Scientists said they are still exploring reasons behind this phenomenon which is not a common occurrence for this time of the year.

The analysts stated that while the wind speed this month had been calm and the impact of western disturbances low – a weather system that causes rains or snowing in the Himalayan states and subsequent rains or thundery development over the NCR – the month also saw more polluted days as

compared to the same month last year, which some believe could be a plausible reason or a contributing factor.

“Never has such dense fog been seen over larger areas simultaneously for longer duration daily – upto nine-10 days – after February 10 in any winter season, even in Delhi or any airport at this belt, including Amritsar and Lahore. We get dense fog in February but for a few days of the first week only, when the winter season has some features favouring it. This time, however, this spell has occurred when the night temperatures were two-three degrees Celsius above normal, which is something unique,” says RK Jenamani, senior scientist, national weather forecasting centre, India Meteorological Department (IMD).

Fog cover is considered shallow when visibility is upto 500 metre, moderate when it is up to 200 metre, dense when visibility is up to 50 metre, and very-dense when visibility is below 50 metre.

The IMD said that this “unusual phenomenon” that had affected regions around Delhi to Lahore, has so far in February seen 23 hours or five mornings of fog dense enough to affect flight operations at IGI airport, against 28 hours (seven mornings) in December 2020 and 43 hours (ten days) in January this year.

Interestingly, the average dense-very dense fog frequency for the Indira Gandhi International Airport (IGIA) for February is usually around 12 hours (three mornings). The phenomenon had also been seen at other airports including at Lucknow and Amritsar, says RK Jenamani, senior scientist, national weather forecasting centre, IMD.

Stating that air pollution could be one of the contributing factors but not the entire cause, the weather scientist believes that moisture, low winds and near average minimum temperature are the reasons behind the foggy month.

“Absence of an active western disturbance in the northern plain areas leads to an anticyclone or a high pressure belt, leading to calm winds or light winds in the areas at lower levels, which form the top criteria fulfilled for dense fog to stay longer over this region,” added Jenamani.

For Monday, the Met department had forecasted dense to very-dense fog over Haryana, Punjab, Delhi and north-west UP. “Dense fog over isolated pockets is very likely in Punjab, Haryana, Chandigarh, Delhi and north-west Uttar Pradesh on the morning hours of February 22,” stated the IMD’s bulletin.

According to data from the Central Pollution Control Board (CPCB), Noida in February 2021 saw 16 days of 'very poor' air quality and one day of 'severe' air quality so far, against only five days of 'very poor' air quality in February 2020.

Jenamani further said that more intensive study is required to understand the phenomenon in a better way.

"More analysis is needed to get all the answers around such unusual occurrences. There are already studies done for the period of 2015 to 2021 on fog at IGI, but by looking at the current condition, the study needs to be expanded to other areas as well. So we can in future understand and prepare to tackle the situation that hinders commuting," said Jenamani.

According to weather analysts, commuters taking to the Eastern Peripheral Expressway, Yamuna Expressway and the Taj Expressway must avoid the early hour drives on these stretches as thick fog is most likely to slow them down by cutting the visibility.

"Either avoid or take caution while taking the expressways up to at least 9am for the next few days as foggy conditions may go on for a few days. The phenomenon may go on and off as winds speeds are likely to vary," said Mahesh Palawat, vice-president, meteorology and climate change, Skymet.

Motorists said the heavy fog conditions are proving to be a hindrance to their commuting plans.

"It took me over five hours to reach Karnal via the Eastern Peripheral Expressway (EPR), which usually takes not more than three hours. Due to the farmers' agitation, I chose to avoid the Singhu border and instead opted for the EPR via Ghaziabad to go to Shimla. However, as soon as I hit the EPR at Duhai around 5.30am, the fog was so dense that I couldn't drive at more than 10-20 kmph for the entire stretch upto Rai," said Anil Bhasin, a resident of Gulmohar Park in Delhi, who was commuting to Shimla on Saturday morning.

## **AIR QUALITY IMPROVES**

Meanwhile, with varying wind speeds, the average air quality was recorded in the "poor" category across Ghaziabad, Noida, Greater Noida.

Pollutants PM 2.5 and PM 10 were also present in the air of the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the CPCB.

According to the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'. The average 24-hour AQI at 4pm on Sunday was 260 in Ghaziabad, 300 in Greater Noida, 251 in Noida, according to CPCB

The CPCB states that an AQI in the "very poor" category may cause respiratory illness to people on prolonged exposure, while "poor" may cause breathing discomfort to most people on prolonged exposure. On Saturday it was 336 in Ghaziabad, 324 in Greater Noida, 269 in Noida, 248 in Faridabad and 258 in Gurgaon.

The AQI for each city is based on the average value of all monitoring stations there. Ghaziabad, Gurgaon and Noida have four such stations while Greater Noida and Faridabad have two stations each, according to the app.

### **Delhi air quality in poor category, significant improvement unlikely**

*Date:-22-Feb-2021, Source: hindustantimes.com*



For the last three days, winds have been calm at night. There is no dispersal of pollutants which is why pollution levels are going up, said the regional weather forecasting centre.

Delhi's air quality remained in the poor category with an air quality index of 288 on Monday, according to Sameer app of Central Pollution Control Board. An AQI of 301 to 400 puts the air quality in very poor category. AQI is likely to hover in "poor" to "very poor" category over Delhi and other parts of northwest India due to calm winds in the evening, which slow down dispersal of pollutants.

"Wind speed during the day was around 10kmph but in the evening, it will be mostly calm. This is why we are not seeing any improvement in air quality. We are unlikely to record any significant improvement in the coming days either," said VK Soni, scientist at India Meteorological Department (IMD)'s air quality division.

Baghpat, Bulandshahr, Ghaziabad, Moradabad, Meerut also recorded "very poor" air quality on Monday.

"As February is coming to an end we are expecting a rise in both maximum and minimum temperatures. Maximum temperature is likely to be 30 to 31 degrees Celsius while minimum is likely to be 12 to 13 degrees Celsius in the next three or four days.

A western disturbance is impacting the Western Himalayan region. Once that moves away, there will be a marginal and brief drop in temperatures in the Capital as cold northwesterly winds will be blowing, but otherwise its likely to get warmer now," said Kuldeep Shrivastava, head, regional weather forecasting centre.

On Monday , Delhi's maximum temperature was 28.9 degrees Celsius, 4 degrees above normal and minimum temperature was 11 degrees Celsius, 0 degrees above normal.

Under the influence of a fresh western disturbance, widespread rainfall or snowfall is very likely over Jammu, Kashmir, Ladakh, Gilgit, Baltistan and Muzaffarabad; scattered rainfall/snowfall is likely over Himachal Pradesh for next 3 days and fairly widespread rainfall for the subsequent 2 days while scattered rainfall or snowfall is also likely over Uttarakhand during next 5 days.





Thunderstorm or lighting is very likely over Jammu, Kashmir, Ladakh, Gilgit, Baltistan and Muzaffarabad during next 5 days and over Himachal Pradesh and Uttarakhand during February 23 to 26. Isolated hailstorm is likely over Jammu, Kashmir, Ladakh, Gilgit, Baltistan and Muzaffarabad on February 24 and 25; Himachal Pradesh on February 25 and 26

and over Uttarakhand during February 23 to 26.

Air quality early warning system for Delhi under the ministry of earth sciences had forecast that air quality is likely to be in very poor category on Monday and Tuesday. The predominant surface wind is likely to be coming from west of Delhi with wind speed 05-15 kmph, mainly clear sky and mist or shallow fog in the morning on February 23.

Meanwhile, IMD said dense to very dense fog was observed in isolated pockets over Delhi, and the visibility remained 500 metres in most parts of the city.

On Sunday too, the AQI was recorded in poor category at 295. The average air quality was recorded in the poor category across Ghaziabad, Noida, Greater Noida, Faridabad and Gurgaon as well, according to data issued by a government agency on Sunday. According to CPCB's Sameer app, AQI was 260 in Ghaziabad, 300 in Greater Noida, 251 in Noida, 264 in Faridabad and 297 in Gurugram.

## **Deteriorating air quality in Chennai cause for serious concern, say doctors**

*Date:-23-Feb-2021, Source: thenewsminute.com*



A recent study by Greenpeace Southeast Asia on air quality in Chennai pegs the number of deaths due to air pollution at 11,000 in 2020 alone.

A recent study by Greenpeace Southeast Asia on air quality in Chennai has brought back focus on the effect of pollution on the health of residents of the coastal city. According to the report, 11,000 people died due to air pollution-related diseases, and a cost estimator pegging economic loss due to the same at about Rs 1 lakh crore, in 2020 alone.

Speaking to TNM, however, doctors and environmentalists point out that while the numbers reported by Greenpeace are mere estimates, the report is right in saying that immediate action needs to be taken to protect residents from the harmful effects of rapidly deteriorating air quality.

Dr Spoorthi, an American Board-certified Internal Medicine Physician from Promed Hospital in Chennai, states with conviction that the number of patients coming in with air pollution-related complications has seen an upward trend.

"We see that people who have asthma and chronic obstructive pulmonary disease (COPD) (a chronic inflammatory lung disease that causes obstructed airflow from the lungs) are prone to exaggeration of their conditions. People who smoke are at even higher risk and this is particularly correlating to days when pollution figures are high in the city," she says. "More people are coming in with skin irritation like rashes or eczema if they stay out for too long," she adds.

The doctor has also observed that the cardiovascular health of patients is put at risk by air pollution.

"Even simple ENT (ear, nose, throat) infections and conditions like sinusitis are presenting themselves more seriously on days when pollution in the city (based on air quality index) is high," she explains. "It is already late and we need to act fast to curb pollution."

Dr S Suresh, a Consultant Pulmonologist at Gleneagles Global Health City in Chennai, tells TNM that the effects of irritants last longer in patients' systems due to increased pollution. "COPD patients are now coming to our emergency room because their symptoms are becoming more severe. Asthma patients are also coming in because it doesn't get under control immediately," he explains.

The pulmonologist points out that the effects of air pollution on the human body are becoming harder to treat, and require more medical supervision than before.

"Some allergens make airways hyper-responsive. Some patients have bronchial spasms that lead to chest tightening. So immediately they have to take nebulisation or the inhaler prescribed. In spite of that, if they don't see any improvement, then they have to visit the hospital immediately so we can give high steroids and other medical intervention," he explains.

"Amongst the people at high risk are pregnant women. They inhale ultra-fine particles. It goes into the bloodstream and the liver from there, and causes problems for the foetus when it reaches the placenta. During the time of delivery, they are at risk of giving birth to low-weight babies or pre-term babies. The children may also develop cardiac problems. The other highly affected group are asthmatic children below the age of 5," he adds.

## **Government's recognition of the problem**

Given the increase in health risks due to deteriorating air quality, activists allege that public policy has not addressed the issue adequately.

"We need to focus on the problem itself and not numbers. Whether one person died or 11,000, if the loss of life was preventable, it should not have happened," says environmentalist Shwetha Narayanan about the Greenpeace study. "Air pollution in general in Tamil Nadu, Chennai and other cities is not being taken seriously by the state or central government. The National Clean Air Programme in Tamil Nadu includes only one city—Thoothukudi," she alleges, adding that the air quality in the state is probably worse than the numbers suggest, given that Tamil Nadu is among the top five industrialised states in India.

Environmentalists allege that Tamil Nadu is being neglected by the Union government, given the lack of recognition to the fact that poor air quality is harming people. They stress on the need for allocation funds to create awareness programmes, bring about policy changes to reduce pollution from industries and better traffic management. Only recognising the problem, say environmentalists, can lead to the path for a solution.

"In Chennai, we continue to set up polluting industries and activities that will reduce air quality. The expansion of industries in north Chennai, fly ash pollution from power plants and the lack of a network of monitors to record air quality levels show the lack of will to improve the situation," Shwetha explains. "Chennai also has dense vehicular traffic. We know the sources but there is no action to control the pollution from these sources. The Delhi Pollution Control Board has set up monitors across the capital to record air quality. In Chennai, we have four CPCB monitors with data available to public, but that is nowhere enough for a city like this. Even the little data from existing monitors show evidence of pollution. But where is the action in response to this?" she asks.

## **How can you protect yourself?**

Polluting industries, dumping yards, construction sites and vehicular traffic are amongst the largest sources of pollution in Chennai. And while health experts recognise that residents cannot completely avoid exposure, they suggest strategies to reduce the effect of air pollution.

During the COVID-19 pandemic, both doctors tell TNM, there were reduced cases due to air pollution because of reduced vehicular traffic and the enforcement of mask hygiene.

"If you are a healthy individual with no respiratory problems, wearing an N95 or N99 mask and ensuring you get enough exercise and nutrition should help you improve your own immunity," says Dr S Suresh.

Other immediate solutions, according to Dr Spoorthi, are buying an air purifier, if people one can afford it, or plants that will help with indoor pollution. As for outdoor activities, she suggests choosing a time when there is less vehicular traffic and to stay away from high-traffic areas.

"Including vitamins A, C and E in your diet will also be beneficial," she says. "They will help with repair of tissues. decrease inflammation and can aide the body in recovering from environment caused stressors."

### **Air pollution higher this winter than previous year, finds report**

*Date:-24-Feb-2021, Source: hindustantimes.com*

A report by the Centre for Science and Environment (CSE), comparing air pollution levels between the winter of 2020 with that of the previous year, has revealed that average air pollution was higher this winter in the city.

However both Gurugram and Faridabad reported better air quality than Delhi.

The institute came to the conclusion after studying granular real-time data of particulate matter (PM) 2.5 (15-minute averages) for 99 cities including 49 cities from Northern India from the Central Pollution Control Board's (CPCB) official online portal, called Central Control Room for Air Quality Management, from October 1, 2019 till January 31, 2020, and from October 1, 2020 till January 31, 2021.

Analysing the data, the CSE report states that 26 cities in the region, including Gurugram, shows an increasing trend in air pollution, recording over 8% increase from last winter.

As per the report, Faridabad and Gurugram are in the top 20 cities according to the PM 2.5 levels during the winter.

Gurugram was ranked 16 with a 9% increase in the average PM 2.5 levels during the winter and 8% increase in peak levels of PM 2.5. At rank 14, Faridabad reported an 8% decrease in the average PM 2.5 levels during the

winter and 14% decrease in peak (seasonal peak of a city is based on mean of the highest daily PM<sub>2.5</sub>) levels of PM 2.5. The seasonal peak of a city is based on mean of the highest daily PM<sub>2.5</sub>.

Both the cities, however, ranked below other cities of the National Capital Region (NCR), like Ghaziabad (ranked at 1), Greater Noida, Noida, Delhi (which were among the top five cities).

Reacting to cities of Haryana reporting lesser air pollution compared to other cities of NCR, S Narayanan, member secretary of Haryana State Pollution Control Board(HSPCB) said, “Compared to the last winter season, this winter, we took a lot of steps to control air pollution. We took steps under Graded Response Action Plan (Grap) along with increased night patrolling to monitor industrial emissions. This winter, we also strictly arrested air pollution through banning firecrackers during the festive season. Along with these measures, rainfall also helped in controlling air pollution, especially cities like Gurugram and Faridabad.”

Avikal Somvanshi, programme manager for sustainable cities with CSE, said, “The analysis is based on comparison with the previous winter (2019-2020) when the weather conditions were different and rainfall activity was higher compared to the current outgoing winter season. Rainfall activity helps in washing down of pollutants, PM 2.5 in this case. This year, i.e. 2020-2021, we did not witness as much rain, which could be one of the reasons for higher seasonal average.”

He added that measures taken by authorities to control air pollution also had a role to play in the decreased data for peak winter pollution.

“Peak pollution is usually reported when smog accumulates. With the latest data analysis, we can see that peak has been reducing over the years. When measures like shutting down of construction activities and shutting down of brick kilns through the Grap is imposed, it helps a lot in controlling the peak pollution,” added Somvanshi.

Meanwhile, Haryana did not have any cities in the top ten most polluted cities of Northern India, however, eight cities were listed in top 20. Fatehabad saw a jump of 228% in the seasonal average. Meanwhile, Bhiwani and Palwal recorded the lowest seasonal average during the 2020-21 winter with over 60% drop from the previous season.

## **Air quality deteriorates sharply Delhi's Bawana industrial area**

*Date:-25-Feb-2021, Source: indiatoday.in*



### **Air quality in Delhi's Bawana industrial area has deteriorated sharply.**

The air quality index (AQI) crossed the 900-mark at an industrial area in Delhi, marking a sharp deterioration in air quality for the first time in 2021.

In North Delhi's Bawana area, the air quality deteriorated to 'hazardous' quality with an AQI reading of 914 — three times higher than the average AQI of 350 recorded in February last year — at around 8:30 am in the morning.

Since Bawana is an industrial area, both PM2.5 and PM10 pollutant levels remain elevated in the area. The Dwarka area of the national capital occupied the second spot as AQI was recorded at 809, which also falls in the 'hazardous' category.

An AQI of 519 was recorded in neighbouring Faridabad city and the air quality remains in the 'hazardous' category here as well. In the satellite cities of Noida and Greater Noida, the AQI was recorded at 380, which is also in the 'hazardous' category.

In Ghaziabad, the air quality was slightly better than Wednesday but still remained in the 'hazardous' category with a reading of 404. The doctors have



advised children and those who have respiratory ailments to stay indoors as much as possible.

“Continuous exposure to such pollutants can lead to various ailments in any person. Those who have respiratory problems must stay away from such pollutants. Also, children must be taken care of in such situations,” said Dr Jitendra Singh, a paediatrician.

## **Winds keep Delhi mercury from breaking February record, temperature to dip this weekend**

*Date:-26-Feb-2021, Source: hindustantimes.com*

Strong winds came to the rescue of Delhi's residents, keeping the city's temperatures from soaring on Friday.

India Meteorological Department (IMD) scientists said while the forecast for Friday showed that the mercury levels were set to peak and break the record for the highest temperature to ever be recorded in February, strong winds during the day kept the temperatures a notch short of that mark.

On Friday, the maximum temperature recorded at the Safdarjung observatory, considered the official marker for the city, was 33°C, seven higher than the season's normal. But the minimum temperature touched 15.2°C, three above normal, and the highest recorded this season.

IMD recordings show that apart from three days, this February has seen temperatures three to four degrees higher than the season's normal. This has primarily been because of fewer western disturbances that have impacted the city this month, which has kept the skies clear and thereby allowed uninterrupted sunlight during the day.

Met officials said that the city will witness a slight respite from the heat on Saturday. Kuldeep Srivastava, head of IMD's regional weather forecasting centre said strong winds will help Saturday's mercury drop by one to two degrees. He also explained that the minimum temperature on Friday rose as a result of the high day time temperature recorded a day before. On Thursday, the maximum temperature recorded in the national capital was 33.2 degrees Celsius, the highest in February since 2006.

“On Friday, the wind speed touched 25kmph for a while in the afternoon, which kept the maximum temperature lower than what was forecast. The wind speed will be on the higher side on Saturday too,” Srivastava said.



He added that the temperatures will fall further from Sunday.

“Wind directions are changing from Sunday and there is also a forecast of an active western disturbance passing over Ladakh, Jammu and Kashmir and Himachal Pradesh. These states are experiencing rain and snowfall and the winds coming from these states will bring cold winds, which will lead to this drop,” said Srivastava.

Meanwhile, the air quality on Friday also improved marginally but stayed in the ‘poor’ zone. Central Pollution Control Board (CPCB) recordings show that the overall air quality index (AQI) of Delhi was 229. On Thursday, the average AQI was 298, also in the ‘poor’ zone.

Union ministry of earth science’ air quality monitoring centre, System of Air Quality and Weather Forecasting and Research (Safar), said that an increase in wind speed and boundary layer height is forecasted for Saturday and this is likely to influence AQI positively.

“The AQI is forecasted to stay well within the ‘poor’ category on February 27 and February 28. Though ventilation is favourable for better AQI, an increase in mineral dust contribution is expecting in the coming days as the winds are from dry desert regions,” the Safar forecast read.

### **Incoming Dust from Rajasthan to Worsen Delhi’s Air Quality from February 28; AQI to Deteriorate to ‘Poor’**

*Date:-27-Feb-2021, Source: weather.com*

Saturday, February 27: Delhi’s air quality saw a notable improvement on Saturday, February 27, with the capital recording a ‘moderate’ air quality index (AQI) of 163. However, the respite from pollution is unlikely to last for long, and incoming dust from the neighbouring state of Rajasthan is to blame.

As of 4 p.m. on Saturday, the highest pollution levels within Delhi were recorded by the monitoring stations based in Narela (299), Mundka (281) and Chandni Chowk (272)—all of which registered AQIs in the ‘very poor’ category. But on the other hand, the localities of Sri Aurobindo Marg (121) and Dr. Karni Singh Shooting Range (138) both experienced the purest air in the city, with AQIs in the ‘moderate’ category.

AQI between 0-50 are categorised as good, 51-100 as satisfactory, 101-200 moderate, 201-300 very poor and 401-500 severe. Any AQI above 500 is considered as 'emergency' or 'severe-plus'.



### **Dust storm in New Delhi**

This recent improvement in Delhi's air quality is down to three factors: an increase in wind speed, which leads to better ventilation; and the rise in temperatures and higher boundary layer height, both of which cause the air to rise and prevent pollutants from remaining trapped near the surface.

However, as per the predictions made by the System of Air Quality and Weather Forecasting And Research (SAFAR), Delhi air is very likely to undergo deterioration once again, even after the prolonged winter fury finally coming to an end.

The SAFAR forecast indicates that under the influence of an induced cyclonic circulation and the resultant increase in wind speed, dust from the dry desert regions of Rajasthan will soon begin infiltrating the capital. This will amplify the mineral dust contribution to Delhi's atmosphere, effectively worsening its air quality.

Therefore, Delhi's overall AQI is expected to deteriorate to 'poor' in the next two days, in spite of good ventilation and favourable local weather parameters. Such poor-quality air could cause breathing discomfort among most people upon prolonged exposure, and therefore, Delhiites have been recommended to stay indoors and avoid exposure as much as possible.

Meanwhile, the India Meteorological Department (IMD) has forecast that at present, the temperatures across most parts of Northwest India are 4-6°C above normal, and similar trends are likely to persist for the next two days, before falling by 2-4°C thereafter.

Despite such higher-than-average mercury levels, however, the area surrounding the national capital continues to reel in high pollution conditions. According to the Central Pollution Control Board (CPCB), Delhi's neighbouring regions of Faridabad, Noida, and Greater Noida have all logged 'poor' quality air, whereas Ghaziabad has recorded the worst quality air with 'very poor' AQI of 301.

### **Delhi largely neglected pollution hotspots in Dwarka, Narela in favour of carrying out plantation**

*Date:-28-Feb-2021, Source: timesnownews.com*



**Air pollution in Delhi NCR**

Study claims tree plantation done under the National Clean Air Programme in Indian cities poorly planned.

New Delhi: The Air Quality Index (AQI) in Delhi was in the 'moderate' category on Sunday with an AQI reading at 163. According to Safar India, the overall air quality is in good condition in the national capital.

In a recent study by Legal Initiative for Forest and Environment (LIFE), Delhi ignored pollution hotspots in plantation drives done under the National Clean Air Programme (NCAP) in Indian cities. The released report stated that Delhi had neglected pollution hotspots like Mundka, Narela, Dwarka and Bawana. In the central and eastern part of the city, the plantation drive excluded key pollution hotspots.

According to the Times of India, The study is based on an analysis of the Right To Information responses from various departments. To reduce the pollution level, trees plantation takes place. The report also suggests that poor identification of species have been done, which raises concern. Most cities have planted incompatible species which are unfavourable for reducing air pollution level, the report stated.

Reports from different cities such as Korba, Hyderabad, Agra, Chandigarh and Varanasi have been covered.

#### **Excerpts from the report:**

In Delhi, plantation took place in 967 spots, which is majorly concentrated in central and eastern parts of the city.

Out of the 43 plantations done only one was near a pollution hotspot in Hyderabad.

In Varanasi 60 per cent of plantations were in residential areas at 8 per cent around junctions and traffic hubs.

Major city pollution hotspots have been neglected in Chattisgarh's Korba district, while 50 per cent plantation has been done around Korba Super Thermal Power Plant at Jamnipali.

Most plantations drive in Chandigarh is done in parks and gardens rather than pollution hotspots.

## March 2021

### **Tackling stubble burning could reduce high BP risk, save \$2 billion over 5 years — study**

*Date:-1-Mar-2021, Source: theprint.in*

Researchers from IIT Delhi, Brookings Institution and Ashoka University find reducing disease burden associated with hypertension can help save \$1.73 to 2.24 billion over 5 years.

New Delhi: Tackling stubble burning in India can reduce prevalence of hypertension or high blood pressure and by extension also save \$2.24 billion (more than Rs 16,479 crore) over five years, a new study has found.

Every year, just before the onset of winter, paddy farmers of Punjab and Haryana are faced with the challenge of quickly removing crop stubble left over in their fields after the season's harvest.

A common practice to remove stubble is to set fire to their fields. However, due to the meteorological conditions of the region, the smoke from the fields does not dissipate. Instead, the pollutants from the fields worsens the air quality levels in several cities in North India including Delhi, Gurgaon, Noida and Ghaziabad.

In the study, researchers from IIT Delhi, Brookings Institution and Ashoka University found that exposure to smoke from crop residue burning can increase the risk of high blood pressure and those over the age of 40 were more vulnerable to it.

Reducing biomass burning would, therefore, prevent loss of 70,000 to 91,000 of human lives every year, the study, published in the SSM – Population Health journal, revealed.

By reducing the disease burden associated with hypertension, a condition that further increases the risk of heart disease and stroke, Indians could save \$1.73 to 2.24 billion over five years, according to the researchers.

Therefore, they added, curbing biomass burning will ensure significant health and economic benefits in North India.

While several earlier studies have linked pollution to several health issues, researchers claimed this is the first study to systematically examine this relationship and estimate its economic implications for India.

The study included researchers from AIIMS and Safdarjung Hospital in New Delhi.

### **The study**

The study used data from the National Family Health Survey (NFHS-IV) 2015-16, which collected data from 188-190 individuals from four states — Punjab, Haryana, Uttar Pradesh and Bihar.

The NFHS-IV provides blood pressure data at the national, state and district level in a population, for women aged 15-49 years and men aged 15-54 years.

The data also includes exposure to fire-events and weather-related factors, such as temperature and rainfall.

The team calculated the number of fire-events within a 100 km radius in the 30 days prior to the collection of the blood pressure data by the NFHS-IV interviewers.

The research team found that people who had been exposed to biomass burning in the past 30 days were more likely to have hypertension or high BP, than those who were not exposed to biomass burning incidents.

“India thus needs effective policies regarding regulation and management of biomass burning. The policy instruments should address the knowledge barrier in adoption of new clean technologies for managing crop residue and they should provide greater financial support for buying new machinery,” the researchers wrote in the study.

“In addition to this farmers should be encouraged to sell their residue for alternative purposes like use of rice pellets for power generation, use of stubble as fodder for cattle etc,” the team added.

They also noted that the policy of zero-tolerance towards crop burning has been found to be ineffective.

Rather, a greater amount of monetary support by the government for renting or buying new machinery, financial incentives for zero-burning and information dissemination about harmful health effects of crop burning to the farmers could help tackle the issue better.

## Delhi air quality 'moderate'

*Date:-2-Mar-2021, Source: thestatesman.com*



**“Surface winds are high and forecasted to stay high for the next 24 hrs; the improved ventilation is influencing air quality positively.”**

The air quality of the national capital improved to the ‘moderate’ category on Tuesday but is likely to deteriorate due to an increase in mineral dust contribution in the coming days.

Delhi’s air quality index stood at 165 micrograms per cubic meter at noon. AQI within the limit of 0-5 is regarded as good, 51-100 satisfactory, 101-200 moderate, 201-300 very poor, and 401-500 is considered severe.

A sharp decline in air pollution has brought a sigh of relief for the residents of the national capital. On February 27, the city had recorded poor quality of air, with the index mounting to 211 micrograms per cubic meter.

“Surface winds are high and forecasted to stay high for the next 24 hrs; the improved ventilation is influencing air quality positively,” stated the Ministry of Earth Sciences’s System of Air Quality and Weather Forecasting And Research.



The winter fury appears to be over but now Delhi air will start getting influenced by mineral dust, the SAFAR officials said. A marginal deterioration is forecasted on March 4 and 5.

The officials have advised sensitive people to consider reducing prolonged or heavy exertion and take it easy if symptoms such as coughing or shortness of breath occur.

Delhi's neighboring regions — Faridabad, Noida, Gurugram, Greater Noida, Ghaziabad also logged moderate quality of air.

### **Mercury on rise in Noida, air quality improves**

*Date:-3-Mar-2021, Source: hindustantimes.com*

Noida: The air quality of Ghaziabad and Greater Noida on Wednesday improved to 'moderate' levels for the first time in the past 24 days, while that of Noida continued to be under the 'moderate' category for the third day in row, according to the Central Pollution Control Board (CPCB).

However, Noida saw a rise of three degrees Celsius (°C) in the maximum temperature which settled at 30.8°C on Wednesday against 27.8 °C a day earlier. The India Meteorological Department (IMD) said that the day temperature was 4°C above the season's average. The minimum temperature for the city was almost similar at 17.9°C against 17.1°C on Tuesday.

According to weather analysts, proper ventilation due to the rise in mercury and good wind speed helped in dispersion of the pollutants from the region.

According to IMD, the mercury may slightly rise further in the next few days but will oscillate around 14°C as minimum and 30-32°C as maximum for Safdarjung, Delhi, which is also average for NCR. For NCR, as per reading at Safdarjung station, the minimum temperature was recorded at 13.2 degrees Celsius, two degrees higher than the season's average and the maximum at 30.8 degrees Celsius, four degrees above the season's average.

"The mercury is likely to rise for the next few days until March 7 when the region may see light rains. The wind speed will remain moderate and north-westerly," said Kuldeep Srivastava, head, regional weather forecasting centre, IMD.



Meanwhile, the air quality of Ghaziabad and Greater Noida improved and entered 'moderate' zone after oscillating in-between 'poor' to 'severe' category since February 7.

"The wind speed will remain good though may drop slightly on March 5 and 6 due to an approaching western disturbance. The ventilation will be good," said Srivastava.

According to CPCB, the air quality index (AQI) of Noida on Wednesday was 168 against 153 a day earlier, both under 'moderate' category. The AQI of Greater Noida improved to 189 against 218 a day earlier, while Ghaziabad recorded an AQI of 198 against 218 a day earlier.

An AQI up to 100 is considered 'good', between 101 and 200 is 'moderate', between 201 and 300 is 'poor', between 301 and 400 is 'very poor' and above 400 is considered 'severe'.

According to the System of Air Quality and Weather Forecasting and Research (SAFAR), the air quality is likely to oscillate between 'satisfactory' and lower end of 'poor'.

"Surface winds are high but forecasted to slow down by tomorrow. Although day is becoming warmer, AQI is forecasted to marginally deteriorate towards the high end of moderate to lower end of the poor category by tomorrow. But AQI will not stay in poor for a longer time and likely to marginally improve thereafter and forecasted to oscillate between poor and moderate category on March 5 and 6," said a SAFAR statement on Wednesday.

### **Delhi Witnessed Higher Pollution Levels, Fewer Smog Episodes This Winter: CSE Analysis**

*Date:-4-Mar-2021, Source: weather.com*

Every winter season, the National Capital Region records a spike in air pollution levels. And instead of going down owing to various measures from governments and citizens, the pollution levels have only increased year-on-year. In the winter season of 2020-2021, the pollution has notched higher levels once again, as per the latest analysis by the Centre for Science and Environment (CSE).

The overall city-wide average pollution was recorded at 186 micrograms per cubic metre i.e., 7% higher than the 2019-2020 winter months, reveals the CSE analysis. "This demands quicker and more ambitious regional reforms to

curb pollution from all sources with the scale with speed,” says Anumita Roychowdhury, executive director-research and advocacy, CSE.



**A layer of smog engulfs the Rajpath and Raisena hills in New Delhi.**

**More pollution, less seasonal peaks**

Despite a year-on-year increase in pollution levels, the seasonal peak in pollution levels witnessed a reduction by 8% as compared to last winter owing to the meteorological conditions and change in the farm stubble burning patterns. This could be the reason for the reduced number of emergency-level pollution episodes across the national capital region this winter.

Delhi recorded at least 23 ‘severe’ air quality days this winter season. The capital city had recorded 25 ‘severe’ days in 2019-2020 and 33 such days in 2018-19. At the same time, the number of days with the ‘poor’ category of AQI had increased between October 15, 2020, to February 1, 2021.

“Winter season is always a special challenge when inversion and cool and calm weather traps and spikes daily pollution. But this is also the bar to understand the effectiveness of round-the-year action in reducing long-term pollution in the region. Despite the declining trend (year-on-year basis) due to action taken over the last few years on clean fuels for industry and transport, power plants, trucks, old vehicles etc, the winter PM2.5 concentration has bounced back,

unmasking the impacts of local and regional pollution” said Anumita Roychowdhury.

The analysis indicates that north Delhi and east Delhi recorded the highest concentration of the PM2.5 level pollutant in the entire capital city during the winter season. Jahangirpuri was designated as Delhi’s prime pollution hotspot in the season, with an average PM2.5 level of 256 micrograms per cubic metre. Apart from this, Alipur, DTU, ITO, Nehru Nagar, Patparganj, Sonia Vihar and Vivek Vihar also registered higher seasonal averages. Among the neighbouring regions of the capital, Ghaziabad recorded a higher spike in pollution levels.

### **Fewer smog episodes**

One of the other main findings of the analysis was the reduction in the severity of smog—a mix of smoke and fog—episodes this year. This winter season, the capital city recorded only two continuous smog episodes, which were of shorter duration as compared to the previous year. The first occurred on November 3 and lasted for seven days, while the second one was of shorter duration on December 22—which lasted only three days.

On the positive side, at least 12 ground-based stations recorded an improvement in seasonal average air quality, with most improvement noted in NSIT Dwarka, Wazirpur and Shadipur.

Avikal Somvanshi, programme manager in CSE’s Urban Lab team of the Sustainable Cities programme adds: “This analysis has helped us understand the regional patterns as well as the local variations. Even though there is considerable regional variation, peak pollution episodes increased and synchronised within the region. The uneven rise across monitoring locations—even contiguous locations—brings out the impact of local pollution.”

The analysis of the entire Delhi was conducted based on data obtained from various apex government agencies like the Central Pollution Control Board’s (CPCB). Altogether, the team at CSE collected data from more than 81 air quality monitoring stations under the Continuous Ambient Air Quality Monitoring System (CAAQMS) of the CPCB. Additional information on stubble fire was derived from the System of Air Quality and Weather Forecasting and Research (SAFAR), while weather data was sourced from the Palam weather station of the India Meteorological Department (IMD).

## **CPCB records 'very poor' air quality in Greater Noida, 'poor' in Ghaziabad, Faridabad, and Gurugram**

*Date:-5-Mar-2021, Source: firstpost.com*



The average 24-hour AQI at 4 pm on Friday was 276 in Ghaziabad, 301 in Greater Noida, 250 in Noida, 268 in Faridabad and 273 in Gurgaon, according to the CPCB.

Noida: The average air quality was recorded in the "very poor" category in Greater Noida, while it was "poor" in Noida, Ghaziabad, Faridabad and Gurgaon, according to data issued by a government agency on Friday.

Pollutants PM 2.5 and PM 10 also remained high in the air of the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

The average 24-hour AQI at 4pm on Friday was 276 in Ghaziabad, 301 in Greater Noida, 250 in Noida, 268 in Faridabad and 273 in Gurgaon, according to CPCB's Sameer app.

On Thursday, it was 332 in Ghaziabad, 298 in Greater Noida, 302 in Noida, 312 in Faridabad and 218 in Gurgaon.

The CPCB states that an AQI in the "very poor" category may cause respiratory illness on prolonged exposure while "poor" leads to breathing discomfort to most people on prolonged exposure.

The AQI for each city is based on the average value of all monitoring stations there. Ghaziabad, Gurgaon and Noida have four such stations while Greater Noida and Faridabad have two stations each, according to the app.

### **Air Quality "Poor" In Ghaziabad, "Moderate" In Noida, Faridabad**

*Date:-6-Mar-2021, Source: ndtv.com*



**On Friday it was 276 in Ghaziabad, 301 in Greater Noida, 250 in Noida, 268 in Faridabad.**

Pollutants PM 2.5 and PM 10 also remained high in the air of the five immediate neighbours of Delhi.

Noida: The air quality was recorded in the "poor" category in Ghaziabad and Greater Noida and in the "moderate" zone in Noida, Faridabad and Gurgaon, according to data issued by a government agency on Saturday.

Pollutants PM 2.5 and PM 10 also remained high in the air of the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

The average 24-hour AQI at 4 pm on Saturday was 213 in Ghaziabad, 204 in Greater Noida, 182 in Noida, 169 in Faridabad and 177 in Gurgaon, according to CPCB's Sameer app.

On Friday it was 276 in Ghaziabad, 301 in Greater Noida, 250 in Noida, 268 in Faridabad and 273 in Gurgaon.

The CPCB states that an AQI in the "poor" category may lead to breathing discomfort to most people on prolonged exposure, while an air quality in the "moderate" zone may cause breathing discomfort to people with asthma, lungs and heart diseases.

The AQI for each city is based on the average value of all monitoring stations there. Ghaziabad, Gurgaon and Noida have four such stations while Greater Noida and Faridabad have two stations each, according to the app.

### **Delhi records maximum temperature at 34 degrees Celsius, air quality poor**

*Date:-7-Mar-2021, Source: hindustantimes.com*

The national capital on Sunday recorded a maximum temperature of 34 degrees Celsius, five notches above the normal, the meteorological department said.

The weather department has predicted light rain and strong winds on Sunday night.



**People out at India Gate lawns in the morning in New Delhi amid smog on Sunday.**

The minimum temperature in the city settled at 14.4 degrees Celsius while the air quality was recorded in the poor category.

The 24-hour average air quality index (AQI) was 256, real-time data of the Central Pollution Control Board (CPCB) showed.

An AQI between 201 and 300 is considered poor, 301-400 very poor and 401-500 severe, while an AQI above 500 falls in the severe plus category.

According to the meteorological department, the mercury is likely to dip by two to three degrees over the next few days.

**Exposure to air pollution can cause anaemia in very young children, says new study**

*Date:-8-Mar-2021, Source: [downtoearth.org.in](http://downtoearth.org.in)*

Exposure to higher levels of particulate matter 2.5 in ambient air can result in anaemia in children under five years, according to a study by Indian Institute of Technology, Delhi.





**A 10  $\mu\text{g}/\text{m}^3$  rise in ambient PM 2.5 exposure caused a 0.07 g/dL decrease in average haemoglobin count**

Malnutrition and anaemia are rampant in India, with 60 per cent of the children being anaemic as of 2016, according to the National Family and Health Survey-4 (NFHS-4).

Anaemic conditions in children worsened because of the high concentration of particulate matter 2.5 in the ambient air, showed the paper published in Environmental Epidemiology.

For every 10 microgram per cubic metre ( $\mu\text{g}/\text{m}^3$ ) rise in ambient PM 2.5 exposure, a 0.07 gram per decilitre decrease in average haemoglobin (Hb) count was observed. Further, for every 10  $\mu\text{g}/\text{m}^3$  increase in ambient PM 2.5, there was an almost 2 per cent increase in average anemia prevalence.

At an individual level for each child, a 10  $\mu\text{g}/\text{m}^3$  increase in ambient PM 2.5 led to a decrease in average Hb level by 0.14 g/dL.



The plausible reasons for these results could be links between exposure to air pollution and inflammation which leads to alterations in iron trafficking in the body, the report explained.

The liver, in such cases, produced hepcidin, a protein that tends to inhibit both dietary iron absorption and recycling of iron from erythrocytes. Essentially, there is less iron for haemoglobin synthesis in the blood.

The team collected data on women's reproductive and sexual health, demographics, lifestyle factors, family life, birth outcomes and children living with anaemia from NFHS-4, which covered 640 districts in India between January 2015 and November 2016.

The team also surveyed about 98,557 children from 22 rural and urban clusters in 636 districts.

Air quality data from 2010 to 2015 was considered since the earliest year of birth in children was 2010.

The team was careful in eliminating confounders. The dietary diversity score (DDS) was used as proxy for iron deficiency. The DDS indicates access to foods such as cereals, legumes, pulses, fruits, vegetables, meat, fish, eggs and fortified food.

It was observed that DDS has no effect on the association between PM 2.5 and childhood anaemia.

Additionally, type of fuel usage in each household was taken into account as exposure to biomass burning has been linked to anaemia in children. The sample was divided into clean fuel group (biogas, LPG, electricity) and another group which used kerosene, wood, animal dung, coal/lignite, or charcoal.

Other factors such as body mass index (BMI), socio economic factors, inhalation of second-hand smoke from cigarette-smoking family members, age and sex were considered.

Children from wealthier socioeconomic strata had higher levels of haemoglobin and lower odds of having anaemia than their poorer counterparts, though both groups resided in the same district with the same air quality, the study found.

Further, children from the wealthier strata also had less exposure to harmful air pollutants compared to children from the lower socioeconomic

backgrounds, who are also exposed to toxic air at home due to burning of solid fuel for cooking.

Overall, the study found that children below five years, who had higher PM 2.5 exposure, had lower Hb levels and were more prone to becoming anaemic.

While this study was the first of its kind in India, similar results were obtained in Lima, Peru. A 2019 paper published in Journal of Environmental and Public Health modeled ambient PM 2.5 exposure and found statistically significant association between higher PM 2.5 levels and increased anaemia prevalence.

Globally, air pollution accounts for 20 per cent of the infant deaths, and out of this, 24 per cent, the highest occurs in India. There was a 61 per cent rise since 2010, in the deaths attributable to higher levels of PM 2.5 and that 980,000 deaths occurred in India, according to the State of Global Air Report, 2020.

As per the Global Burden of Diseases report, 2019, one child dies every three minutes due to air pollution in India.

High levels of PM 2.5 are now a public health emergency in India. Studies like this will hopefully prompt quicker action, and addressing policy gaps, that will help raise a healthier generation.

### **Parliamentary panel underlines lack of quality data on air pollution in smaller cities**

*Date:-9-Mar-2021, Source: [downtoearth.org.in](http://downtoearth.org.in)*

Panel suggested prioritising funds to install systems for monitoring air quality in smaller cities and towns; called for transparency in monitoring of NCAP.

Effective implementation of the National Clean Air Programme (NCAP) calls for building and strengthening capacities at the municipal level, the Parliamentary panel report presented in the Rajya Sabha March 8, 2021 said.

At the same time, cities, including the smaller ones, can come up with adequate policies only when there is enough data on air quality and access to information on a daily basis, Delhi-based think tank Centre for Science and Environment had pointed out in a recent report.

The committee chaired by member of Parliament Jairam Ramesh too acknowledged the lack of quality data on air pollution in smaller cities and towns



The grants for installation of systems to monitor air quality, made available on the recommendation of the 15th Finance Commission, therefore, must be prioritised by the Union environment ministry in smaller cities and towns that are often neglected, the report said.

Smaller cities such as Guwahati, for example, received Rs 20 lakh in funds in 2019-20 under the NCAP; installing one air quality monitor, however, costs Rs 1.2 crore.

It underlined the need for transparency in information relating to expenditure of 'Control of Pollution' scheme, progress of NCAP, and functioning of pollution control boards.

The 'Control of Pollution' scheme of the Union Ministry of Forests and Climate Change will have to be implemented through various central and state government agencies, the Parliamentary panel said.

It is a central government scheme under which the NCAP was launched as a "long-term, time-bound, national-level strategy to tackle air pollution across the country in a comprehensive manner. It aims to achieve 20-30 per cent reduction in particulate matter (PM) 10 and PM2.5 concentrations by 2024.

The panel noted that there were different fund contributors to various implementation agencies under the scheme, but there should also be a central mechanism for coordination of central and state agencies.

In fact, a central system was needed to ensure accountability through monitoring the progress of the works undertaken, it said.

It advised the environment ministry to innovate and invest in creating infrastructure for pollution abatement measures having a sustainable as well as long-term impact.

These measures include installing superchargers for electric vehicles and establishing effective microorganism bio-digesters units.

Installing superchargers for electric vehicles in cities affected by vehicular pollution will accelerate transition of people from petrol / diesel to electric vehicles, thereby reducing vehicular pollution, said the Parliamentary report.

It added that establishing effective microorganism bio-digesters units based on learnings from pilot projects will not only help increase the efficiency of waste treatment and biogas production in urban areas, but also reduce the problem of stubble burning in rural North India.

These bio-digester units can provide effective microorganism solution, which, if made available to the farmers at a low cost, can provide them incentives to decompose stubble instead of burning it.

This will also go a long way in controlling the problem of air pollution that severely affects the Indo-Gangetic plains every year, it said.

In January 2021, when several bigger cities such as Delhi and Varanasi witnessed a reduction in annual PM2.5 levels, smaller towns and cities (like Fatehabad or Moradabad) experienced a spike, found a CSE analysis.

### **UPPCB, traffic dept to identify pollution hotspots in UP cities**

*Date:-10-Mar-2021, Source: hindustantimes.com*

Uttar Pradesh Pollution Control Board (UPPCB), along with the traffic department, is set to identify pollution hotspots in seven major cities of Uttar Pradesh with an aim to improve air quality in these cities.

The move has come in the backdrop of a recent report of Central Pollution Control Board (CPCB) that found air pollution in major UP cities to be severe.

According to experts, the construction work and the vehicular emissions are the major sources of air pollution in big cities. The UPPCB will aim to identify spots where the air pollution levels are high in a city so that effective measures can be taken to prevent it.

The survey will be held in Ghaziabad, Noida, Kanpur, Lucknow, Prayagaraj, Varanasi and Agra.

Barring, Varanasi and Prayagaraj, remaining cities usually record, poor, very poor, or severe, Air Quality Index as per CPCB data.

“Our teams will work with local traffic department to identify crossings or certain sections of road where the air pollution levels are recorded higher than other places. If needed, we will divide the city into grids and work to identify the grids with higher air pollution. The focus will be on identifying areas with higher air pollution and permanent source of pollution which causes it,” said VK Singh, senior environmental engineer, UPPCB.

“Once the two factors are identified we will work to eliminate source of the pollution in coordination with concerned departments,” Singh said.

As per UPPCB officials, the survey will begin by late March and will take at least a month to complete. The board has also proposed a similar survey during winters to get more reliable data. “Pollution sources can change over a period of time. For example, in summers, emissions from generators cause more pollution than in winter. The survey will look into such aspects,” said Singh.

### **Navi Mumbai: To tackle pollution menace, Kalamboli, Kharghar, MIDC Talaja to get three air quality monitors**

*Date:-11-Mar-2021, Source: timesnownews.com*

Mumbai News: According to the data shared by the Waatavaran Foundation, average air quality above safe standards for 17 hours every day in Maharashtra Industrial Development Corporation, Talaja region.

Mumbai: The Maharashtra Pollution Control Board (MPCB) to set up a Continuous Ambient Air Quality Monitoring Station (CAAQMS) in Kalamboli, Navi Mumbai. The pollution control board has received a no-objection certificate (NOC) from the Panvel Municipal Corporation.



According to a report, Navi Mumbai to get a continuous ambient air quality monitoring station. Out of the three new air quality monitors in the city, the first ones to come up in Kalamboli. As per the Hindustan Times report, the MPCB has also proposed to install two more air quality monitoring station in Kharghar and Maharashtra Industrial Development Corporation (MIDC) Talaja.

Air pollution in the Kharghar-Panvel-Talaja region is significantly bad due to industrial activities in that area. The residents of the region complaint about outdoor air pollution challenges.

Meanwhile, in response to a Right to Information (RTI) query by environment group Waatavaran Foundation. As per the environment and sustainability foundation independent study report, there were no official air quality monitors in the area to check pollution concerns. The air quality index (AQI) is above the moderate index which is a concern for the residents at the edges of the Mumbai Metropolitan Region (MMR).

A report by the environmental group revealed that the situation in five regions is a bit alarming because it is almost twice the national safe standard of  $60\mu\text{g}/\text{m}^3$ . These five regions include Maharashtra Industrial Development Corporation (MIDC), Talaja; Sector 13, Panvel; Navade, Talaja; Sector 7 and 36, Kharghar — showed average  $\text{PM}_{2.5}$  levels over 31 days to be  $101.12$  microgrammes per cubic metre ( $\mu\text{g}/\text{m}^3$ ).



“This is an important move and we welcome this as Waatavaran strongly believes that monitoring of air quality in different parts of this belt including Kalamboli, Kharghar, Talaja MIDC and others is the very first step towards mitigating measures for air pollution,” Waatavaran Foundation was quoted by HT.

**Dr. Harsh Vardhan Inaugurates Four Pyres Of The Green Crematoria, ‘Air Pollution Control System For Crematoria’, Developed By CSIR-NEERI At Delhi’s Nigam Bodh Ghat Crematorium**

*Date:-12-Mar-2021, Source: indiaeducationdiary.in*



New Delhi: The Minister of Science & Technology, Earth Sciences and Health & Family Welfare, Dr. Harsh Vardhan today said, “Exceedingly high concentration of air emissions with respect to particulate matter, and other harmful gases have been measured in regions around the crematoria. To address the high localized toxic emissions from crematoria, CSIR-National Environmental Engineering Research Institute (NEERI) has developed a technology knowhow to mitigate air pollution from Open Pyre Green Crematoria’s”.

The Minister was speaking after inaugurating four pyres of the Green Crematoria at Delhi's Nigam Bodh Ghat Crematorium here. He also inaugurated three new pyres run by Indraprastha Gas Limited.

Dr. Harsh Vardhan called for a comprehensive plan for institutionalised 'Green Good Deed' at the venue. He said with such green initiatives, a lot can be achieved in improving the air pollution index in the National Capital and scientists from CSIR-NEERI can play a major role in that. He informed that the Central Government has already been working for improving the air quality index in 120 cities across the country.

Dr. Harsh Vardhan highlighted, "Air Pollution has become a grave problem in India with more than 120+ cities falling under non-attainment category as per the National Green Tribunal". He pointed out, "In the recently announced General Budget 2021, a lot of emphasis has been given to allocate resource to mitigate the growing ambient air pollution related problem in India".

Delhi has about 56 traditional cremation grounds where Hindus cremate bodies by burning massive piles of firewood in the open, billowing out clouds of black smoke into the sky. The technology installed at VIP Pyre 3,4,5,6 comprises Fume collection and handling, Processing/cleaning, Utilities and Waste Handling systems. The system is designed with an efficient scrubbing system offering reduced emission of smoke, oil/greases, hydrocarbons, and particulates etc., with ease of recycle and disposal of scrubbed liquid and solids.

The Minister pointed out, "Such technology helps to reposition our existing heritage by adopting clear methods for achieving our national and global commitments towards the environment". He said, "The present emission control system with slight design modifications, can be extended to LPG/CNG and Diesel crematoria to future reduce the emission from these systems".

Dr. Harsh Vardhan said, "Such innovation can also be applied to mitigate dispersed air pollution emitted from unorganized and informal industrial sectors like bakeries, namkeen making, or application areas, where wood is being utilized as a primary source of energy". He said, "The system like these should be proliferated, under programmes like NCAP, Swachh and Swasth Bharat Initiatives, across the country to reduce the dispersed emissions generated from crematoria thereby impacting the environment and societal health, at large".



On the occasion, Dr. Harsh Vardhan also appealed for body and organ donation for research purposes and cautioned that people must never let their guard down and must follow appropriate COVID behaviour.

Dr Shekhar C. Mande, DG, CSIR; Dr Rakesh Kumar, Director, CSIR-NEERI; Shri K VenkataSubramanian, Chief Scientist, CSIR; Dr. Padma Rao, Principal Investigator and Senior Principal Scientist, CSIR-NEERI; Shri Jai Prakash, Mayor, NDMC; and other officials were present on the occasion.

### **Action plan to reduce air pollution in Madurai**

*Date:-13-Mar-2021, Source: thehindu.com*



#### **Construction activities increase air pollution in Madurai.**

Madurai has been identified as one of the 122 non-attainment cities across the country with higher levels of air pollution under the National Clean Air Programme (NCAP).

Madurai Corporation, the nodal body to implement the programme, has prepared a draft action plan to bring down pollution levels in the next five years.

The Centre launched NCAP as a long-term and time-bound strategy to tackle air pollution in a comprehensive manner. The programme aims to achieve 20%

to 30% reduction in PM 10 and PM 2.5 concentrations by 2024, keeping 2017 as the base year for the comparison of the concentration. The 122 cities have been identified across the country based on the Air Quality data from 2014 to 2018.

A corporation official said the concentration of PM 10 and PM 2.5 in the city were higher than the average levels. Madurai is among the four cities identified in Tamil Nadu under NCAP.

The civic body has prepared a rough action plan to tackle this issue and has submitted a proposal to the Central government seeking around ₹ 451 crore. "The proposal was about the steps that must be taken to reduce the levels of pollution in the next five years. The civic body is still waiting for the approval of the proposal," said the Corporation official.

According to the draft action plan of the Corporation, interventions are required for controlling air pollution mainly caused due to road dust, construction activities, traffic congestion, waste dumping and burning, and vehicular emissions.

Regularly removing dust settled on roads, improving the green cover, and constructing water fountains at major traffic intersections are some of the steps proposed to reduce dust pollution in the city.

Corporation Commissioner S. Visakan said that a private consultant will be engaged to identify the steps that need to be taken to reduce the levels of air pollution in the city.

### **Air quality in Delhi 'poor', 'moderate' in Ghaziabad, Noida, Faridabad, Gurgaon**

*Date:-14-Mar-2021, Source: livemint.com*

- At 4pm on Sunday, the AQI in Ghaziabad was 195, 82 in Greater Noida, 174 in Noida, 180 in Faridabad and 195 in Gurgaon, according to CPCB
- In Delhi, the air quality is in the 'poor' category with a 209 AQI

The air quality in Noida, Ghaziabad, Faridabad, Greater Noida and Gurgaon is in the 'moderate' category, data issued by the Central Pollution Control Board (CPCB) showed.



The air quality index (AQI) maintained by CPCB showed that the presence of pollutants PM 2.5 and PM 10 remained high. At 4pm on Sunday, the AQI in Ghaziabad was 195, 82 in Greater Noida, 174 in Noida, 180 in Faridabad and 195 in Gurgaon, according to CPCB.

On Saturday, it was 244 in Ghaziabad, 229 in Greater Noida, 167 in Noida, 145 in Faridabad and 217 in Gurgaon.

The CPCB states that an AQI in the "moderate" category may cause breathing discomfort to the people with lungs, asthma and heart diseases.

The air quality on Saturday too was recorded in the "moderate" category in Noida and Faridabad while it was "poor" in Greater Noida, Ghaziabad and Gurgaon, according to data issued by a government agency.

In Delhi, the air quality is in the "poor" category with a 209 AQI. On Friday, Delhi's AQI was 280, according to the System of Air Quality and Weather Forecasting And Research (SAFAR).

Some areas in the national capital including Pusa Road, Lodhi Road, IIT Delhi and Ayanagar recorded air quality in the poor category with an AQI of 249, 235, 249 and 239 respectively.

Last month, state environment minister Gopal Rai said the Delhi government will make a comprehensive action plan to tackle dust pollution in the city. A seven-member committee including experts from Delhi Pollution Control Committee, IIT Delhi and Delhi Metro Rail Corporation (DMRC) has been formed by Arvind Kejriwal government.

## **Delhi Aims To Become India's "EV Capital" As Key Reforms Gain Momentum**

*Date:-15-Mar-2021, Source: forbes.com*



**NEW DELHI, INDIA - DECEMBER 18: Delhi Transport Commissioner Varsha Joshi (L), Minister of Transport ...**

For the past few years, India's capital, New Delhi, has been reported as one of the world's most polluted cities, with air pollution levels reaching nearly 40 times the World Health Organisation's limit. According to a study by the Indian Institute of Technology (IIT) Kanpur, vehicular pollution coupled with road dust resuspension is the key driver behind the high pollution levels and is the major contributing source of PM10 and PM2.5 particles in winter. As part of their report to the Government of Delhi, the IIT Kanpur study recommended scaling up electric and hybrid vehicles to improve air quality and reduce pollution levels in the national capital region (NCR). In August 2020, the Government of Delhi incorporated the IIT Kanpur study recommendations along with key

findings from The Energy and Research Institute (TERI) to introduce an electric vehicle (EV) policy that aims to reduce pollution levels, boost Delhi's economy, and generate skilled employment. In Delhi's EV policy, the government has set a target of registering 500,000 new EVs by 2024 through various financial incentives for EV purchase on top of the central government's existing income tax rebates.

Within Delhi's EV policy, the government has also put key financial incentives in place that will allow businesses operating freight transportation — a key pollutant source — to purchase EVs and reduce their carbon footprint. A recent report by the Rocky Mountain Institute (RMI) mentioned that Delhi's population and economic growth have given rise to goods and services, which has caused an increased demand for final-mile delivery transportation providers. Based on another study from the Indian Institute of Technology, Delhi, these urban freight transportation providers (using both light-duty and heavy-duty vehicles) account for 45% of the vehicular NOx pollution in Delhi and are the leading cause of respiratory ailments. As a result of these structural efforts, Delhi aims to become India's "EV Capital" and deliver sustainable economic growth. In an interview, Jasmine Shah, vice-chairperson of the Dialogue and Development Commission who led the development of the EV policy, provided insights into the government's electric vehicle strategy, the progress made since the rollout in August 2020 and the policy's main objectives in improving quality of life for residents in Delhi.

### **EV policy developed through expert consultation to address core challenges**

In March 2018, the Government of Delhi introduced several key measures to reduce pollution levels and bring down emissions in the transport sector as part of its "Green Budget". Among the policies presented in the Green Budget, one of the key initiatives was the Draft Delhi EV Policy 2018, which was formally released in November 2018. For nearly 18 months, the Government of Delhi conducted consultations with stakeholders and experts to approve a final version in December 2019. They rolled out the "Delhi EV Policy 2020" in August 2020. Jasmine Shah, who also led the review and consultation process, said that the "government invited and collaborated with leading climate groups, global experts and think tanks, such as the Rocky Mountain Institute, to review all aspects of the draft EV policy and ensure efforts to curb pollution levels were properly addressed in the final version". Through this collaborative process, Delhi's government incorporated key measures, especially for two-

wheelers, public transport vehicles and goods-carriers that are identified as a significant source of pollution in the NCR.

For Delhi's government, Shah pointed out that within the overall goal of registering 500,000 new EVs by 2024, the EV policy contains several subcategory targets to help direct and execute the overall objective. For example, Shah noted that about 60% of Delhi's trips are performed by buses, which, based on a recent study, is expected to double by 2050. To manage the growth in ridership, Shah said that Delhi's EV policy includes provisions to "procure 2,000 electric buses by the end of 2021, with 300 electric low floor buses already approved to facilitate the overall goal of ensuring that pure electric buses constitute at least 50% of all new stage-carriage buses". Alongside the measures to scale EVs in Delhi, Shah mentioned that a key focus for the government is implementing and tracking its EV policy to ensure success. As with any early technological adoption, the first steps often require showcasing reliability and usage from key stakeholders. For this reason, Shah said that Delhi's government "mandated the transition of its entire vehicle fleet to electric in six months" – the only state in India to do so. This memorandum will impact approximately 2000 cars, and Shah expects that seeing more EVs on the road within the next six months will encourage Delhi's residents and businesses to switch to EVs in large numbers and take advantage of the incentives offered to them.

### **Complimentary measures enacted to support smooth implementation**

In India, a key challenge faced by all governments has been policy implementation and execution, with several instances of large gaps between intended goals and ground realities. According to Shah, to ensure Delhi's EV policy is successful over the next three years, "Delhi's government has put in place complementary measures and procedures which have complete political buy-in and are reviewed monthly by Arvind Kejriwal, Chief Minister of Delhi." In the monthly meetings, Shah said key ministries such as power, environment and infrastructure provide updates on Delhi's EV policy, with strategic discussions also taking place to address potential roadblocks. One such example is land acquisition, which is a critical component and requires collaboration with 15 landowning agencies to set up charging stations. As a result, Shah noted that Delhi's government created a working group to collaborate with these landowning agencies and designed a leasing mechanism to install private and public charging stations across Delhi. Through this collaborative and constructive process, Delhi has been able to push ahead and



recently announced India's "biggest tender" for EV charging stations, which will install 500 charging points at 100 locations over the next nine months.

To ensure charging reliability at charging stations, Shah added that Delhi's government involved and consulted local utilities (known as Discoms) in the selection process for assessing charging locations. Shah stated that "Delhi's working group on charging infrastructure partnered with Discoms to identify high connectivity areas with strong grid connection as a way to ensure charging takes place without any interruptions." For Delhi, the success of its EV policy largely hinges on consumers and businesses adapting to the new approach to transportation. Hence, Shah noted that the EV policy has "included a special electricity tariff for EV charging, along with road tax and registration fee exemption for all battery EVs". Besides the positive incentives to switch to EVs, Shah went on to add that Delhi's government has also adopted a broader sustainability approach to governance, which includes a cess (levy) on the sale of diesel and a congestion charge for non-EV cab aggregator and ride-hailing services within Delhi. By incorporating these complementary measures, Shah expects Delhi to overcome the implementation challenges faced in India and deliver upon the EV policy's core objectives by 2024.

### **Broader goals to deliver sustainable economic growth and create skilled jobs**

Last year, a Lancet study assessing the health and economic impact of air pollution in India mentioned that Delhi's economic loss due to premature death and morbidity from air pollution was 1.06% of GDP. This caused the economy to lose approximately \$1.21 billion and \$62 per capita in 2019. Citing measures placed in the United States for investment in air pollution control strategies, the peer-reviewed Lancet study pointed out that since 1970, every dollar invested in the control of ambient air pollution had yielded an economic benefit of \$30, based on the willingness-to-pay approach. Through the successful implementation of air pollution control strategies, the study said that economic output and productivity are boosted by improvements in the health of the population. As Delhi looks to restart the economy from the Covid-19 downturn and implement similar approaches, Shah highlighted that "by integrating EVs and sustainable technologies into the economy, Delhi will be able to create direct and indirect jobs associated with manufacturing, installation, maintenance and operations in the coming years".



### **EV Parking Stations GOVERNMENT OF DELHI**

According to Shah, the adoption of EVs will also help drive innovation and create opportunities for entrepreneurs to develop new technological solutions from the changes in the mobility ecosystem and the development of Delhi's energy, physical and digital infrastructures. To support growth in these areas, Shah said that the "government has begun collaborating with industry and educational groups to improve Delhi's educational system and upskill the workforce to equip them for the opportunities that lie ahead". Furthermore, Shah expects that new technology solutions will play a key role in improving how people and goods move more seamlessly and sustainably within the city. For this reason, Delhi's government has begun partnering with technology companies to address the pain points faced by commuters in their first-and last-mile journeys. One example is Delhi Metro Corporation's partnership with startups to offer e-mobility solutions to first- and last-mile passengers. Through this partnership, Delhi's metro commuters can access electric scooters, rickshaws and bikes outside the metro stations.



## **Delhi is the most polluted capital city globally, says report**

*Date:-16-Mar-2021, Source: thehindu.com*



**Heavy smoke billows from burning garbage as the air quality remained in the moderate category, in New Delhi on March 15, 2021.**

In 2020, 84% of all monitored countries observed air quality improvements

Delhi remained the most polluted capital city in the world but India, on the whole, had improved its average annual PM 2.5 (particulate matter) levels higher in 2020 than in 2019, according to a report from IQ Air, a Swiss air quality technology company, specialising in protection against airborne pollutants, and developing air quality monitoring and air cleaning products.

Delhi's concentration level, based primarily on data from the Central Pollution Control Board, was  $84.1 \mu\text{g}/\text{m}^3$  in 2020, a 15% improvement from the  $98.6 \mu\text{g}/\text{m}^3$  recorded in 2019 — a consequence of the lockdown. Average pollution levels were  $51.9 \mu\text{g}/\text{m}^3$  in 2020 compared with  $58.1 \mu\text{g}/\text{m}^3$  in 2019, making India only the third most polluted country in 2020, unlike in 2019, when its air was the fifth most noxious.

Bangladesh and Pakistan were the countries in 2020 with worse average PM 2.5 levels than India, says the report. China ranked 11th in the latest report, a deterioration from the 14th in the previous edition of the report. In the 2020 report, 106 countries were evaluated. The pollution levels are weighted averages, meaning that the population of a country influences the pollution values reported.

In 2020, 84% of all monitored countries observed air quality improvements. Other improvements in major cities over 2019 included a 11% drop in Beijing, a 13% drop in Chicago, a 17% drop in Paris and a 16% drop in London and Seoul.

However, of the 106 monitored countries, only 24 met the World Health Organization annual guidelines for PM 2.5, the report underlined.

When ranked by cities, Hotan in China was the most polluted, with an average concentration of 110.2  $\mu\text{g}/\text{m}^3$ , followed by Ghaziabad in Uttar Pradesh at 106. Of the 14 most polluted cities, 13 were in India.

In spite of being a pandemic year, 2020 was a particularly severe year for agricultural burning, an illegal but common practice in which farmers set fire to crop residue after a harvest. Farm fires in Punjab increased 46.5% over 2019.

Air pollution constitutes the world's biggest environmental health hazard, contributing to as many as 7 million premature deaths globally per year (more than three times higher than deaths associated with COVID-19).

In 2020, the spread of COVID-19 raised new concerns as exposure to particle pollution was found to increase vulnerability to the virus and its impact on health. Early reports suggest that the proportion of COVID-19 deaths attributed to air pollution exposure ranges from 7% to 33%.

### **Ludhiana's rank improves by 15 slots in world pollution chart, better air quality**

*Date:-17-Mar-2021, Source: timesofindia.indiatimes.com*

LUDHIANA: At a time when Ludhiana has witnessed the worst times (loss of lives, huge setbacks for industries) on account of the Covid-19 pandemic, city's air that was also among the most polluted in the world has somewhat become a bit cleaner.



According to a report prepared by IQAir, a Swiss organization, Ludhiana's ranking among the major cities across the world has dropped by 15 places in 2020 as compared to previous years.

In the report, IQAir has data of cities of more than 105 countries. Out of the 30 most polluted cities

globally, 22 are Indian cities.

As per the report, Ludhiana is at 142nd spot among the cities of the world. Of the eight cities of Punjab that feature in the list, Ludhiana is at 5th position whereas Fatehgarh Sahib is number one in Punjab with a rank of 38. Patiala is at the bottom with a rank of 181.

The report revealed that over the past three years, Ludhiana's ranking on air pollution had come down among major cities of the world. While city was 95th in 2018, it's position dropped to 127 in 2019 and 142 in 2020.

The report said whereas yearly average PM 2.5 in Ludhiana was 55.1 micrograms per cubic metre ( $\mu\text{g}/\text{m}^3$ ) in 2018, it dropped to 49.3  $\mu\text{g}/\text{m}^3$  in 2019 and then to 45.2  $\mu\text{g}/\text{m}^3$  in 2020, a fall of 8.3% in PM 2.5 in 2020 as compared to 2019.

Experts said there is overall fall in air pollution in 2020, because of Covid-19.

An official of Greenpeace India who was not authorised to talk to the media shared that there are couple of things because of which average air pollution has dropped and one the main factors was the lockdown. He said the drop in pollution levels has been across cities.

"But while air pollution has gone down in many cities of India, health and economic cost of such pollution is severe even now. Also, in cities of Punjab and Bihar, the pollution control bodies don't have enough monitoring stations.

Some of these stations have been located in green areas, so the actual pollution levels are never measured,” said the official.

The Punjab Pollution Control Board (PPCB) said that there are various factors responsible for fall in air pollution levels. “There are seasonal variations in air pollution and it is more during stubble burning seasons. However, there is drop in pollution over the years as various projects are being carried out to check the same. And the lockdown imposed during Covid-19 did make a difference in air pollution level,” said PPCB senior officer Sandeep Behl.

Many residents meanwhile said air pollution is a big issue in Ludhiana.

“Air pollution has been a big problem in Ludhiana and it does cause problem to the residents as it affects the respiratory system. We want that the authorities should work hard to ensure that there is drastic fall in pollution in Ludhiana,” said Amarjeet Kaur, a city resident.

### **Delhi Is Most Polluted Capital Of The World; 73% Of Top Polluted Cities Are In India!**

*Date:-18-Mar-2021, Source: trak.in*



**Delhi Is Most Polluted Capital Of The World; 73% Of Top Polluted Cities Are In India!**

A near-halt in normal life made the world a quieter place to live. We saw the clear blue skies, the chorus of chirping crickets and screeching owls. And slowly when we were habituated with the lockdown, we saw something that was not seen in decades. We saw animals walking down urban streets and one could see the snow-capped Himalayas from Jalandhar !

According to a new study published today, India is home to 22 of the world's 30 most polluted cities, with Delhi ranking as the world's most polluted capital city.

" India continues to feature prominently at the top of the most polluted cities ranking, with 22 of the top 30 most polluted cities globally," the report said.

### **Delhi Sees A Spike In Air Pollution Again**

During Covid-19, the restrictions allowed nature to heal and reboot in Delhi, which was previously known for its polluted air.

Social campaigns from decades tried to make us understand the value of blue skies and still pushing for a sustainable mechanism that will allow the city to remain pollution-free and breathe easy in long term even without covid-19, quoting update from India Today.

Besides Delhi, the 21 other Indian cities among the 30 most polluted cities in the world are Ghaziabad, Bulandshahar, Bsrakh Jalalpur, Noida, Greater Noida, Kanpur, Lucknow, Meerut, Agra and Muzaffarnagar in Uttar Pradesh, Bhiwari in Rajasthan, Faridabad, Jind, Hisar, Fatehabad, Bandhwari, Gurugram, Yamuna Nagar, Rohtak and Dharuhera in Haryana, and Muzaffarpur in Bihar, quoting update from NDTV.

As per the report, the top most polluted city is Xinjiang in China followed by nine Indian cities. Ghaziabad is the second most polluted city in the world followed by Bulandshahar, Bsrakh Jalalpur, Noida, Greater Noida, Kanpur, Lucknow and Bhiwari.

"India continues to feature prominently at the top of the most polluted cities ranking, with 22 of the top 30 most polluted cities globally," the report said.

"The year 2020 brought an unexpected dip in air pollution. In 2021, we will likely see an increase in air pollution due to human activity, again. We hope this report will highlight that urgent action is both possible and necessary to combat air pollution, which remains the world's greatest environmental health threat," said CEO of IQAir Frank Hammes.

## **Major Sources Of India's Air Pollution**

According to Avinash Chanchal, Climate Campaigner at Greenpeace India, policymakers should prioritise renewable and clean energy sources, and that cities should facilitate low-cost, active, and carbon-neutral mobility alternatives like walking, cycling, and public transportation.

Although many cities, including Delhi, have witnessed modest improvements in air quality as a result of lockdowns, the health and economic costs of air pollution remain high, according to Avinash Chanchal, Climate Campaigner at Greenpeace India.

"The transportation sector is one of the major contributors to India's leading PM2.5 emission sources across cities, the report said.

## **Air pollution in Delhi: Govt has taken number of steps to bring down pollution, says Javadekar**

*Date:-19-Mar-2021, Source: [financialexpress.com](https://www.financialexpress.com)*



**"Which is why the pollution level in Delhi is less than earlier years, states a new report," Javadekar said.**

The government has taken a number of steps to address the issue of air pollution in Delhi, Union Environment Minister Prakash Javadekar said on Friday, and took a jibe at the AAP dispensation for taking credit for the work done by the Centre.

Responding to a question on pollution in the national capital during the Question Hour in Lok Sabha, Javadekar said air pollution in Delhi is the “most serious problem”, and noted that the air quality along the Indo-Gangetic belt is poor.

“The Centre has taken a number of steps to address the problem of Delhi’s air pollution,” he said.

To address the issue of pollution in 100 cities, a National Clean Air Programme (NCAP) was also launched and a plan has been made for every city, Javadekar said.

Listing out the measures, he said the Badarpur power plant has been shut down. and the Centre has also constructed the Eastern and Western Express Peripheral Ways which were pending for the last 10 years. Nearly 50,000 trucks which would pass through Delhi and add to the pollution do not come to the national capital now, he said.

By investing Rs 60,000 crore, less polluting fuel BS6 technology vehicles have been introduced, besides having electric two, three and four wheelers which are bringing down the pollution levels, he said.

“Which is why the pollution level in Delhi is less than earlier years, states a new report,” Javadekar said.

A recent report by Swiss organisation, IQAir, in the form of the ‘World Air Quality Report, 2020’ states that 22 of the world’s 30 most polluted cities are in India, with Delhi being ranked the most polluted capital city globally.

The report, however, shows that Delhi’s air quality improved by approximately 15 per cent from 2019 to 2020.

Without naming Chief Minister Arvind Kejriwal, Javadekar said, “There are some people in Delhi, who have no contribution towards it, (bringing down pollution levels) are running for credit and giving advertisements in newspapers that pollution has come down by 15 per cent.”



He said the Centre got Piped Natural Gas (PNG) for 3,000 industries in Delhi. It also transformed 3,000 brick kilns using zig-zag technology to bring down pollution levels, he added.

### **Air quality improves in Noida, Ghaziabad, Faridabad, and gurgaon**

*Date:-20-Mar-2021, Source: business-standard.com*



The air quality was recorded in the "poor" category in Ghaziabad, Noida, Greater Noida, Faridabad and Gurgaon, according to data issued by a government agency on Saturday.

The air quality was recorded in the "poor" category in Ghaziabad, Noida, Greater Noida, Faridabad and Gurgaon, according to data issued by a government agency on Saturday.



Pollutants PM 2.5 and PM 10 also remained high in the air of the five immediate neighbours of Delhi, according to the air quality index (AQI) maintained by the Central Pollution Control Board (CPCB).

According to the index, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

The average 24-hour AQI at 4pm on Saturday was 249 in Ghaziabad, 259 in Greater Noida, 227 in Noida, 296 in Faridabad and 223 in Gurgaon, according to CPCB's Sameer app.

On Friday, it was 340 in Ghaziabad, 359 in Greater Noida, 302 in Noida, 350 in Faridabad and 272 in Gurgaon.

On Thursday, it was 373 in Ghaziabad, 389 in Greater Noida, 336 in Noida, 340 in Faridabad and 307 in Gurgaon.

On Wednesday, it was 364 in Ghaziabad, 369 in Greater Noida, 328 in Noida, 314 in Faridabad and 309 in Gurgaon.

The CPCB states that an AQI in the "very poor" category may lead to respiratory illness on prolonged exposure, while air in the "poor" zone may cause breathing discomfort to most people on prolonged exposure.

The AQI for each city is based on the average value of all monitoring stations there. Ghaziabad, Gurgaon and Noida have four such stations while Greater Noida and Faridabad have two stations each, according to the app.

## **Over half of India lives with hazardous levels of air pollution**

*Date:-21-Mar-2021, Source: thehindubusinessline.com*

Air pollution is caused by both human and natural contributors, including industries, vehicles, mining, agriculture, forest fires, cookstoves, volcanic eruptions, and wind erosion.

Air pollution is made up of chemicals, particulates, and biological materials. Common components include nitrogen, sulphur, carbon monoxide, carbon dioxide, dust, and ash. Some of these pollutants contribute to climate change. More than 92 per cent of the world's population, and over half of India's population — 660 million people — live in places where air pollution exceeds safe limits.



### **Double trouble: Some of air pollutants contribute to climate change too**

It is the deadliest form of pollution and the fourth largest threat to human health, behind high blood pressure, dietary risks and smoking. Pregnant women who live in high-traffic areas have a 22 per cent higher risk of having children with impaired lung function

. On an average, Indians living in polluted areas will lose 3.2 years of their lives due to air pollution.

Keeping global warming “well below” 2 degrees Celsius, as governments have pledged to do under the 2015 Paris Agreement, could save about a million lives a year by 2050 through reducing air pollution alone.

### **Partly Cloudy Skies Bring Mercury Down Slightly In Delhi: Weather Office**

*Date:-22-Mar-2021, Source: ndtv.com*

New Delhi: Partly cloudy skies over Delhi brought the mercury down slightly on Monday, the India Meteorological Department (IMD) said.

A few areas recorded traces of rainfall, it said.

Light rain, lightning and gusty winds are likely at night, the IMD said.

The city recorded a maximum of 33.6 degrees Celsius on Monday as against 35.2 degrees Celsius on Sunday. The minimum temperatures settled at 20 degrees Celsius, three notches more than normal.



**Cloudy weather and gusty winds are likely on Tuesday, too, the weatherman said.**

The air quality in the national capital improved to the "moderate" category due to favourable wind speed. The 24-hour average air quality index (AQI) was 196, according to the Central Pollution Control Board (CPCB) data.

An AQI between 201 and 300 is considered poor, 301-400 very poor and 401-500 severe, while an AQI above 500 falls in the severe plus category.

### **Light rain in Delhi-NCR, temperature to rise by weekend**

*Date:-23-Mar-2021, Source: [timesofindia.indiatimes.com](https://timesofindia.indiatimes.com)*

NEW DELHI: Delhi and its neighbouring areas witnessed light rain coupled with thunderstorm on Tuesday afternoon, providing much-needed relief to the people from the rising mercury levels.

According to Kuldeep Srivastava, the head of India Meteorological Department's (IMD) regional weather forecasting centre, a western disturbance is behind the sudden rain, thunderstorm and increase in wind speed.



### **Delhi witnessed light rain coupled with thunderstorm on Tuesday**

The western disturbance is a cyclonic storm that originates in the Mediterranean Sea and travels across Central Asia. When it comes in contact with the Himalayas, it brings rains to the hills and the plains.

However, the respite will be short-lived. The city recorded a maximum temperature of 31-degree Celsius on Tuesday, which will rise to 37-degree Celsius by March 28. The last time the city received rain and thunderstorm was on March 12.

The IMD has predicted partly cloudy sky for Wednesday. The temperature will, however, be constant.

The System of Air Quality and Weather Forecasting and Research (SAFAR) said that the rainfall has contributed to the improvement of air quality in the national capital, where the Air Quality Index (AQI) stood in the 'poor' category at 245 microgram per cubic metre.

"Better ventilation and washout are likely to influence AQI positively. AQI is likely to marginally improve to the lower end of the 'moderate' category on

Wednesday. Moderate to poor AQI is forecasted for March 25 and March 26," it stated.

### **Delhi records maximum temperature of 34.2 deg C; air quality 'moderate'**

*Date:-24-Mar-2021, Source: hindustantimes.com*



**An AQI between 201 and 300 is considered 'poor', 301-400 'very poor' and 401-500 'severe', while an AQI above 500 falls in the 'severe plus' category.**

Delhi recorded a maximum temperature of 34.2 degrees Celsius on Wednesday, and it is likely to increase to 38 degrees Celsius by next week, the India Meteorological Department (IMD) said.

The minimum temperature settled at 16 degrees Celsius, a notch below normal, it said.

The mercury is predicted to rise to 38 degrees Celsius by Monday amid clear skies, the weather office said.

On Tuesday, the maximum temperature stood at 29.6 degrees Celsius, a notch below normal. It was 33.6 degrees Celsius on Monday and 35.2 degrees Celsius on Sunday.

The air quality in the national capital improved to the "moderate" category due to a favourable wind speed. The 24-hour average air quality index (AQI) was 175, according to the Central Pollution Control Board (CPCB) data.

An AQI between 201 and 300 is considered 'poor', 301-400 'very poor' and 401-500 'severe', while an AQI above 500 falls in the 'severe plus' category.

## **Cleaner air for Bengaluru as BBMP installs city's first smog tower**

*Date:-25-Mar-2021, Source: timesnownews.com*



### **The company also put out a statement and gave an idea about the functioning of the towers**

Bengaluru: On Monday, the first smog tower of Bengaluru was installed at Hudson Circle, near the Bruhat Bengaluru Mahanagara Palike (BBMP) headquarters. The tower is part of a pilot programme, which intends to reduce the level of pollutants in the city.

Similar smog towers will also be installed at different locations in Bengaluru. The towers were made by an Indian Institute of Science (IISc) incubated startup, Nutan Labs.



### **BBMC commissioner conducted inspection of smog tower**

Officials, led by Manjunath Prasad (IAS), BBMP Commissioner, conducted an inspection of the smog tower on Tuesday. To check the efficiency of the tower, the Karnataka State Pollution Control Board set up a mobile facility at the spot. The facility will study the real-time effects of the tower.

The company also put out a statement and gave an idea about the functioning of the towers. The company stated that the smog tower uses nanoparticles to absorb pollutants from the air such as PM 2.5, PM 10, oxides of carbon, sulphur, and nitrogen and can purify 15,000 cubic feet of air every minute. As per the company, it is the world's most efficient smog tower, The News Minute reported.

### **Experts not excited about project**

While the BBMP officials and company experts claimed that the smog tower will work, experts do not seem to be excited about the project. Aishwarya Sudhir, a Bengaluru-based air quality researcher, said, "Smog towers cannot clean the air beyond a few hundred meters and are unfortunately not a replacement for the required action on the ground."

Madhulika Verma, Communication Consultant at Climate Trends, said, "There is no scientific evidence to prove the effectiveness of smog towers. Its effectiveness if at all, can be restricted to a very small area around them and if the government is projecting smog towers as a solution, then we will require lakhs of such towers spread across the city. The smog tower in Delhi failed to show efficacy, so there is no reason for it to bring miracles in Bengaluru."

### **Delhi has bent pollution curve, annual level of particulate matter on decline: Report**

*Date:-26-Mar-2021, Source: theweek.in*

Long-term trend shows Delhi has already bent the pollution curve downwards and the annual level of particulate matter, PM2.5, is declining every year, a new report by the Centre for Science and Environment (CSE) claimed.

The report titled 'Capital Gains-Clean Air Action in Delhi NCR: What next?' lays down a roadmap on what the national capital and NCR towns should be doing to curb air pollution in the region.





### **Commuters make their way through heavy smog in New Delhi**

The measures to be taken range from changes in cropping patterns to reduce cultivation of paddy to reduce stubble burning to scaling up pedestrianisation in high footfall areas to create low emissions zones.

"The rolling three-year averages, a firmer indicator of change, have reduced by about a quarter since 2014–15... However, even after that decline, Delhi needs more than 60 per cent cut in annual PM2.5 concentration to meet the national ambient air quality standards," the report said.

Multi-sector action has to gather speed, scale, and urgency. This requires strategic shifts to achieve mobility transition, clean energy transition, circular economy at a scale, and clean energy access at a regional scale, the green advocacy group said.

After the ban on furnace oil and petcoke in the industrial sector, coal will also have to be replaced with clean fuels.

Delhi has implemented the most ambitious clean fuel policy that has also outlawed coal. But the airshed cannot clean up if coal combustion remains dominant in industrial clusters of the NCR, the report said.

"The implementation of 2015 emissions standards for coal-based thermal power plants has to be done in a time-bound manner by 2022. The plants are already capable of meeting the particulate standards," it said.

"While scaling up action for the entire region, there is urgent need for the hyper local action agenda in the targeted polluted hotspots so that the local solutions for solid waste, construction and demolition waste, industrial waste, plastics, and unpaved roads and vehicular movement can be implemented," the CSE report read.

It said Delhi has closed down all its coal power plants, but it has to ensure that it procures only clean or cleaner electricity from plants that are meeting the standards or are close to meeting the standards. "Currently, Delhi is procuring electricity from some of the dirtier power plants in the country," the report said.

Stating that Delhi has done well in restricting the entry of diesel trucks, the report said, "NCR cities will also require a well thought-out strategy to address heavy duty traffic by rationalising movement patterns, routes and logistic infrastructure, spacing of warehouses/wholesale marts, entry points, and timing."

On vehicular pollution, it said that the government should strengthen periodic auditing of Pollution Under Control (PUC) centres and calibration of equipment and third-party checks.

## **Mercury to touch 38 degrees Celsius on Holi**

*Date:-27-Mar-2021, Source: hindustantimes.com*

The temperature in Gurugram is likely to soar in the next two days and touch 38 degrees Celsius by Monday, when Holi will also be celebrated, according to the India Meteorological Department's (IMD) weekly forecast.

The maximum temperature on Saturday was 35.9 degrees Celsius, while the minimum was 17.5 degrees Celsius. As per the IMD's weekly forecast, the maximum and minimum temperatures are expected to hover around 36 degrees Celsius and 19 degrees Celsius, respectively, on Sunday. A clear sky may prevail on Sunday.

An IMD official said, "The temperature will rise by one or two degrees and hover around 38 degrees on Monday but fall again from Tuesday."

Kuldeep Srivastava, head of IMD's regional weather forecasting centre, said, while the temperature is likely to rise till Monday (March 29), it will again dip from March 30 onwards on account of strong winds. "There is a forecast of strong winds on March 30 and March 31," said Srivastava.

The city's air quality stayed in the moderate zone on Saturday, recording an air quality index (AQI) of 183 on the Central Pollution Control Board's (CPCB) daily bulletin, deteriorating from Friday's AQI of 146.

The level of ultrafine particulate matter having a diameter of 2.5 microns or less (PM 2.5), the city's primary pollutant, was 149.65 micrograms per cubic metre ( $\mu\text{g}/\text{m}^3$ ) on Saturday, as per the CPCB's air quality monitor at Vikas Sadan in sector -11.

According to the early air quality warning system for Delhi-NCR, the air quality over Delhi-NCR is likely to remain in the moderate to the poor category on Sunday and Monday. Subsequently, the air quality is likely to remain in the moderate to poor category over the next five days.

## **IIT-Delhi to help Ghaziabad, Noida tackle air pollution**

*Date:-28-Mar-2021, Source: hindustantimes.com*

Ghaziabad: The regional officials of UPPCB for Ghaziabad and Noida, which are among the 132 cities in the country selected for the National Clean Air Programme (NCAP), have signed a memorandum of understanding (MoU) with experts from the Indian Institute of Technology (IIT)-Delhi, who will help the twin cities combat the rising air pollution. The contract was signed in the presence of Union environment minister Prakash Javadekar at New Delhi on Friday.

The NCAP is a long-term and time-bound national level strategy to tackle air pollution across the country in a comprehensive manner. It has targets to achieve 20% to 30% reduction in particulate matter concentration by 2024 with 2017 as the base year. As part of the programme, 132 cities have signed MoUs with expert institutions for executing planned action in a time-bound manner to tackle air pollution.

Both Ghaziabad and Noida are also on the list of non-attainment cities in Uttar Pradesh having high levels of air pollution. Officials of the UP Pollution Control Board (UPPCB) said abatement plans, comprising short-term and long-term measures, have been prepared to tackle air pollution.

“The IIT experts will help the two cities with technical support and identify sources and methods required for tackling pollution. The action plans are all ready. The experts will help the authorities in prioritising the measures which can be taken up swiftly and also in a cost-effective manner. We hope officials start discussions so that some measures can be prioritized and implemented before winter,” said Dr Sagnik Dey, assistant professor from IIT- Delhi, who will be coordinating with the officials of the two cities.

“Now that the MoUs have been signed, we will start with implementation of our air pollution abatement plan,” said Praveen Kumar, regional officer of UPPCB, Noida, who was present when the MoUs were signed.

UPPCB officials from Ghaziabad said they, along with officials of the municipal corporation, will hold discussions with IIT experts. “The experts from IIT Delhi will provide technical expertise and also help us fine tune our air-pollution abatement plan. We are expecting to implement the plan before winter,” said Utsav Sharma, regional officer of UPPCB, Ghaziabad.

A corpus of ₹60.5 crore has been provided to the Ghaziabad municipal corporation from the 15th Finance Commission exclusively for implementing measures and raising the infrastructure to reduce air pollution.

M S Tanwar, commissioner of Ghaziabad municipal corporation, said the civic administration has formed an air- quality management cell and a city-level monitoring cell to implement the measures chalked out in the abatement plan and monitor the air quality.

“Apart from the two cells, IIT-Delhi will be our technical partner in implementing the air pollution abatement plan. We are committed to procure infrastructure with the funds made available to us for air pollution abatement measures and hope that they are implemented before the graded response action plan comes into effect,” said Tanwar.

As part of the air pollution abatement plan, the Ghaziabad municipal corporation has proposed redevelopment of 200 parks, development of city forest, roadside paving, besides purchasing jetting machines and anti-smog guns. Conversion of diesel vehicles to CNG and installation of 30 air-purifiers at major markets across the city are among the other measures that will be implemented.

## **This Indian City Ditches Cars Every Saturday to Protect the Planet**

*Date:-29-Mar-2021, Source: globalcitizen.org*



### **Biking in India**

CHENNAI, India, March 27 (Thomson Reuters Foundation) — Every Saturday, Shankar Yadav dusts off an old bike and pedals to work, reliving his carefree schooldays and hoping fellow Indians will join him in ditching cars to protect the planet.

In one of India's most ambitious plans, Ranchi city's "har shanviar, no car" — "every Saturday, no car" — campaign goes well beyond other towns that have banned cars from a few lanes for set hours of the weekend, but risked nothing more.

"We are a small city and studies have shown that most residents live within a 5-kilometer radius of their workplace, school, or markets," Yadav, a deputy commissioner with the Ranchi Municipal Corporation, told the Thomson Reuters Foundation.

"Though there is no law to implement this idea, we are hoping that people will embrace it because it is very doable here. Barring the elderly, our analysis shows that most people can easily switch to a bicycle or walk."

The scheme kicked off this month, a small-city initiative in a vast country that faces ever-worsening pollution.

Ranchi is among many Indian cities trying new ways to tackle this worsening air quality — be it with pop-up cycle tracks, free cycle repair clinics, or pedestrian-only streets.

Akanksha, a first-time rider in Ranchi, said she enjoyed the ride and was "quite excited" by the eco-rationale, too.

"I did have to deal with the city traffic and the pollution, but am hoping as the idea catches on, these problems will get addressed," said the music teacher, who goes by just one name.

"I think cycling with a guitar might be difficult — but I definitely wanted to set an example for my students."

The cost of inaction is steep.

Bad air was linked to 1.24 million deaths, or 1 in 8 of those who died, in India's latest nationwide pollution study.

Ranchi, the capital of eastern Jharkhand state with an urban population of 1.5 million, has ambient air pollution levels that are seven times higher than World Health Organization (WHO) recommended standards, according to studies.

It has also been identified by the National Clean Air Programme as one of 122 "non-attainment cities" that consistently fall short of national standards.

"It is a welcome move and heartening to know that smaller cities are starting these initiatives," said Sarika Panda, who set up the country's first lasting car-free initiative in 2013.

"This is a good time to push for this switch as people are more aware and understand the need to reduce their carbon footprint."

### **Changemakers**

Ahead of launch, Ranchi built 50 bike stands where residents can rent wheels by the hour. Cycle tracks are due to follow.

While the city is compact, urban planners welcome even these small and "symbolic gestures" as they foster awareness and force authorities to improve facilities for walkers and cyclists.

Citing Shimla in northern Himachal Pradesh, home to one of India's oldest pedestrian-only streets, researchers say both momentum and longevity are key to clean air in the long term.

"Any intervention that cuts air pollution is good but if there are many exceptions to the rule then there will be no benefits," said Sarath Guttikunda, director of UrbanEmissions.Info, an independent research body.

"If we really have no cars running on the roads for 24 hours, it will make a difference. Otherwise, in small events like a no vehicle street for a day, it is difficult to measure change. They are just good awareness exercises."

Yadav agrees it is too soon to crow about success — but says the early signs are promising and the goal is ambitious.

While precise data on the new scheme was not yet available, interest in cycling is rising.

In 2019, there were more than 9,000 people who had registered on the bike sharing app started by the civic body. Post COVID-19, many more have invested in bicycles, Yadav said.

"It is early days but government officials, politicians and prominent citizens are setting the example," Yadav said.

"Besides pollution we are also linking it to a healthy lifestyle and the Indian government's Cycle4Change challenge. A lot will depend on the enthusiasm of the city's residents."

## **UP, Maharashtra have most critically polluted industrial regions: CSE**

*Date:-30-Mar-2021, Source: downtoearth.org.in*

Uttar Pradesh and Maharashtra had the greatest number of 'critically polluted' industrial regions in India, according to a recent analysis by Delhi-based thinktank, Centre for Science and Environment (CSE).

CSE researchers analysed the 2018 Comprehensive Environmental Pollution Index (CEPI) air assessment score that depicts the air quality in industrial regions.

They found out that as many as 13 industrial areas in UP, seven in Maharashtra, eight in Gujarat and five in Rajasthan were still critically / severely polluted with respect to the 2009 air quality levels in these regions.

Mathura, Bulandshahr, Ferozabad, Moradabad in Uttar Pradesh; Chandrapur and Tarapur in Maharashtra; Vadodara and Ankleshwar in Gujarat; Jodhpur



and Bhiwadi in Rajasthan were found to be the top critically polluted regions with a high CEPI air score.

The CEPI scores in the following clusters clearly portray the concerning levels of air quality in these industrial regions:

**States with a considerable number of critically / severely polluted air quality regions**

A CEPI air score of 60 and above denotes an industrial area to be ‘critically polluted’ and a score between 50-60 classifies it to be ‘severely polluted’.

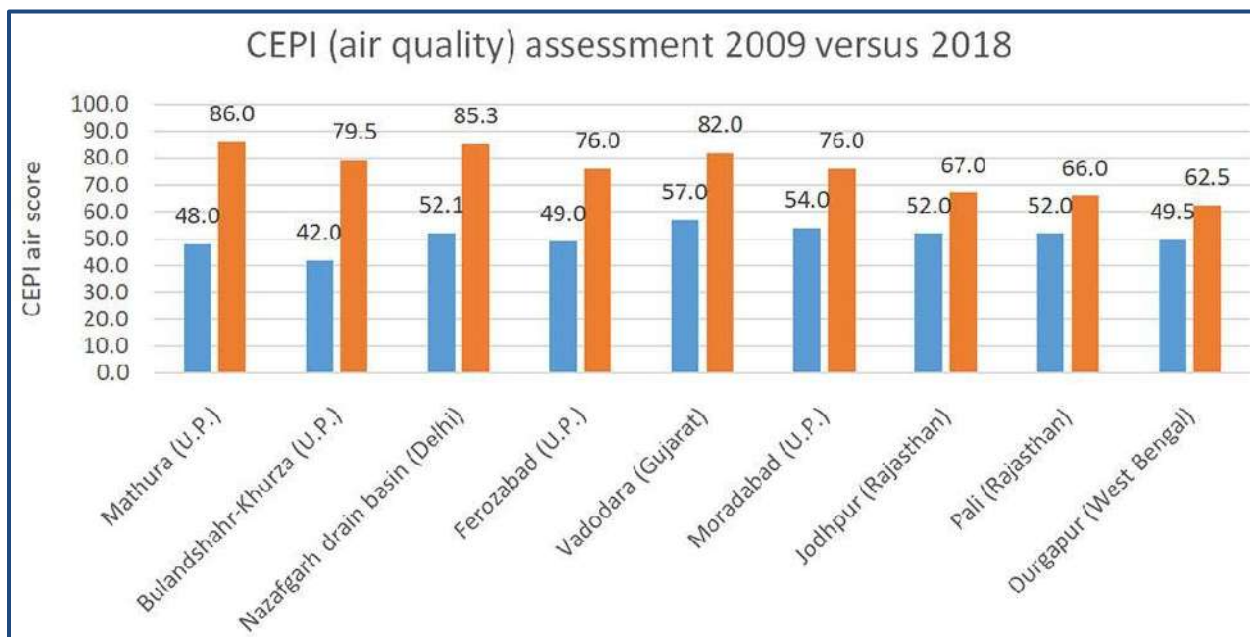
| State         | Number of industrial clusters identified as critically / severely polluted | Critically polluted (air quality)  | Severely polluted (air quality)                  |
|---------------|--|--|--|
|               |  | CEPI 2018 (air) score $\geq 60$  | CEPI 2018 (air) score: between 50-60             |
| Uttar Pradesh | 13   | Mathura, Bulandshahr-Khurja, Ferozabad, Moradabad, Gajraula, Varanasi-Mirzapur, Kanpur, Agra | Noida, Ghaziabad, Aligarh, Meerut, Haridwar      |
| Gujarat       | 8  | Vadodara, Ankleshwar, Vapi, Bhavnagar  | Vatva, Ahmedabad, Rajkot, Morbi                  |
| Maharashtra   | 7  | Chandrapur, Tarapur, Dombivalli, Nashik, Navi-Mumbai, Chembur, Pimpri-Chinchwad              | -  |
| Rajasthan     | 5  | Jodhpur, Bhiwadi, Pali, Sanganer Industrial Area, Jaipur                                     | -  |
| West Bengal   | 4  | Howrah, Durgapur   | Bandel, Asansol                                  |
| Haryana       | 3  | Gurugram, Panipat  | Faridabad  |
| Jharkhand     | 5  | Hazaribagh   | Saraikela, Ramgarh, Singhbhum-West, Bada Jamtara |

**Top regions with worsening air quality: A comparison of 2009 and 2018 CEPI air score**

CSE also compared the latest 2018 assessment scores for air with the 2009 scores. We found out that from the 2009 levels, air quality had worsened in several industrial clusters.

The majority of these industrial regions belong to Uttar Pradesh. A drastic increase in CEPI air scores was observed in Mathura, Bulandshahr, Moradabad and Ferozabad in Uttar Pradesh, Najafgarh drain basin in Delhi comprising of Anand-Parvat, Naraina, Okhla and Wazirpur areas, Vadodara in Gujarat, Jodhpur and Pali in Rajasthan and Durgapur in West Bengal.

### CEPI (air quality) assessment 2009 versus 2018



### What is a CEPI index?

CEPI is a nationwide index that was developed to represent the quality of ambient air, surface water, groundwater and soil of a particular industrial region or cluster with a score.

The overall CEPI score was calculated based on the individual score assessment for air pollution, surface water pollution, groundwater and soil pollution in the identified cluster.

The regions were ranked as 'critically polluted area', 'severely polluted area' and 'other polluted areas', depending upon the CEPI scores of each of these industrial areas.

A CEPI air score of 60 and above denotes an industrial area to be 'critically polluted' and a score between 50-60 classifies it to be 'severely polluted' with respect to air quality.

CEPI assessment was first carried out by CPCB in 2009-10 and has been done periodically since then in 2011, 2013 and 2018. The aim of CEPI assessment was to identify, declare and prioritize critically polluted and severely polluted regions in order to formulate comprehensive remedial action plans for pollution abatement in identified regions.

Periodic CEPI assessment reflects the current environmental quality of the region and also serves as a yardstick to assess the implementation of action plans.

## **April 2021**

### **How Poor Indoor Air Quality Affects Your Lifestyle**

*Date:-1-April-2021, Source: outlookindia.com*

Indoor air pollution has an alarming impact on the social wellbeing of occupants of any building, be it commercial, residential, school, college, mall, or health care units. As per the analysis by the existing body of published literature, IAP has been ranked among the top 10 health risk factors in developing countries. The concentration of pollutants in urban indoor air is much higher than in the outdoor ambient environment. WHO has labeled India as the worst country in terms of air quality. However, far less attention has been paid to IAQ in urban areas than outdoor air pollution.

Poor indoor air quality not just affects the health of occupants of a building but also, reduces their productivity at work. The situation can be highly vulnerable to specific groups such as children, the elderly, and those with cardiovascular and chronic respiratory diseases viz. asthma. Approximately 30 per cent of the total population that accounts for over 2 million students of Delhi, India's capital city, spends above 1/3rd of their daily hours in different office buildings and educational institutions, of which the ambient air quality is reportedly the worst across the globe, affecting their learning capabilities to a much extent.

As per the latest Reports by WHO, India carries an immense burden of diseases owing to IAP exposure contributing nearly 28 per cent of all deaths.

The concentration of pollutants and CO<sub>2</sub> inside the buildings

The CO<sub>2</sub> concentration in an occupied indoor space indicates whether the building's air exchange balance is appropriate i.e., whether the optimal amount of filtered outside air is being mixed with air that has been circulating in the building or not. ASHRAE (The American Society of Heating, Refrigerating, and

Air Conditioning Engineer), recommends that CO<sub>2</sub> levels of indoor air should be less than 650 ppm contrasted to the outdoor air concentration of CO<sub>2</sub>. Indoor air pollution is caused by harmful gases, particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), viruses, molds, volatile organic compounds, and other outdoor pollutants penetrating the enclosed environments. Therefore, it is essential to monitor and control the concentration of CO<sub>2</sub> and other pollutants in the air inside.

Key factors affecting IAQ-

Some of the critical factors affecting the indoor air quality are –

- The concentration of gases and pollutants
- The ventilation of building structure
- VOCs released from resins, paints, polishing materials, glues, spray propellants, perfumes, and cleaning agents
- Living space and occupancy of a building
- Use of equipment such as heaters, refrigerators, photocopiers
- The customs and habits of occupants

### **IAQ vs. Energy Efficiency-**

Heating and cooling the outside air for the comfort of the building occupants require a significant amount of energy. A considerable energy saving is possible by minimizing the outdoor air used for ventilation. However, this deteriorates the indoor air quality if active air-filtration systems are not installed. On the other hand, in a naturally ventilated building, the concentration levels of PM<sub>10</sub> and PM<sub>2.5</sub> are expected to be much higher in urban areas where the outside air is polluted. Thus, achieving IAQ and energy efficiency simultaneously is a challenging game for engineers.

### **Conclusion -**

In the present scenario, it is crucial to create mass awareness regarding exposure and the health impacts of indoor air quality among the general population. Enhanced alertness and understanding about IAQ will empower the public to shift towards prolific interventions. It is crucial to monitor air circulation inside a building for at least a year to develop a seasonal plan to

improve the air quality and foster maximum output and social well-being of the occupants.

There is a need to set benchmarks and form best practices for maintaining good IAQ in buildings in an energy-efficient manner suitable for Indian conditions. There must be a core focus on installing air filtration systems in new constructions to ensure proper ventilation and enhanced air quality. Other novel approaches need to be adopted to address the challenges posed in front of engineers to take possible measures.

### **Environment ministry sets new deadlines for thermal plants to meet norms**

*Date:-2-April-2021, Source: business-standard.com*



The Environment Ministry has amended rules allowing thermal power plants within 10 kilometres of the National Capital Region (NCR) and in cities with more than 10 lakh population to comply with new emission norms by the end of 2022, according to official notification.

A task force will be constituted by the Central Pollution Control Board (CPCB) to "categorise thermal power plants (TPPs) in three categories on the basis of their location", the ministry said in the notification dated April 1.

Also, TPP units in "non-attainment cities" and those within 10 kilometres of critically polluted areas are required to meet the emission norms by December 31, 2023.

Non-attainment cities are those which have consistently failed to meet the National Ambient Air Quality Standards. The CPCB has identified 124 such cities.

Coal-fired power plants in the rest of the areas have to comply with the new standards by December 31, 2024, according to the notification.

TPPs declared to retire before December 31, 2025, are "not required to meet the specified norms in case such plants submit an undertaking to the CPCB and the CEA (Central Electricity Authority) for exemption on ground of retirement", the notification said.

The Environment Ministry had revised emission norms for particulate matter (PM), sulphur dioxide and oxides of nitrogen for TPPs in December 2015, requiring them to install emission control systems by December 2017.

The deadline was pushed to December 2022 for all power stations in the country in view of implementation issues and challenges. However, power stations in the national capital region were required to comply with the revised norms by December 2019.

Earlier this year, the Ministry of Power requested the Environment Ministry to extend the deadline for meeting emission norms for all thermal plants from 2022 to 2024, citing delay due to various reasons, including the coronavirus pandemic and import restrictions.

Major pollutants from coal-fired power plants are oxides of nitrogen (NO<sub>x</sub>), sulphur dioxide (SO<sub>2</sub>) and particulate matter (PM).

According to the Centre for Science and Environment (CSE), TPPs account for more than 60 per cent of total industrial emissions of particulate matter; 45 per cent of SO<sub>2</sub>; 30 per cent of NO<sub>x</sub>; and more than 80 per cent of mercury, in the country.



These are also responsible for 70 per cent of the total freshwater withdrawal by all industries, according to an analysis by the green think tank.

A recent compliance report by CSE showed that out of the 12 power plants located around Delhi, SO<sub>2</sub> control technology was available only in two plants.

### **India Delays Anti-Pollution Rules for Coal Power Plants Again**

*Date:-3-April-2021, Source: bloomberg.com*



#### **Emissions from a coal-fired power plant near residential property in Badarpur, Delhi, India.**

India's environment ministry delayed anti-pollution guidelines for coal-fired power plants further, extending the compliance deadline by as long as two years.

Plants located close to populated cities, including capital New Delhi, will now have to meet the standards by December 2022, a seven-year extension from the original plan to cap toxic emissions, including particulate matter, sulfur dioxide and oxides of nitrogen, according to a March 31 notification.



Units close to critically-polluted areas have until end-2023 to comply, while those located in less polluted smaller towns can wait on retrofits until the end of 2024. Plants approaching closure have been exempt from the exercise, according to the notification.

Most Indian coal-fired generators have resisted installing the retrofits, citing financial stress and lack of clarity on recovery of their investments. They have found support from the power ministry, which successfully pushed for extending the original deadline and later made a case to the environment ministry for sparing plants in areas with good ambient air quality.

The cost of retrofits has added to concerns of owners of coal-fired plants that their electricity prices will become less competitive against renewable power, whose prices have been declining.

“It is very unfortunate that environment ministry sides with the polluters and law offenders time and again to give them extensions and dilutions rather than with the common public who is suffering from severe pollution and health impacts and whose interest the ministry is duty-bound to protect,” Sunil Dahiya, a New Delhi-based analyst at the Centre for Research on Energy and Clean Air, said in a text message.

Coal, which helps produce about 65% of India’s electricity, has been linked to the choking air pollution in its cities, as well as diseases and premature death of thousands of citizens.

The environment ministry introduced the pollution guidelines in 2015, giving the power companies two years to meet the targets. The deadline was later extended in a revised schedule that stretched until 2022, but most plants are expected to miss that too.

In its latest notification, the environment ministry placed a monetary penalty on those who miss the deadlines. Plants will pay as much as 0.2 rupees a kilowatt hour of power they generate, with the amount varying on with their location and the duration of default.

## **Plants Remove Toxic Mercury Gas From Atmosphere By Absorbing, Depositing In Soil: Study**

*Date:-4-April-2021, Source: republicworld.com*



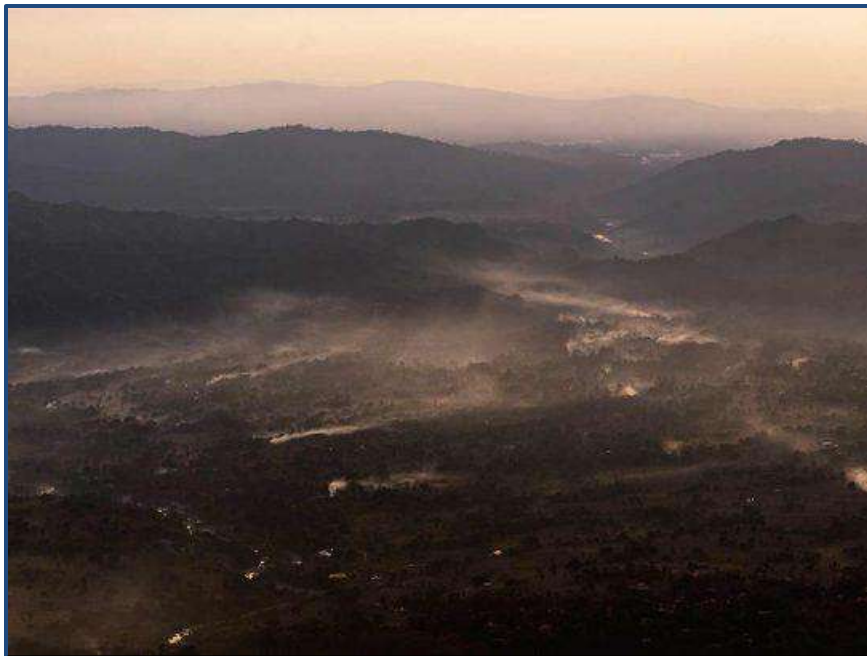
Plants can help to remove toxic mercury gas from the atmosphere as they absorb the gas and contribute to reducing the pollutant across the globe by depositing the element back into soils. In a recent study by the University of

Massachusetts Lowell researchers published in the journal *Nature Reviews - Earth & Environment*, scientists claim that the process of plants removing mercury is similar to the absorption of carbon dioxide emissions. Each year, hundreds of tons of mercury are emitted into the atmosphere as a gas due to mining, burning coal and other such industrial processes.

When plants shed leaves and die, the mercury is again transferred to soil where large amounts eventually make their way into watersheds. This further threatens wildlife and other people who eat contaminated fish. Daniel Obrist, Professor at UMass Lowell also explained that exposure to high levels of mercury for a prolonged period can lead to neurological and cardiovascular complications among humans. According to World Health Organization (WHO), there is no safe level of mercury for humans.

## **Bihar blacklists over 2,000 farmers for stubble burning**

*Date:-5-April-2021, Source: gulfnews.com*



**The Bihar government has blacklisted more than 2,000 farmers for stubble burning.**

Patna: The Bihar government has blacklisted more than 2,000 farmers for polluting the environment by indulging in stubble burning in the fields despite frequent government's warnings.

The blacklisted farmers won't be getting the benefits of subsidy and incentives for agricultural works in

the next three years.

Majority of the total 2,138 blacklisted farmers belong to south-western and south-central Bihar. Agriculture department officials said the government was compelled to initiate action against these farmers as they had been repeatedly ignoring the government's warning and burning crop residues in the farmland which not only polluted the environment but also destroyed the standing crops in the field belonging to other farmers.

"Despite 75-80 per cent subsidy being given to farmers for purchasing combine harvesters, stubble burnings in farms go on unabated in the state. This is a very serious issue given the fact that combine harvester owners had submitted declarations about not indulging in stubble burning," Bihar's agriculture secretary N Saravana Kumar told the media on Monday.

The state government has been giving subsidies up to 80 per cent on seven agriculture implements to encourage farmers stay away from stubble burning. Majority of the incidents of stubble burning have been reported from Buxur, Nalanda, Bhojpur, Kaimur and Rohtas in Bihar.

## Fires spread

What is further disastrous, the burning of crops residues in the fields has destroyed ready-to-harvest wheat crops in thousands of acres of land in the past one fortnight as fire spread fast due to the westerly winds sweeping across the state. A fresh incident was reported from Banka district where the wheat crops planted in several acres of lands and belonging to several farmers were gutted after a farmer burnt the crop remains in the field.

Environmentalists describe stubble burning as one of the major contributors of air pollution. According to them, burning of one tone of straw results in loss of 25 kg of potash, 5.5 kg of nitrogen, 2.3 kg of phosphorus and 1.2 kg of sulphur. As per an official estimate, the state produces 30 million tones of crop residues every year out of which four million tones are burnt in the field.

A latest Greenpeace Southeast Asia analysis of IQAir data says a total of 119,700 people died only in six Indian cities in 2000 as a result of air pollution. The six cities are—Delhi (54,000 deaths), Mumbai (25,000 deaths), Bengaluru (12,000 deaths), Hyderabad, Chennai (11,000 deaths each) and Lucknow (6,700 deaths).

The Greenpeace report released last week (on February 18) also stated that the air pollution caused massive economic losses to the tune of US \$17.7 billion.

## **Climate change is real: Six months on, Uttarakhand forests still ablaze**

*Date:-6-April-2021, Source: [downtoearth.org.in](http://downtoearth.org.in)*

Forest fires that began in Uttarakhand on October 15, 2020 were still burning on April 5, 2021, according to the state forest department, in what is being seen as another manifestation of climate change.

There were 989 fire incidents in the forests of the state from October 1, 2020-April 4, 2021, according to forest department figures. Some 1,297.43 hectares of forest got burned down in the fires, according to the estimates.

There were 470 incidents of fire in Uttarakhand's forests between November 2020 and January 2021. The figure for the same period in the previous year was 39.

Uttarkhand ranked second in the country after Madhya Pradesh in terms of active instances of fire on April 5, 2021 according to the Forest Survey of India.



There were 93 active instances of fire in Madhya Pradesh and 71 in Uttarakhand.

Fires usually start every year in Uttarakhand around February 15 and continue till the end of May. This period is dubbed as the 'fire season' by the state forest department.

During the fire season of 2020, flames burned for 37 days in the forests of the state. Fires burned for another 25 days from the end of the fire season till October 15. This covered the monsoon which was deficient in the state.

Uttarakhand received only 10.9 millimetres of rainfall from January-March 2021 against the usual 54.9 mm, a deficit of nearly 80 per cent. The district of Pauri, which has been most affected by fires, received the least amount of rain, a measly 3.1 mm, against the usual 36.6 mm. The deficit in Pauri has been 92 per cent.

Temperatures too have been rising across Uttarakhand and other Himalayan states. The year 2020 was the second consecutive 'warm' year for the state.



In addition, the first three months of 2021 have been exceptionally warm too. There has been less-than-average rainfall during these three months even as the maximum temperature has been above average and has even broken records.

## **Air Pollution Continues To Be A Major Cause Of Mortality For Non-Communicable Diseases In India – Fedo**

*Date:-7-April-2021, Source: businessworld.in*



On the backdrop of World Health Day 2021 theme of Building a fairer, healthier world, Fedo, a predictive health risk analysis company today released findings on the rate of mortality due to various non-communicable diseases (NCD). The burden of NCD continues to increase in India with the main reasons for the rise are unhealthy diet, use of tobacco, air pollution, unhealthy lifestyle, and alcohol.

Non-communicable diseases (NCDs) such as cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases contribute to around 41 million (71%) of all deaths globally and around 5.87 million (60%) of all deaths in India. Globally, every two seconds someone aged 30 to 70 years dies prematurely from NCDs. The Sustainable Development Goal (SDG) target 3.4 is to reduce 1/3rd premature mortality from non-communicable diseases (NCD) and promote mental health and well-being.

According to WHO, in the South East Asia region, 40% of the deaths occur from indoor air pollution and 25% are attributed to outdoor air pollution. In 2016, to bring a change in the fight against air pollution, the government of India took positive steps and launched the Pradhan Mantri Ujjwala Yojana (PMUY) to provide 8 crore deposit free LPG connections to poor households in the country. PMUY was aimed at providing Free LPG connections to Women from BPL Households.

Commenting on the rise of NCDs, Prasanth Madavana, CEO and Founder of Fedo, said, "Household air pollution is a major health hazard in the South East Asian region, especially India, due to the burning of solid biomass fuel and second-hand smoke. Globally, 4 million deaths are caused by exposure to household pollution, and 3.7 million deaths are attributed to outdoor air pollution. By reiterating the theme of this world health day of building a fairer and healthier world, we should come together to address the global health crisis due to which each year, 15 million people lose their lives to NCDs. The aim going forward is to educate oneself on the hazardous effects of air pollution and positive initiatives that economies across the world should incorporate for a better future."

**Fedo's key data insights -**

- NCDs are majorly noticed in states such as Assam, Andhra Pradesh, Arunachal Pradesh, Bihar, Chhattisgarh, Delhi, Goa, Gujarat, Haryana, and Nagaland. Life expectancy in these states for females is between 66 – 79 years and for males is between 63 – 73 years
- 12 percent of the mortality rate for male and females in Bihar is due to air pollution
- Malnutrition is the leading cause of death for more than 20 percent of females in Assam
- 9 percent of females in Bihar die due to unsafe water, sanitation, and handwashing
- More than 12 percent of males and 10 percent of females death in Andhra Pradesh is caused by dietary risks
- Mortality in males due to high blood pressure is the highest in Goa at 5 percent



## **Hyderabad: City air unsafe again as toxic emissions rising**

*Date:-8-April-2021, Source:thehansindia.com*

Sanathnagar: Air quality levels which improved during the Covid-induced lockdown are back as more and more vehicles are coming out on roads these days. Right from the unlock phase 4 in June, there had been increasingly more vehicular pollution. "Usually every year, air pollution slightly dips after the winter season but this time it hit differently. Half of the year 2020 was all about lockdown restrictions, resulting in less pollution but as the unlocking phases kicked off pollution also resumed back. Unlike every year, summers this time doesn't seem to ease from pollution," said Dr D Prasad, Environmental Scientist (Air) TSPCB.

"Pollution levels are increasing for a number of reasons, an average Air Quality Index (AQI) of Hyderabad is 132 which is unhealthy, it goes to a maximum average AQI 165 and it fluctuates as the pollution varies hourly and daily. In summer, radiation from the sun is stronger and importantly nitrogen oxide reacts with the hydrocarbons and other chemicals in the sunlight as the tropical winds and dust storms are more likely to pollute air quality," he added.

After relaxation of the Covid restriction we could see vehicles back on roads, operating power plants, industrial plants and factories emitting thick plumes of black smoke and constructions, household activities and natural contamination also adding their bit to the deterioration of air quality in the city. According to the Telangana State Pollution Control Board (TSPCB), the Ambient Air Quality (AAQ) in several parts of the city including Hyderabad Central University (HCU), Bollaram Industrial Area, Sanathnagar, Zoo Park and IDA Pashamylaram is turning from bad to worse.

After recording a sharp fall in the air quality index (AQI) at Bollaram in April indicates unhealthy levels with AQI 115, which during lockdown recorded AQI 60. The Central University of Hyderabad which last recorded only AQI 58 on Thursday recorded AQI of 132. HCU areas saw PM 2.5 levels increasing considerably. Meanwhile, the air monitoring quality at ICRISAT recorded an AQI of 119 which is unhealthy according to the data from the state AQI of the Telangana State Pollution Control Board (TSPCB).

In the same vein, the levels of nitrogen dioxide (NO<sub>2</sub>), nitrogen oxide (NO<sub>x</sub>) and sulphur dioxide (SO<sub>2</sub>) are also slowly picking up at Sanathnagar area, whose air quality index escalates to 132 which was 62 AQI in April last year. In the first three months of 2021, levels of nitrogen dioxide were also higher than the

previous year. Mostly, nitrogen dioxide is caused by vehicles and industrial gas emissions and the pollution from them is unstoppable. Other than greenhouse gases, the nitrogen dioxide alone contributes to the deaths of three million people a year across the world. During lockdown, nitrogen levels observed 55 per cent downfall from March 25 till April 25, 2020 and now it is gradually increasing resulting in 20 per cent contribution to the pollution. Switching to decarbonise transport and maintaining enough greenery would help to control air pollution, said an environmentalists in the city. Meanwhile, there are demands that it is time to take tougher measures on industries emitting pollution.

AQI LEVELS: (April 2, 2021 April 2 2020)

ICRISAT 139 60 ZOO 119 82

IDA 129 80

BOLLARAM 115 60

HCU 132 58

SANATHNAGAR 154 62

## **Himachal Pradesh yet to notify policy on polluting industrial fuel**

*Date:-9-April-2021, Source: indianexpress.com*

The Himachal Pradesh government is yet to notify a policy to restrict the use of two highly-polluting industrial fuels — pet coke and furnace oil — despite directions by the Central Pollution Control Board (CPCB) two years ago.

Following directions by the National Green Tribunal (NGT), the Pollution Control Board had, in 2019, asked all states and UTs to enforce fuel policies regarding the use of pet coke and furnace oil.

“Pet coke and furnace oil/fuel oil emit more sulphur dioxide as compared to other conventional fuels due to high sulphur content and also contribute to forming of finer secondary particulate matter in ambient air,” the CPCB had written to the states, adding that the Supreme Court had banned the use of the two fuels in the national capital region in 2017. Later, the court requested all states to consider taking similar measures, and the NGT also passed similar directions.



**The CPCB identifies all such cities in the country where the prescribed air quality standards are violated, calling them non-attainment cities.**

**Himachal has seven such cities, including Baddi, Nalagarh, Parwanoo, Kala Amb, Paonta Sahib, Sunder Nagar and Damtal.**

Himachal Pradesh then came up with a draft fuel policy, which said that there are 213 industrial units in the state which use either furnace oil or pet coke. The state government informed the CPCB in October 2019 that the policy will be finalised after a byelection model code of conduct.

However, the policy has still not been enforced. “Only once the fuel policy is notified by the government can we start implementing it in the state,” said a state pollution control board official.

The matter was also raised in the recently held budget session of the Assembly, during which the government tabled a written reply saying that the policy is “in process of finalisation”. In response to another question, the health department replied that 35 cases of lung diseases/disorders and 14 cases of ashtma have been reported in the last three years in areas lying within a radius of five kilometres from industries using pet coke as fuel.

### **7 non-attainment cities in Himachal**

The CPCB identifies all such cities in the country where the prescribed air quality standards are violated, calling them non-attainment cities. Himachal

has seven such cities, including Baddi, Nalagarh, Parwanoo, Kala Amb, Paonta Sahib, Sunder Nagar and Damtal. According to the state pollution control board, the air quality index in these cities improved significantly in 2020-21, falling for instance from 104 to 75 in Kala Amb.

## **Delhi temperature to touch 40 degrees coming week**

*Date:-10-April-2021, Source: indianexpress.com*



Temperature in Delhi is likely to touch 40 degree Celsius in the coming week, according to the India Meteorological Department (IMD).

The city's maximum temperature, recorded during day time, was 36.6 degree Celsius on Friday, higher than 35.2 degrees recorded a day earlier. The minimum temperature recorded in the early morning hours also increased to 17.1 degrees on Saturday, higher than 14.3 degree Celsius recorded on Friday.

According to an IMD forecast, by Friday next week, maximum temperature is expected to touch 40 degree Celsius and the minimum would rise to around 20 degrees Celsius.

Meanwhile, Delhi's air quality index (AQI) was in the 'moderate' category on Saturday morning with a reading of 165.

The city's 24 hour average AQI was also in the 'moderate' category on Friday with a reading of 170, as per the Central Pollution Control Board.

The AQI is expected to continue to remain in the same category on Sunday and Monday, as per a forecast from the Centre's Air Quality Early Warning System for Delhi.

### **Delhi govt to organise conference on reducing air pollution: Gopal Rai**

*Date:-11-April-2021, Source: livemint.com*



**Delhi minister and AAP leader Gopal Rai**

NEW DELHI : Delhi Environment Minister Gopal Rai Sunday announced the city government will hold a digital round-table conference on April 12-13 to address the issue of air pollution in the national capital.

The minister said in a statement that theme of the conference will be "Measures to be taken to reduce air pollution in Delhi before winter 2021".

"The work that our government has done in the last six years to fix the environment and improve the environmental condition has made a positive beginning in reducing Delhi's pollution, but it is not enough. Therefore, to fix the air quality of Delhi and to solve the crisis the government has set a target to significantly reduce the pollution level in the next five years," Rai said.



He added that the Delhi government has set the target to reduce the city's pollution level by a third over the next five years.

The conference will be attended by Dr Mukesh Sharma from IIT Kanpur; Dr Sagnik Dey of IIT Delhi; Sumit Sharma of TERI; Santosh Harish of Centre for Policy Research, Air Pollution Action Group; Karthik Ganesan of the Council on Energy, Environment and Water; representatives from CSE's Anumita Roy, professor Gufran Baig of Indian Institute of Tropical Meteorology, and Siddharth Virmani of the Energy Policy Institute of the University of Chicago.

Along with this, social organisations and NGOs doing different work in the field of environment are also participating in it, Rai added.

"On the basis of suggestions received from experts and organizations, the government will formulate a long-term action plan in order to tackle pollution in Delhi," he said.

### **Forest fires in Uttarakhand: Absence of real-time air quality monitoring plagues Himalayas**

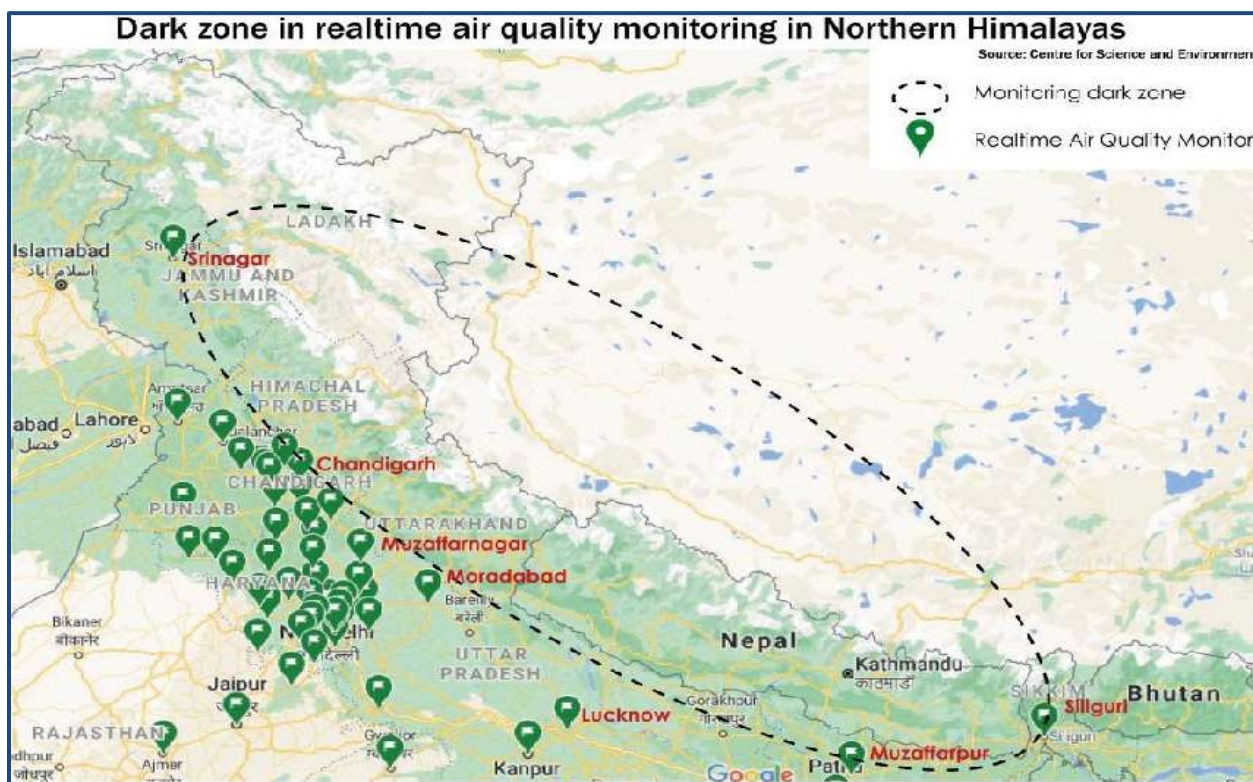
*Date:-12-April-2021, Source: downtoearth.org.in*



Uttarakhand recorded 361 incidents of forest fire in the first five days of April, which damaged 380 hectares (3.8 square kilometres) of reserve forest areas and 567 hectares of forest land in total. Forest fires have become an annual event for the Himalayan state — and they are only getting worse by the year. The current spell has been raging since mid-February. These fires are, perhaps, worse than the annual farm stubble burning incidents witnessed in Punjab and Haryana. They, however, do not get even a fraction of public and media attention because the smoke does not tick off the air quality monitors of Delhi. But shouldn't the air quality and health of Uttarakhand people get attention? It is difficult, for their air quality is not monitored.

### **No noses in the Himalayas**

Wildfires in the forest of Similipal, Odisha, in March 2021 underscored the absence of a real-time air quality monitoring system in the mineral belt of India. Northern Himalayas and adjoining Terai region is possibly the second-biggest dark zone in India's real-time air quality monitoring network after the mineral belt. It is probably even darker given the rugged topography.



**There are no real-time air quality monitoring stations in Indian Himalayas between Srinagar in Kashmir and Siliguri in West Bengal**



Uttarakhand and Himachal Pradesh — both approximately the same size as National Capital Region (NCR) — do not have a single official real-time air quality monitor. NCR has over 80.

In fact, there is not a single real-time air quality monitoring station between Srinagar in Kashmir and Siliguri in West Bengal, that spans a distance of 1,500 km. Except one station in Srinagar set up earlier this year, there are no monitors in cities of Union territories of Jammu and Kashmir and Ladakh.

Similarly, lack of monitors was conspicuous in the Terai belt of Uttar Pradesh and Bihar. Sikkim and Anurachal Pradesh also have no real-time monitoring stations.

### **What does Delhi air show**

The farm stubble fires that choke the national capital and most of Indo-Gangetic plains in November are assisted by wind and cooler weather conditions. The smoke from the Uttarakhand fires is mostly getting trapped within the Himalayan valleys.

Small fraction of it that escapes the hills is blown thin and high by the hot winds currently prevailing over the northern plains. But on certain days with suitable wind conditions, the smoke does reach Delhi.

Given the hot weather conditions, however, its impact is not as dramatic on city's air quality.

The most pronounced impact of this smoke entering Delhi was noted in the first week of April. Particulate matter 2.5 at citywide level (average of all 40 stations of Delhi) met the national standard till April 1; levels steadily rose and more than doubled to 122 microgram per cubic metre ( $\mu\text{g}/\text{m}^3$ ) by April 6, categorised poor under Air Quality Index (AQI).

This rise is not enough proof of the smoke from the hills entering Delhi's air, but the sudden change in balance between PM<sub>2.5</sub> and PM<sub>10</sub> is a strong indication. The percentage of PM<sub>2.5</sub> in the PM<sub>10</sub> was 24 per cent on April 1, but it grew to almost 40 per cent on April 2 and has stayed at that level since.

This is unusual, for this season is known to be dusty (high PM<sub>10</sub> with low PM<sub>2.5</sub> percentage) and not smoggy. Smoke from Uttarakhand fires is certainly entering Delhi.

Another indicator of the smoke entering Delhi is change in citywide nitrogen dioxide (NO<sub>2</sub>) levels that saw more than 100 per cent rise since April 1.

NO<sub>2</sub> is primarily emitted by burning fossil fuels and organic matter. Given there has been no major increase in traffic or open fire instances within the city this astounding spike in NO<sub>2</sub> levels is most certainly the impact of the smoke from the Himalayan fires.

This is further corroborated by wind direction data that shows winds did change directions and started blowing towards Delhi during the first week of April.

These are similar PM<sub>2.5</sub> levels that caused Singapore to declare emergency in 2019, after smoke from wildfires in Indonesia blew into the city. But this is not alarming enough for Delhi — it is desensitised by winter smog that has five-six times higher PM<sub>2.5</sub> levels.

### **But why be dependent on Delhi?**

Seven districts in Uttarakhand — Pauri Garhwal, Tehri Garhwal, Dehradun, Chamoli, Rudraprayag, Nainital and Almora — are recognised as most vulnerable to forest fires.

Forget real-time monitoring, they don't even have manual PM<sub>2.5</sub> monitors. No doubt people in the cities don't care much for these as these fires are raging in the hinterlands. They are not aware how these distant fires are poisoning their air and health.

There is a need to generate public interest in local air quality as that is only thing which can drive change and accountability. There is power in knowing what ails oneself. It gives knowledge to seek proper remedies, not just for one's own personal health, but also from the authorities. Government of India itself recognises the need to inform the public on health warnings on a daily basis to improve air quality management.

People need to know the air quality in their cities and towns to safeguard their health and abode.

The knowledge has initiated a change in Delhi and other mega cities. The Himalayas and its residents deserve the same.

## **Delhi Government To Focus On Public Participation To Curb Air Pollution: Gopal Rai**

*Date:-13-April-2021, Source: ndtv.com*



### **Will make fight against air pollution a mass movement, Delhi minister Gopal Rai said**

New Delhi: Delhi Environment Minister Gopal Rai today said the city government will focus on public participation to reduce air pollution in the national capital.

"Pondering over environmental pollution in winter months when the Air Quality Index (AQI) is severe is not a solution. We therefore, require your support. A plan is needed that can work through the year," Mr Rai said on the second day of a round-table conference with experts.

The government will make the fight against air pollution a mass movement, he added.

"While we have identified pollution hotspots, it is still challenging to measure the timing, rate, source and impact of pollution. The Delhi government is

working to find appropriate tools to measure these indicators which would in turn help us devise the correct policy," Mr Rai said.

## **NGT forms National Task Force to combat air pollution**

*Date:-14-April-2021, Source: [economictimes.indiatimes.com](https://economictimes.indiatimes.com)*



**The NTF may hold its first meeting within one month and thereafter evolve mechanism for monitoring by quarterly meetings with Chief Secretaries of concerned States/UTs.**

Noting that about 1.5 million people in India die annually due to air pollution, the National Green Tribunal has formed an eight-member National Task Force (NTF) to monitor remedial steps to improve the status of air quality.

A bench headed by NGT Chairperson Justice A K Goel said holistic and coordinated efforts at all levels in the government is dire

need of the hour.

Accountability in terms of adverse entries in the Annual Confidential Reports and recovery of compensation for non-compliance are imperative for fixing accountability, the tribunal said.

This requires authorities at higher level to function as trustees for discharge of constitutional and statutory obligation to the citizens. There is no other magic wand to protect people against acknowledged sorry state of affairs. India has world's highest death rate from chronic respiratory diseases, the bench said.

The NTF is to be headed and coordinated by the Secretary Ministry of Environment and Forests with nominees (not below the rank of Joint Secretaries) of Ministries from Housing and Urban Development, Road Transport, Petroleum, Power, Agriculture, Health and Chairman of Central Pollution Control Board.

NTF may also monitor enforcement of laid down air quality standards beyond Non-Attainment Cities' in other identified air polluted areas where air quality is poor and above.

The NTF may hold its first meeting within one month and thereafter evolve mechanism for monitoring by quarterly meetings with Chief Secretaries of concerned States/UTs. The NTF may coordinate and work in tandem with the Committees already constituted under NCAP at National and State levels, the bench said. Updating National Environment Data Grid (NEDG) linked to the State Environment Data Grids (SEDGs) and District

Environment Data Grids (DEDGs) and further linked to available portals like online air quality, Sameer and other monitoring stations to facilitate analysis, research and planning on the subject. The Chief Secretaries of all States/UTs may continue to monitor progress in execution of action plans at State level with the assistance of monitoring cells in their offices and the Air Quality Monitoring Committee.

The State level monitoring must include action at the ground as per directions to be implemented by the District Magistrates or other concerned departments, the bench said. The green panel said the matter has been monitored by the tribunal for about two and a half years and primarily the tribunal is an adjudicatory body and beyond giving directions necessary for protection of environment under section 15 of the NGT Act, execution has to be by administrative authorities.

Under public trust doctrine, the State authorities are under obligation to take effective measures to control pollution. Tribunal monitoring cannot be for indefinite period. Road map has crystalised to an extent. The ownership of monitoring must be now taken over by the statutory and administrative authorities for enforcement of rule of law for which a national level task force needs to be constituted, the bench said.

### **Air pollution by brick kilns in Mathura, NGT seeks action taken report**

*Date:-15-April-2021, Source: aninews.in*

New Delhi [India], April 15 (ANI): The National Green Tribunal (NGT (/topic/ngt)) has sought action taken report in terms of compliance of siting and environmental norms, including the assimilative capacity of the air to sustain a particular number of brick kilns. The direction of the Green Tribunal has come while hearing an application against air pollution allegedly caused by



the operation of brick kilns in Uttar Pradesh's Mathura (/topic/mathura) district resulting in severe health impact on the lives of the citizens. The Bench of NGT (/topic/ngt) chief Justice Adarsh Kumar Goel in an order passed on April 13, also constituted a joint committee comprising Central Pollution Control Board (CPCB), State PCB and District Magistrate, Mathura (/topic/mathura) to verify the facts.



The State PCB may also verify whether brick kilns in question are operating without consent, as alleged, in which case the State PCB may take remedial action, following due process of law, said the tribunal.

According to the Petitioner, Mukesh Kumar Aggarwal a local resident, air pollution in Mathura (/topic/mathura) district where AQI crosses 400 one of the identified causes of air pollution is 350 brick kilns operated by coal using polluted fuel like spent organic, solvent, oily residue, pet coke, filter press cake, plastic rubber, leather waste, etc.

The operation of such brick kilns is against declared norms for siting by maintaining the prescribed distance of habitations, educational institutions and hospitals. The petitioner alleged that the said kilns do not have the requisite consents and are non compliant with regard to the siting norms

prescribed by CPCB as well as under the Uttar Pradesh government. The applicant has filed a list of 189 brick kilns which according to the applicant are violating the siting criteria or other environmental norms.

It was also submitted that even there is compliance by any individual brick kiln if the assimilative air capacity cannot sustain coal fire brick kilns, such brick kilns cannot operate adding further to the already polluted air. The applicant has stated that the brick kilns in question are contributing upto 28 per cent air pollution.

The Tribunal had also noted that the applicant has filed a list of 189 brick kilns which according to the applicant are violating the siting criteria or other environmental norms. It is also submitted that even there is compliance by any individual brick kiln if the assimilative air capacity cannot sustain coal fire brick kilns, such brick kilns cannot operate adding further to the already polluted air.

### **Strong winds spark dust storm in national capital, air quality worsens**

*Date:-16-April-2021, Source: indianexpress.com*



**Light rain in Delhi on Friday**



Strong winds of about 65 kmph were recorded in Delhi on Friday, causing a dust storm in parts of the city, as per the India Meteorological Department (IMD). Light drizzle and rain was also recorded in some areas of the city late afternoon around 4 pm, which the IMD officials credited to a passing Western Disturbance.

Kuldeep Srivastava, head of the IMD's regional weather forecast centre in Delhi, said the Western Disturbance would move towards Uttar Pradesh by late Friday evening.

"Trace levels of rain were recorded in some parts of the city late Friday afternoon. A dust storm was also recorded in Palam and nearby areas, which was due to strong, dust-raising winds. Overall, the rainfall would be in the light category on Friday. By Saturday, the Western Disturbance would move ahead after which we may not see any rainfall in Delhi," Srivastava said.

The city recorded a maximum temperature of 40 degrees Celsius on Friday, lower than 40.5 degrees Celsius the day before, the highest mark the mercury has reached so far this season.

The minimum or night time temperature recorded in the early morning hours was 20.2 degrees Celsius, which was two degrees below normal for this time of the year, as per the IMD.

Delhi's day-time temperature has increased significantly in about a week's time. On April 9, the maximum temperature was 35.2 degrees Celsius.

The IMD has forecast that the mercury would fall to about 36 degrees Celsius on Saturday before it rises again. There is also a possibility of very light rain or drizzle on Saturday, as per the IMD.

Meanwhile, the city's air quality index (AQI) deteriorated within the poor category on Friday, rising to 243 at 5 pm from 233 at around 10 am, as per the Central Pollution Control Board (CPCB).

The 24-hour average AQI on Friday was 238 in the poor category, higher than 220 a day earlier, as per CPCB data.

A bulletin from the Ministry of Earth Sciences' air quality monitor SAFAR said, "PM 10 (dust) remains the prominent lead pollutant. High dust emission is likely at isolated places on Friday due to gusty winds and thunderstorms. AQI is forecast to stay in the poor category on Friday. It is likely that rainfall will improve AQI from poor to moderate category over the next two days."

## **Sulphur dioxide from Caribbean volcano reaches India, WMO confirms**

*Date:-17-April-2021, Source: [downtoearth.org.in](http://downtoearth.org.in)*



### **Volcanic emissions reaching the stratosphere can have a cooling effect on global temperatures**

The sulphur dioxide (SO<sub>2</sub>) emissions from a volcanic eruption in the Caribbean reached India April 16, 2021 sparking fear of increased pollution levels in the northern parts of the country and acid rain. Sulphur dioxide reacts with water to form sulphuric acid which can come down with rainfall.

“Sulphur dioxide (SO<sub>2</sub>) emissions from La Soufriere volcano eruption in the Caribbean have reached all the way to India,” tweeted the World Meteorological Organisation on April 16.

Volcanic “plumes can cause aviation and air quality hazards. The injection height is needed to initialise forecast models that predict the downwind evolution of the plume,” Ralph Kahn, a climatologist at the National Aeronautics and Space Administration (NASA), said in a release on NASA’s Earth Observatory Website.

La Soufrière volcano on St Vincent Island in the West Indies started erupting on April 9 after spewing out lava into a dome and threatening to erupt since December 2020. The last time the volcano had erupted was in 1979.

“Of the 45 currently erupting volcanoes on Earth, La Soufriere is among those that worry volcanologists the most,” says NASA’s Earth Observatory website. This is because of its “explosive and erratic eruption style”.

The volcanic eruptions that occurred on April 10 were energetic enough for the plumes to be recorded at a height of 20 kilometres above the Earth’s surface by the Multi-Angle Imaging Spectro Radiometer instrument on NASA’s Terra satellite. NASA scientists have found evidence for the entry of sulphate aerosol particles (precursors for sulphuric acid) in the stratosphere, the second layer of the Earth’s atmosphere.

“Scientists watch closely for emissions reaching the relatively dry stratosphere because particles last much longer and travel much farther than if they remain in the lower, wetter troposphere,” said NASA on its website. This might be the reason that the particles have reached as far as India and will likely travel beyond to reach South East Asia.

Volcanic emissions reaching the stratosphere can have a cooling effect on global temperatures. “The most significant climate impacts from volcanic injections into the stratosphere come from the conversion of sulphur dioxide to sulphuric acid, which condenses rapidly in the stratosphere to form fine sulphate aerosols,” says the United States Geological Survey’s website.

“The aerosols increase the reflection of radiation from the Sun back into space, cooling the Earth’s lower atmosphere or troposphere,” it added. Bigger eruptions during the past century have caused a decrease in temperature of 0.27 degree Celsius or more on the Earth’s surface for up to three years.

“The current thinking is that a volcano needs to inject at least 5 teragrams of SO<sub>2</sub> into the stratosphere to have measurable climate impacts,” explained Simon Carn, a volcanologist at Michigan Technological University in the United States.

La Soufrière has delivered around 0.4-0.6 teragram of SO<sub>2</sub> into the upper atmosphere which is the highest-ever recorded after satellites started observing the Earth’s atmosphere in the mid 20th century. The amount of SO<sub>2</sub> being vented out by the volcano could increase if the eruptions continue. NASA scientists also surmise that moderate eruptions are usually far greater in number than huge eruptions and could have a greater cumulative impact.

## **Air pollution costs Indian businesses \$95 b every year: Report**

*Date:-20-April-2021, Source: thehindubusinessline.com*



As India's median age rises from 27 in 2019 to 32 in 2030, vulnerability to air pollution will increase illnesses, mortality, says the Dalberg Advisors, Clean Air Fund, CII report

Air pollution costs Indian businesses about \$95 billion (about ₹7-lakh crore) every fiscal year, around 3 per cent of India's total GDP, according to a major research report.

The cost is equal to 50 per cent of all tax collected annually, or 150 per cent of India's healthcare budget.

The findings in the report, undertaken by Dalberg Advisors in partnership with Clean Air Fund and the Confederation of Indian Industry, add urgency to tackling air pollution by outlining that it imposes heavy economic costs as well as devastating health impacts.

Dalberg estimates that India's workers take 1.3 billion days off work annually because of the adverse effects of air pollution on their health, amounting to \$6 billion in lost revenue. Air pollution has also been shown to have significant effects on workers' cognitive and physical performance, lowering their on-the-job productivity and thereby decreasing business revenues by up to \$24 billion.

Apart from impacting the national economy, the report found that lower air quality also reduces consumers' willingness to venture out of their homes,

leading to lower footfall and ultimately \$22 billion less revenue for consumer-facing businesses.

The report states that India's IT sector, the source of 9 per cent of the country's GDP and a magnet for foreign investment, is disproportionately affected, losing \$1.3 billion due to pollution-induced productivity loss per year. If air pollution continues to increase at currently projected rates, this figure could nearly double by 2030.

India has grown to become the world's fifth most polluted country in the last decade and has 21 of the world's 30 most polluted cities. As India's median age rises from 27 in 2019 to 32 in 2030, vulnerability to air pollution will increase as mortality due to air pollution-linked pulmonary problems and lung cancer will grow at an accelerated pace, as these illnesses tend to affect the elderly harder.

Gaurav Gupta, Partner, Asia Director, Dalberg, said, "This report shows how air pollution affects the overall health of businesses and the economy. While the government has taken aggressive measures to address the issue, the emphasis on air pollution across the globe has continued to be on its public health implications. It has now become important for Indian business to include air emissions in their profit and loss statements."

"Clean air is a precondition for businesses to thrive — and for India to realise its vision of becoming a \$5-trillion economy by 2025. Achieving this goal would require industry leaders to take more ownership and become advocates in the movement for cleaner air."

Seema Arora, Deputy Director General, CII, said, "As per the survey insights, interviews and data analysis that went into the preparation of this report, it is clear that individual businesses — and their employees — have a direct stake in improving air quality. While there is a need of a lot of thinking to be done here, the business solutions to this business crisis as per our findings include 'greening' business operations and supply chains, adopting renewable energy technology, mitigating emissions through CSR activities, and campaigning for more ambitious pollution policies."

The report notes that air pollution has a substantial impact on India's economy, alongside the health and environmental impact and that by improving its air quality, India will not just be healthier but also wealthier.

## **Here's why Indian businesses should not ignore 'pollution pandemic'**

*Date:-21-April-2021, Source: indiatoday.in*



**The study suggested that the annual cost of air pollution to businesses is equal to 43 per cent of the Covid-19 pandemic's impact.**

The rising level of air pollution in India is not just bad for health, but equally harmful for businesses operating in the country. A study conducted by consulting firm Dalberg Advisors in partnership with Clean Energy Air Fund and Confederation Indian Industry (CII) estimates that Indian businesses suffer a cumulative loss of Rs 7 lakh crore or \$95 billion, equivalent to 3 per cent of India's GDP, annually.

The report, titled 'The Silent Pandemic', suggests that India is "in the midst of a pollution pandemic" citing a World Air Quality report from 2019. According to the report, India ranked 5 out of 98 countries in 2019 based on weighted average PM2.5 concentration levels, behind Bangladesh, Pakistan, Mongolia, and Afghanistan.

"Twenty-one of the world's 30 cities with the worst air pollution are in India. New Delhi has the poorest air quality among cities globally, with PM2.5

concentration levels nearly ten times the WHO target. PM2.5 levels have remained alarmingly high over the last five years,” the report noted.

“Air pollution costs Indian businesses Rs 7 lakh crore or \$95 billion every year,” it added.

The report indicated that air pollution hurts Indian businesses in six primary ways — lower labour productivity, lower consumer footfall, premature mortality, lower asset productivity, increased health expenses and welfare losses.

“The cost of air pollution manifests in 6 ways — lower labour productivity, lower consumer footfall, premature mortality, lower asset productivity, increased health expenses and welfare losses. Out of these, employee productivity, consumer footfall and premature mortality impact businesses directly,” it noted.

It also highlighted that at least 1.3 billion days working days were lost in India in 2019 due to absenteeism. This resulted in a revenue loss of \$6 billion. “As air pollution rises, employees fall sick themselves or stay at home to take care of dependents such as children and the elderly, who are more vulnerable to air pollution,” the report said.

Air pollution also impacts employees’ physical and cognitive performance. “Business heads estimate that employee productivity decreases by 8-10 per cent on high pollution days, costing \$24 billion in 2019,” it said.

Another negative impact air pollution has on businesses is lower consumer footfall. According to the study, air pollution diminished India’s strength of being a large consumer economy by reducing consumer spending by at least 1.3%, costing approximately \$22 billion in 2019.

“As air pollution rises, consumers avoid exposure to pollutants, akin to what was observed during the Covid-19 pandemic,” it added.

Premature mortality due to air pollution is another factor that harms businesses in India. “Air pollution contributes to 18 per cent of all deaths in India. India lost 3.8 billion working days in 2019, costing \$44 billion to air pollution caused by deaths,” the report said.

“Not only premature mortality devastate our current workforce, but also the workforce of the future, with children under the age of 1 contributing to 34 per cent of the total impact. As India’s population’s median age increases from 27



in 2019 to 32 in 2030<sup>2</sup>, its susceptibility to air pollution will increase, raising the question of a sub-optimal workforce.”

The study suggests that all the aforementioned factors have a devastating impact on Indian businesses, and is equal to 150 per cent of the country’s healthcare budget, 150 per cent of the country’s defence budget and 50 per cent tax collected annually.

### **AIR POLLUTION VERSUS COVID LOSS**

The loss suffered by Indian businesses each year is equal to 40 per cent of the country’s outlay on managing the Covid-19 pandemic, suggested the study.

“Cost of air pollution to businesses is equal to 43 per cent of the pandemic’s impact. Unlike the pandemic, this is an annually recurring cost. Despite this, only Rs 4,400 crore has been invested in air pollution, less than 10 per cent of total outlay on Covid response,” the study said.

“In other words, every year air pollution costs India’s businesses close to 50 per cent of the cost of managing the Covid-19 pandemic.”

### **UP govt to set up 600 pollution check centres, hire 1k youth**

*Date:-22-April-2021, Source: timesofindia.indiatimes.com*

LUCKNOW: To provide employment opportunities to youth, the Uttar Pradesh transport department will open 600 automobiles pollution testing centres which will curb the problem of toxic smoke (pollution) being released from vehicles. Under the scheme high school passed youth will get employment.

Any person, NGO, trust, firm, company, public company, people related to partnership can apply online on this portal.

The pollution check centres will be opened at the tehsil level in all the 75 districts of the state.

Around 1,000 youths with a high school passed certificate will be directly involved in this project.

A state government spokesperson said that the department has already completed preparations to set up the pollution check centres and make them businessoriented.

According to state government records, the number of vehicles has exceeded 2.5 million in the state capital alone. Against this only 75 pollution control centres are present.

The National Green Tribunal has also expressed concern over the increasing pollution in the state, after which the transport department prepared a new plan to open more and more pollution testing centres.

Till now, only a few selected institutions including petrol pumps or recognized garages were allowed to open these centres but now it has been allowed to be opened in private areas as well. Any person complying with the prescribed terms and conditions will be able to open a centre and issue a Pollution Under Control certificate.

### **Air pollution is back with a vengeance as industries play catch up — and that could further worsen the COVID-19 pandemic**

*Date:-23-April-2021, Source: businessinsider.in*

We saw some improvement in air quality during the lockdown with fewer cars on the road and industries taking a break as workers were confined to their homes.

Over a year into the pandemic, companies are trying to catch up for the production they lost during the past year. This also means that elements that wreak havoc on air quality, nitrogen dioxide (NO<sub>2</sub>), are back with a vengeance.

Data from the TROPOMI instrument aboard the Sentinel-5 Precursor (S5P) — a sensor that measures columns of sunlight being reflected from the surface for fingerprints of different gases — shows that nitrogen dioxide (NO<sub>2</sub>) levels are not only back at pre-COVID levels but are higher.

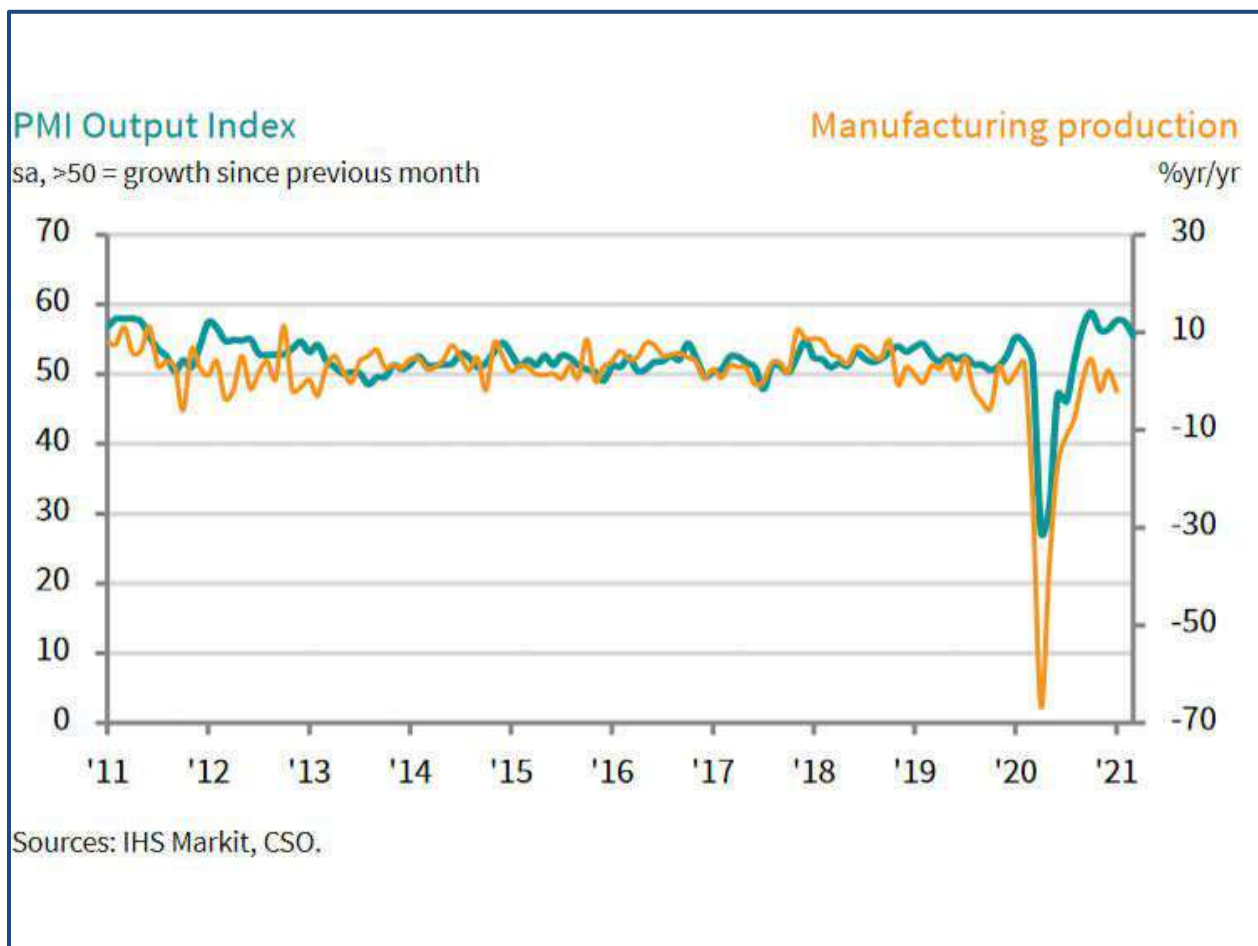
According to TS Panwar, the director of the Climate Change and Energy Programme at the World Wide Fund for Nature (WWF) India, air pollution is one of the world's biggest health hazards. A study by Harvard University estimates that at least 30.7% of global deaths due to air pollution happen in India — that's around 2.5 million people every year.

“The spread of COVID-19 has raised new concerns as exposure to particle pollution may increase vulnerability to the virus and its health impacts,” Panwar told Business Insider.

Exposure to nitrogen dioxide, or any increase in air pollution, increases the risk of diseases that attack the respiratory system. And, COVID-19 is mainly a disease of the respiratory system. And, in moderate to severe cases of COVID-19, symptoms include oxygen saturation and breathlessness.

“We are increasing the susceptibility, the vulnerability of people who are exposed to air pollution,” said World Health Organisation’s Maria Neira.

Manufacturing in India continued to improve in March 2021. Firms scaled-up production with restrictions around COVID-19 easing up, according to IHS Markit. Factory production, in particular, expanded at a sharp pace.



### **Air pollution needs a long term solution**

Air pollution comes from fossil fuels, construction activities, waste combustion, seasonal stubble burning, and a host of other sources. This means that there is no one solution to tackle all of them.

“Since a number of sectors contribute to air pollution, hence appropriate inter-ministerial coordination is required at the central level, besides effective coordination with the states as well as supporting the cities in addressing this challenge,” said Panwar.

According to him, the government has already set up multiple programs to address the problem of air pollution but a multi-pronged strategy with a time-bound action plan is required moving forward.

Not only should it cover issues that relate to policy and regulation, but also address technological intervention and capacity building. “The success would depend on the timely implementation of the action plan — where the government has a major role but with contributions from multiple stakeholders,” said Panwar.

Air pollution is not only among the largest causes of mortality, it is also the major risk to the economy, work productivity, healthcare costs, and tourism.

“COVID-19 has taught us that there is a lot that can be achieved virtually. We should take this lesson and implement it in our daily lives — like to reduce our travel and do as many tasks virtually as possible,” said Rakesh Khatri, the founder of the Delhi-based Eco Roots Foundation.

### **In India and Nepal, forest fires across the Himalayas are threatening lives and biodiversity**

*Date:-24-April-2021, Source: scroll.in*

Wildfires described as “the worst-in-a-decade” have engulfed Himalayan mountain states in a thick haze and killed at least eight people in Himachal Pradesh and Uttarakhand. Seven were killed in neighbouring Nepal, where wildfires raged across several districts and forced a four-day school closure.

Smoke from these wildfires made the air quality of Nepal’s capital Kathmandu the worst in the world in early April, with the air over Bhutan and northern Bangladesh also hazardous. The haze was strengthened by more wildfires along the Nagaland-Manipur border in the North East.

Aside from hazards to human health, these fires pose major threats to forest and biodiversity conservation. Wildfires endanger people, homes, farms, animals and release carbon dioxide – the world’s most ubiquitous greenhouse gas and a primary driver of climate change. According to one estimate, the

2021 wildfires in Uttarakhand alone have led to the release of 0.2 megatons of CO<sub>2</sub> – the highest since 2016.



**A fire in a forest of Chobhar, near Kathmandu, Nepal.**

November to May is wildfire season in the Himalayas, with a peak in March-April. However, administrators and experts described the current wildfires as the worst-in-a-decade or more. Since December 2020, over 1,000 wildfires have been recorded in Uttarakhand – a state that has over 45% forest cover in contrast to India's overall forest cover of 21.67%. In Nepal, nearly 200,000 hectares of forest area are lost to wildfires each year.

Almost all forests in South Asia are surrounded by human settlements, with locals dependent on them for essentials such as fodder, fuelwood and housing material.

The National Disaster Management Authority said most of the fires are caused by humans, sometimes deliberately. But experts said that dry forest floors caused by scant rainfall or snowfall in the past two winters have helped the fires to spread in the central and eastern Himalayas. Additionally, Uttarakhand recorded a rainfall deficiency at 18% in 2019 and 20% in 2020, even as India as a whole had near-normal monsoon rainfall.

The UN's Intergovernmental Panel on Climate Change said rainfall and snowfall are more uneven due to global warming – a pressing issue for South Asian

countries now facing more frequent and deadly heatwaves. As these wildfires rage across forests, leaders of India, Pakistan, Bangladesh and Bhutan are scheduled to attend a virtual climate summit led by United States president Joe Biden, who hopes to reach deals with some of the world's biggest polluters.

### **Widespread impact**

With smoke covering the sky, it has been weeks since Kathmandu residents saw the sun. The forest fire monitoring and detecting system established by NASA in collaboration with the government of Nepal showed red and orange hotspots along the foothills. Kathmandu's air pollution level for particles smaller than 2.5 microns was 15 times higher than the 25 micrograms per cubic metre ceiling recommended by World Health Organization for a 24-hour period.

Though the forest fires garnered attention for contributing to air pollution, they are not the main cause of air pollution in the region. The International Centre for Integrated Mountain Development pointed out: "Biomass burning is a primary driver of air quality reduction in the HKH [Hindu Kush Himalayas]. Open waste burning is ubiquitous year-round. In comparison, forest fires contribute to less than 10% of the overall atmospheric pollution."

### **Record-breaking numbers**

Nepal's National Disaster Risk Reduction and Management Authority recorded over 2,700 wildfires since November 2020 – the highest in a decade. The authority said nearly 2,00,000 hectares of forest cover is affected by fires every year in Nepal. "More than 690 people have lost their lives in the last decade and over 15,000 forest fire incidents have been documented during this decade," said Janardan Gautam, a spokesperson for the National Disaster Risk Reduction and Management Authority.

Seven firefighters have lost their lives. Over 800 wildfires were detected on April 4 alone. The number of wildfires is already four times higher than in 2020, with the peak of the current wildfire season still expected.

Authorities in Nepal ascribe the same causes for wildfires as their counterparts in India. "Nearly 64% of total forest fires in Nepal are deliberately induced by humans for several reasons including clearing up grasslands and forests for better regeneration whereas rest could be accidental," said Sundar Prasad Sharma, a forest fire expert and under-secretary at the Department of Forests and Soil Conservation, part of the Ministry of Forests and Environment.

There has been little effort to curb the problem. “We lack adequate resources to fight against it but more importantly, we do not have the will,” Sharma added. “We need to take this issue much more seriously.”

### **Wildfires in India**

As India continues to count the number of wildfires this season, the Forest Survey of India said 37,059 fires were detected in 2018 using Moderate Resolution Imaging Spectro-radiometer sensor data. “Every year large areas of forests are affected by fires of varying intensity and extent,” the Forest Survey of India said, adding that 54.4% of forests in India are exposed to occasional fires, 7.49% to moderately frequent fires and 2.405% to high-incidence levels. According to its records, 35.71% of India’s forests have not yet been exposed to fires of any real significance.

Indian magazine Outlook reported that 476 fires in a fortnight caused a loss of 4,555.35 hectares in Himachal Pradesh’s forest wealth. The report also said that over 8,455.2 hectares of forests were damaged by fires in March.

There were no major wildfire reports from the mountains in Pakistan this year, but residents told The Express Tribune that wildfires killed scores of wild animals, including leopards, foxes, jackals, deer and partridges every year. Amna Sardar, an environmentalist from Galiyat and a former member of the Khyber Pakhtunkhwa provincial assembly, told the newspaper the forest department had failed to devise a strategy to overcome the issue.

Government records show more wildfires in northern Pakistan in the financial year 2018-19 than in the previous three years.

### **Compelled into action**

As the frequency and damage mount, authorities are forced to take the issue of wildfires more seriously. Krishna Vatsa, a member of India’s National Disaster Management Authority, told the BBC: “The reason why we have not listed forest fires as natural hazards is because in India most of such fires are deliberately caused by people mainly for agricultural purposes and, therefore, it is an anthropogenic [man-made] hazard.”

“But we do recognise that forest fires are becoming a serious hazard and that is why we are working with forest departments and other agencies of all the states to deal with the issue,” Vatsa said.



## **Haze in Delhi during lockdown caused by western disturbance, study finds**

*Date:-26-April-2021, Source: timesofindia.indiatimes.com*

NEW DELHI: Researchers point to a need to study micro meteorology in a specific geographic area of Delhi, stating that despite lockdown, haze has been witnessed in the early hours as natural western disturbance is responsible for rise in PM 2.5 levels.

Professor of Delhi University's Rajdhani College SK Dhaka, who is involved in investigating several aspects of atmospheric processes and local meteorology in his lab called Radio and Atmosphere Physics Laboratory, tried to look into the mystery of increased haze and fog in southwest and west Delhi in the last few days.

In the study Dhaka was accompanied by DU dean of colleges Balaram Pani and JNU professor Dimri.

"We closely studied the PM2.5 and local micro meteorology using Purple Air Network and Indian satellite observations of cloud movements for the last 10 days and found the cause of the increasing morning haze. Due to western disturbance, there was some drop in temperature, resulting in a hazy environment in the areas of west and southwest Delhi in the morning, which has been continuously felt for the last few days," said Dhaka.

He added that he and the other researchers specifically studied an area of about 10 kilometres and compared to the whole of Delhi.

"After studying about 15 stations of the Purple Air Network data supported by NASA, it was concluded that the temperature in west Delhi is about two to three degrees lower, due to which the humidity here will be slightly higher than the whole of Delhi. These environmental parameters often result in a mixture of fog and haze," said Dhaka.

The DU professor added that this study proves the need for study of local micro meteorology of a mega city like Delhi.

"This is the first attempt to understand the concentration of pollution and change over time, necessarily a rapid change in a few hours in the morning, by dividing a mega city like Delhi into different parts. Understanding the concentrations of pollution is a new challenge keeping in mind the change in natural parameters," he said.

“On April 20, there was a sudden change in the weather, which started around 7am and lasted the whole day. From 7am, a very large cloud spread over the whole of Delhi from west direction towards east (satellite cloud data). During this time, the value of PM 2.5 started increasing from west direction and increased about two times in east direction. Due to the sudden arrival of a big cloud, the temperature of entire Delhi decreased by about three to four degrees for an hour and humidity increased by about 10 to 15%. Due to which, the condition of increasing PM 2.5 concentration became favourable and within an hour the value of PM 2.5 in Delhi almost doubled from west direction to east direction.”

Dhaka stated that this proves that the rise in PM 2.5 was due to natural western disturbance and not local transport and factories — with the lockdown in place.

### **Hidden air pollutants on the rise in cities in India and the UK – study**

*Date:-28-April-2021, Source: eurekaalert.org*

Levels of air pollutants in cities in India are on the rise, according to scientists using observations from instruments on satellites that scan the global skies every day.

Researchers used a long record of data gathered by space-based instruments to estimate trends in a range of air pollutants for 2005 to 2018, timed to coincide with well-established air quality policies in the UK and rapid development in India.

The study was led by the University of Birmingham and UCL and included an international team of contributors from Belgium, India, Jamaica and the UK. The researchers published their findings in the journal Atmospheric Chemistry and Physics, noting that fine particles (PM<sub>2.5</sub>) and nitrogen dioxide (NO<sub>2</sub>), both hazardous to health, are increasing in Kanpur and Delhi.

Delhi is a fast-growing megacity and Kanpur was ranked by the WHO in 2018 as the most polluted city in the world. The researchers speculated that increases in PM<sub>2.5</sub> and NO<sub>2</sub> in India reflect increasing vehicle ownership, industrialisation and the limited effect of air pollution policies to date.

This contrasts with trends in the UK cities London and Birmingham, which show modest but ongoing declines in PM<sub>2.5</sub> and NO<sub>x</sub>, reflecting the success of policies targeting sources that emit these pollutants.

They also found increases in the air pollutant formaldehyde in Delhi, Kanpur and London. Formaldehyde is a marker for emissions of volatile organic compounds that include a large contribution from vehicle emissions in India, and, in the UK, an increasing contribution from personal care and cleaning products and a range of other household sources.

Karn Vohra, study lead author and PhD student at the University of Birmingham, commented: "We wanted to demonstrate the utility of satellite observations to monitor city-wide air pollution in the UK where ground-based measurements are in abundance and in India where they are not. Our approach will be able to provide useful information about air quality trends in cities with limited surface monitoring capabilities. This is critical as the WHO estimates that outdoor air pollution causes 4.2 million deaths a year."

Study co-author Professor William Bloss, also from the University of Birmingham, commented "We were surprised to see the increase in formaldehyde above Delhi, Kanpur and London - a clue that emissions of other volatile organic compounds may be changing, potentially driven by economic development and changes in domestic behaviour. Our results emphasise the need to monitor our air for the unexpected, and the importance of ongoing enforcement of measures for cleaner air."

"There is more than a decade of freely available observations from instruments in space to monitor and assess air quality in cities throughout the world. Greater use of these in the UK, India, and beyond is paramount to successful air quality policies", stated Dr Eloise Marais, Earth observation expert at UCL and conceptual lead of the study.

### **Air pollution on rise in Indian cities: study**

*Date:-29-April-2021, Source: indianexpress.com*

Levels of air pollutants in Indian cities, including national capital New Delhi, are on the rise, according to a study using observations from instruments on satellites that scan the global skies, emphasising the need to monitor air and importance of ongoing measures for a cleaner environment.



### **Dyson study reveals how Covid-19 pandemic led to higher levels of allergens at homes**

Researchers used a long record of data gathered by space-based instruments to estimate trends in a range of air pollutants for 2005 to 2018, timed to coincide with well-established air quality policies in the UK and rapid development in India, a press release issued by the University of Birmingham said.

The study was led by the University of Birmingham and UCL and included an international team of contributors from Belgium, India, Jamaica and the UK.

The researchers published their findings in the journal Atmospheric Chemistry and Physics, noting that fine particles (PM<sub>2.5</sub>) and nitrogen dioxide (NO<sub>2</sub>), both hazardous to health, are increasing in Kanpur and Delhi, it said.

Delhi is a fast-growing megacity and Kanpur was ranked by the WHO in 2018 as the most polluted city in the world. The researchers speculated that increases in PM<sub>2.5</sub> and NO<sub>2</sub> in India reflect increasing vehicle ownership, industrialisation and the limited effect of air pollution policies to date.

This contrasts with trends in the UK cities, London and Birmingham, which show modest but ongoing declines in PM<sub>2.5</sub> and NO<sub>x</sub>, reflecting the success of policies targeting sources that emit these pollutants.

The study also found an increase in the air pollutant formaldehyde in Delhi, Kanpur and London, it said.

“We were surprised to see the increase in formaldehyde above Delhi, Kanpur and London” a clue that emissions of other volatile organic compounds may be changing, potentially driven by economic development and changes in domestic behaviour. Our results emphasise the need to monitor our air for the unexpected, and the importance of ongoing enforcement of measures for cleaner air, “the study’s co-author Professor William Bloss, also from the University of Birmingham,” said.

Formaldehyde is a marker for emissions of volatile organic compounds that include a large contribution from vehicle emissions in India, and, in the UK, an increasing contribution from personal care and cleaning products and a range of other household sources.

Karn Vohra, the study’s lead author and PhD student at the University of Birmingham, said, “we wanted to demonstrate the utility of satellite observations to monitor city-wide air pollution in the UK where ground-based measurements are in abundance and in India where they are not.”

“Our approach will be able to provide useful information about air quality trends in cities with limited surface monitoring capabilities. This is critical as the WHO estimates that outdoor air pollution causes 4.2 million deaths a year.”

“There is more than a decade of freely available observations from instruments in space to monitor and assess air quality in cities throughout the world. Greater use of these in the UK, India, and beyond is paramount to successful air quality policies,” stated Dr Eloise Marais, Earth observation expert at UCL and conceptual lead of the study.

### **Delhi air in trouble again: Should farm fires be in focus**

*Date:-30-April-2021, Source: [downtoearth.org.in](http://downtoearth.org.in)*

Delhi’s air quality deteriorated from ‘moderate’ to ‘poor’ and ‘very poor’ on Thursday (April 29). It will be oscillating between ‘poor’ and ‘very poor’ for the next three days, according to the SAFAR (System of Air Quality and Weather Forecasting and Research) system of the Union Ministry of Earth Sciences.

The air quality index (AQI) in Delhi on Friday was 287, an improvement from Wednesday’s 312 and Thursday’s 296.



An AQI of 0-50 is considered 'good', 51-100 'satisfactory', 101-200 'moderate', 201-300 'poor', 301-400 'very poor', and 401-500 'severe'. Above 500 is the 'severe-plus' or 'emergency' category.

Delhi's air typically worsens in October-November and improves by March-April.

Current weather conditions are not unfavourable, unlike in winter. Hence, apart from local emissions, the deterioration in air quality is being attributed to an increase in fire counts, mostly due to burning of wheat crop stubble in northern India.

On Friday, the estimated fire counts were 1,500, up from 1,300 a day ago.

Satellite images released by the United States National Aeronautical and Space Administration revealed high fire counts on Friday in areas like

- Patiala
- Bhatinda
- Sangrur
- Jalandhar
- Faridkot
- Barnala
- Kurukshetra
- Kaithal

- Karnal
- Sonipat
- Panipat
- Rohtak

Fires were also spotted Lahore, Gujranwala and Hafizabad in Pakistan.

India Meteorological Department (IMD) forecast that the air quality would remain 'poor' or 'very poor' the next few days due to transported dust and biomass-burning aerosol in the National Capital region and surroundings.

Deteriorating air quality is worrying amid an increasing number of novel coronavirus disease (COVID-19) and deaths. Medical experts have, from time to time, raised concerns about how high pollution levels can worsen the situation and aggravate respiratory conditions of the public.

An official of the Haryana Pollution Control Board said the department was unable to monitor fires as it wasn't receiving satellite data from the state's agriculture department: "Directions to field officials have been issued but nothing can be done until we know active fire locations."

The delay in getting data is due to a change in remote-sensing agency. The state agriculture department and the Haryana Space Applications Centre (HARSAC) have been at loggerheads over fire data after the former said data provided by HARSAC was misleading and the fire locations were not found during field visits.

Following this, the department decided to directly collect data through Indian Agricultural Research Institute.

"Earlier, at least there was EPCA [Environment Pollution (Prevention & Control) Authority] that shared data with until it was dismantled. Currently, we are not being able to monitor," the official said.

Officials also blamed a shortage of workers to cut wheat straw and lockdown-like measures in various areas.

In Punjab, district-level committees were monitoring stubble burning, claimed Krunesh Garg, member-secretary, Punjab Pollution Control Board:



“There are district level committees with different nodal officers who are supposed to visit places where such farm fires happen, based on satellite information, and impose an environment compensation / fine but so far due to COVID one or two fines have been made because there is already panic among farmers.”

The wheat season is not followed by intensive farm fires, unlike paddy harvesting, as managing wheat stubble is comparatively easy and wheat straw is processed into cattle feed by most farmers, he added.

Delhi should look at local emissions instead of focusing on farm fires, according to him: “Even the wind direction is not towards Delhi. So how come Punjab fires are impacting Delhi air quality?”

According to SAFAR modeling, transport-level wind direction was not very favourable for fire-related intrusion, which has led to improvements in air quality in Delhi in the last two days.

**May 2021**

## **Amid Covid surge, Delhi's pollution levels rise sharply**

*Date:-1-May-2021, Source: sundayguardianlive.com*



New Delhi: As India battles the excruciating second wave of the Coronavirus pandemic, the national capital is witnessing a steep rise in pollution levels. A study shows that the level of pollutants such as fine particles (PM2.5) and nitrogen dioxide (NO<sub>2</sub>), both hazardous to health, are increasing

rampantly in Kanpur and Delhi. The study, published in the journal Atmospheric Chemistry and Physics, also showed increases in the air pollutant formaldehyde in Delhi and Kanpur.

Jai Dhar Gupta, Founder of Nirvana Being, and Founder of the Citizen Movement, 'My Right to Breathe' told The Sunday Guardian: "On Wednesday morning, when I saw levels of Air Quality Index (AQI) 500+ across Delhi NCR, it was clear that local sources were at play."

"I didn't connect it to cremations, only because we are so used to the normal cycle of agricultural residue burning in October and April. But I think the high AQI levels are due to a cocktail of regional emissions from the burning crop residue after the wheat harvest combined with the smoke from the open cremations. Sadly, there is no system in our capital city to cremate sustainably without putting the entire city at risk," Gupta added.

Gupta also said that air pollution is linked to an increase in COVID-19 severity and lethality through its impact on chronic diseases, such as cardiopulmonary diseases and diabetes. "You've already got a respiratory virus lurking that

creates oxidative stress in the human body, now you combine that with the toxicity of air pollution, which further creates oxidative stress, and you've got a recipe for disaster," Gupta said.

On how the people can protect themselves from the harmful impact of rising pollution, Gupta said, "You need to wear a fitted N95 or nanofiber mask, which will protect us from both air pollution as well as COVID-19 nanoparticles."

The study led by the University of Birmingham and the University College London (UCL), also points out that the rise in PM2.5 and NO2 shows increasing vehicle ownership, industrialization, and the limited effect of air pollution policies to date.

### **Hidden air pollutants rising in Indian cities like Delhi and Kanpur, study finds**

*Date:-2-May-2021, Source: wionews.com*



A new study sheds light on the prevalence of pollutants in Indian cities. According to the British study published in the journal called "Atmospheric Chemistry and Physics", hidden air pollutants are increasing in Indian cities.

These pollutants include fine particles known as PM2.5 along with nitrogen dioxide which are both hazardous to health. Scientists used data from satellites

to scan the skies of cities everyday. They found that air pollutants are rapidly spreading in Indian cities like Kanpur and Delhi.

The trends of pollution between 2005-2018 were taken into account by the researchers, who hailed from the University of Birmingham and UCL, including a team of contributors from Belgium, India, the UK, and Jamaica.

Delhi already grapples with pollution every year as winter sets in the city, with a thick layer of smog covering the city sky year after year. In 2018, the World Health Organization had ranked Kanpur as the world's most polluted city. According to researchers, the increase in PM2.5 and nitrogen dioxide levels in the country may be attributed to increasing vehicle ownership, industrialization and the limited number of air pollution policies.

In addition, the scientists also found that the air pollutant formaldehyde was spotted in Delhi and Kanpur, along with London. The researchers juxtaposed data from Indian cities with the data of cities in the United Kingdom.

"We wanted to demonstrate the utility of satellite observations to monitor city-wide air pollution in the UK where ground-based measurements are in abundance and in India where they are not. Our approach will be able to provide useful information about air quality trends in cities with limited surface monitoring capabilities. This is critical as the WHO estimates that outdoor air pollution causes 4.2 million deaths a year", Karan Vohra, study lead author and PhD student at the University of Birmingham was quoted by ANI as saying.

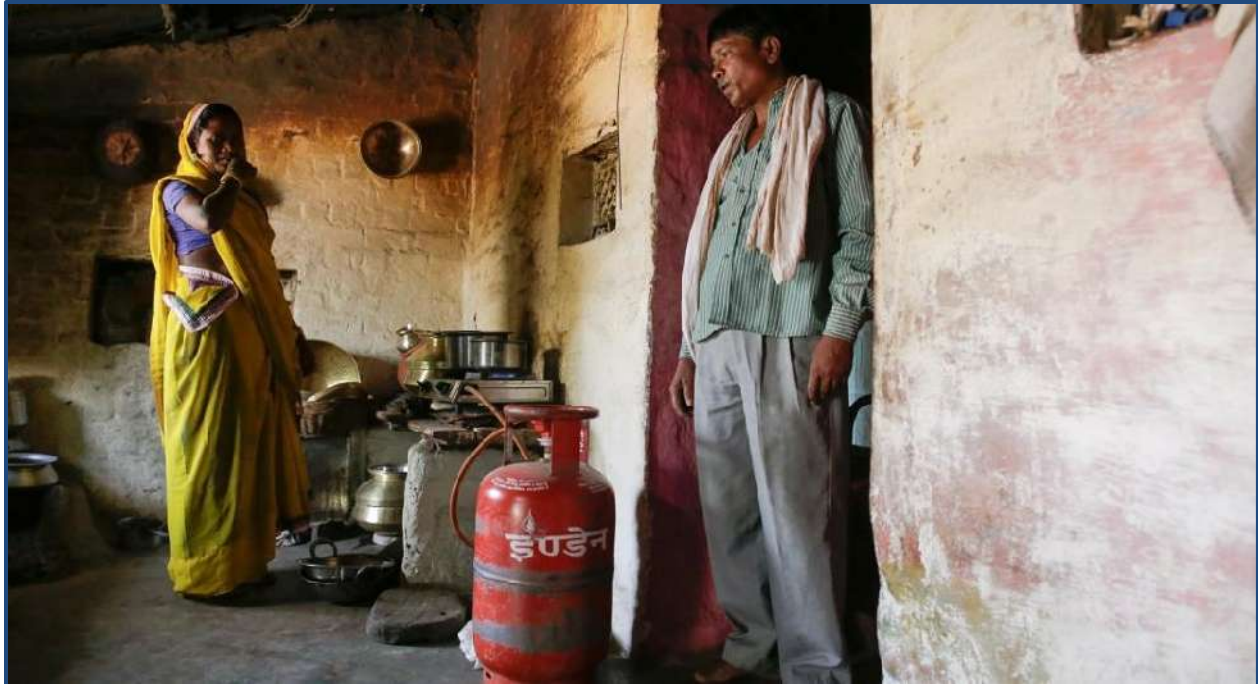
### **Long-term NO2 exposure affects lung function: Study**

*Date:-4-May-2021, Source: [downtoearth.org.in](http://downtoearth.org.in)*

Long-term exposure to nitrogen dioxide (NO2) pollution can affect lung function and increase the risk of pulmonary disease, a recent study concluded.

Healthy individuals — mostly from low-income, urban communities — suffered a decline in lung function due to air pollution, the study claimed.

The study was conducted over a period of five years — from 2012-2014 to 2017-2018 — in a residential area of Mysuru city in Karnataka. The researchers conducted in-home field spirometry (lung function test) before and after bronchodilation (expansion of the bronchial air passages) as part of the project.



**Most of the participants in the study used LPG cylinder provided under the Pradhan Mantri Ujjwala Yojana.**

The researchers collected lung function data in a cohort of adults using a multi-stage random sampling procedure.

In the first stage, all 17 wards of the Mysuru municipality were selected for sampling. In the second stage, houses within each ward were sampled in clusters of 10.

In the third stage, all individuals aged 35 years and above were invited to participate. Original lung function data were collected from a total of 725 participants between July 2012 and July 2014. Air pollution exposure estimates were based on data collected in 2016–2017.

The annual maximum NO<sub>2</sub> exposure recommended by the World Health Organization (WHO) is 21.3 parts per billion. The study showed that air pollution exposures in parts of the city exceeded this figure.

NO<sub>2</sub> is formed when fossil fuels like coal, oil, gas and diesel are burned at high temperatures. It is also formed when wood and natural gas are burned. It reduces lung function and increases in asthma attacks.

A large majority of the study group (>99 per cent of the participants) used liquefied petroleum gas (LPG) as their residential cooking fuel due to the Pradhan Mantri Ujjwala Yojana (PMUY).

The PMUY is a government scheme to distribute LPG connections to women of below poverty line families, reducing indoor exposure to biomass as a potential cause of respiratory disease.

## **Time to Take On the Increasing Air Pollution in Indian Cities**

*Date:-5-May-2021, Source: thecitizen.in*



The World Air Quality Report released on March 17 places New Delhi as the world's most polluted capital for the third year in a row. 14 of the 15 most polluted cities in the world are in India, while China, Pakistan and Bangladesh have only two each.

This is not the first study on rising air pollution in Indian cities. Every year one or the other international organisation releases a report on the hazardous air here, but instead of making efforts to reduce the pollution, an even more urgent concern given the pandemic, the Indian and state governments avoid it every time by making excuses.

On April 28 an international team of scientists from the UK, Belgium, Jamaica and India released their findings on rising air pollution in a number of cities in India, including Delhi. The study used observations from satellite instruments to estimate trends in a range of air pollutants between 2005 and 2018.

According to the study, the amount of PM2.5 and nitrogen oxide particles, both hazardous to health, has been steadily increasing in Delhi and Kanpur, while these pollutants have been declining in London and Birmingham over the same period, reflecting the success of policies targeting sources that emit these pollutants.

The study also found formaldehyde among the air pollutants, which scientists had never mentioned in the earlier studies. The presence of formaldehyde in the air in Delhi, Kanpur, London, and Birmingham took them by surprise. According to researchers, formaldehyde emissions in London and Birmingham come from personal care and cleaning products and a range of other household sources, while in India it comes from vehicles as well.

Increasing air pollution adversely affects the health of all kinds of flora and fauna including human beings. According to the India State-Level Disease Burden Initiative, 1.7 million people died in India due to air pollution during 2019. A 2020 report by Greenpeace Southeast Asia estimates 54,000 people died of airborne diseases in Delhi alone last year. Air pollution killed 25,000 people in Mumbai, 12,000 in Bangalore, 11,000 in Hyderabad and 11,000 in Chennai.

The worst effects of air pollution are on children's health. According to a study by researchers from AIIMS, Kalawati Saran Children's Hospital and Vallabhbhai Patel Chest Institute, increasing levels of air pollution increase the likelihood of lung and respiratory diseases in children 3 to 5 years old by 21 to 28 per cent.

Air pollution causes premature death of the urban poor. According to a recent report released by the University of Birmingham, more than 46,000 poor people in Delhi often sleep on the sidewalks after the day's work due to the lack of public accommodation and inflation of rent. Many also work in the most polluted places like industries, thermal plants, construction sites due to which they die prematurely because of exposure to toxic air.

Despite so many deaths, curtailed or unhealthy lives spent in suffering, our Union Environment Minister Prakash Javadekar had made a statement in 2019 that no research shows that Indians die from air pollution. Maria Neira,



director of the World Health Organization, responded to Javadekar's statement at a meeting in Madrid, quoting it satirically at the 25th COP conference, saying how good it would be if Indians were not affected by air pollution, but alas! this is not the truth.

Air pollution also affects the economy of each country. The Greenpeace Southeast Asia analysis found that of 28 cities around the world Delhi suffered the most economic losses from air pollution at Rs.58,895 crore in 2020, Mumbai has lost about 26,000 crore, Bangalore 12,000 crore, Hyderabad 11,000 crore and Chennai Rs.10,000 crore.

Air pollution also comes at a heavy cost to society. People are forced to spend millions of rupees treating lung and respiratory diseases as well as heart and skin diseases. Many people lose their relatives and friends to them, which is a never ending social loss.

The main causes of air pollution in Delhi are the increasing number of vehicles and industries, construction work, burning garbage dumps, thermal plants, dust on the roads, burning of crop residues in the northern states, the annual winter fires and fumes, and firecrackers during Diwali.

Our governments need to take four measures to reduce air pollution here. First they should enforce a ban on the use of firecrackers on religious occasions or weddings and take legal action against violators.

Second, the Union government should provide machinery to farmers at affordable rates to protect Delhi from crop residue smoke pollution, and help Punjab, Haryana and other states to adopt a cropping pattern suitable to their agro-climatic conditions.

Third, it should enact serious and strict enforcement of environmental laws to reduce pollution from sources such as industries, power plants, construction sites, garbage dumps, brick kilns, etc. located in Delhi.

At the time of first lockdown Covid-19 the government was forced to shut down industries and private vehicles, leaving the skies clear. While farmers in Punjab and Haryana were still harvesting their crops and burning crop residues, this didn't increase air pollution levels at the time.

Therefore, the state and union governments should take legal action against industries that do not comply with environmental regulations. The rules set by the Union Ministry of Environment, Forest and Climate Change in 2015 should be strictly enforced on coal-fired thermal plants that emit large amounts of

sulphur dioxide, nitrogen oxides and PM10 and PM2.5 particles into the atmosphere on a daily basis.

Owners of these thermal plants made a writ petition to the Supreme Court to relax these environmental regulations in 2015 and they were granted relief till 2022. According to a report by the Center for Science and Environment, currently only 2 out of 12 thermal plants meet environmental regulations. Such laxity on the part of the government is responsible for the rapid pollution of Delhi's environment, and the deaths and sickness of large numbers of people. Governments and businesses should also use modern technology to deal with the piles of garbage. Strict adherence to environment friendly rules should also be enforced on construction sites. Our governments also have a large role to play in making public transport more efficient, which will reduce the number of private vehicles on the roads.

In the medium term, the use of coal and other fossil fuels for power generation should be stopped completely so that Delhi and other cities in India can be free from air pollution, an invisible poison that is devouring thousands of lives every day.

### **Hyderabad: Continuous downpour improves air quality index**

*Date:-6-May-2021, Source: siasat.com*



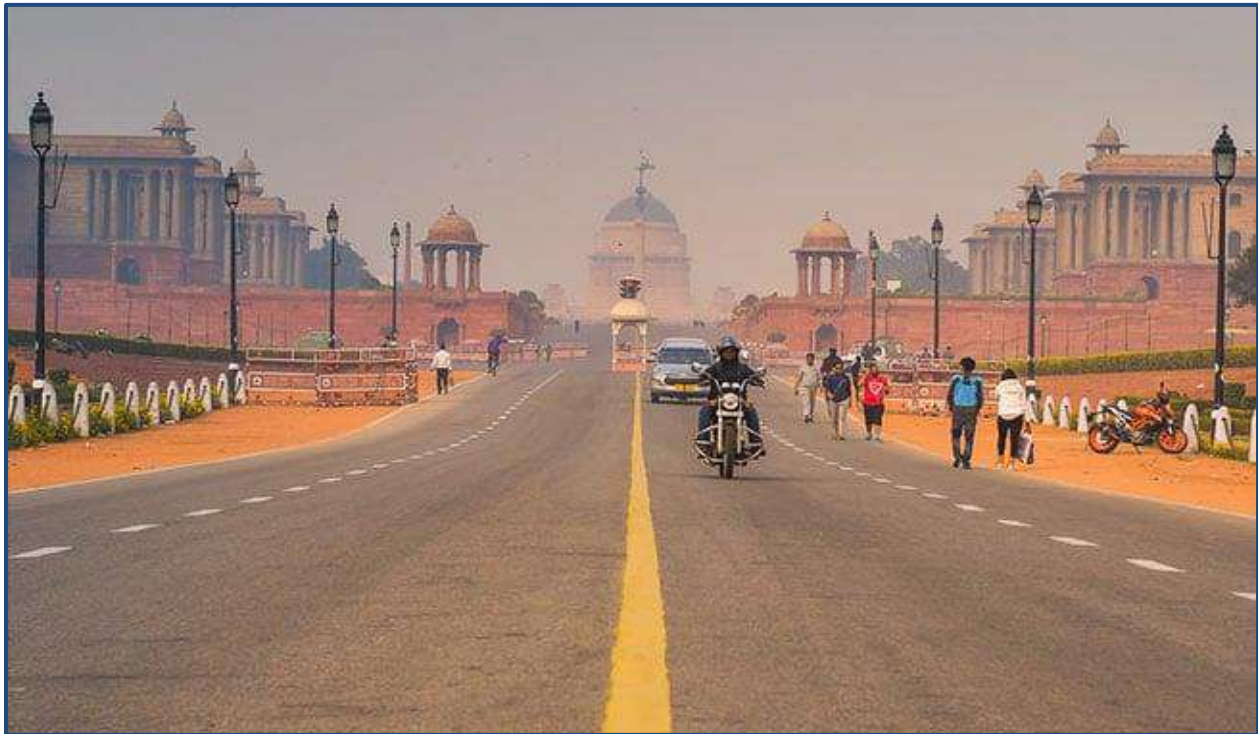
Hyderabad: The back-to-back rains lashed in Hyderabad from the last few days not only offered some relief from scorching temperatures, but it has also brought down air pollution in the city, state pollution board figures showed.

The Air Quality Index (AQI) values in the city dipped to settle in the 'satisfactory' category. According to the Telangana State Pollution Control Board (TSPCB) figures of the last few days, the AQI in most parts was in the 'satisfactory' category. Hyderabad, on Thursday, recorded AQI at 62, which falls under the 'satisfactory category'.

According to TSPCB, AQI levels (0-50) were indexed under 'Good' category, (51-100) under 'Satisfactory', (101-200) under 'Moderate', (201-300) under 'Poor', (301-400) under 'Very poor', and (Above 400) under 'Severe' category. According to PCB scientists, pollutant particles in the air got washed away due to the rainfall, resulting in improved air quality. According to the India Meteorological Department (IMD) forecast that thunderstorms and rain are likely to occur at isolated places across the State in the coming four days.

### **Delhi Records Maximum Temperature Of 36.7 Degrees Celsius**

*Date:-7-May-2021, Source: ndtv.com*



**The air quality was recorded in the "moderate" category**

New Delhi: Delhi recorded a maximum temperature of 36.7 degrees Celsius on Friday, two notches below the normal, the India Meteorological Department said.

The Safdarjung Observatory, which provides representative figures for the city, recorded a minimum temperature at 21.7 degrees Celsius.

The IMD predicted mainly clear sky on Saturday, with the minimum and maximum temperature expected to settle around 23 and 39 degrees Celsius, respectively.

The relative humidity recorded at 5.30 pm was 36 per cent. The air quality was recorded in the "moderate" category.

The air quality index (AQI) was 138 at 8.05 pm, real-time data of the Central Pollution Control Board showed.

An AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

### **Kolkata air quality improves with the dip in number of vehicles**

*Date:-8-May-2021, Source: millenniumpost.in*



Kolkata: Kolkata's air quality has significantly improved with the dip in the number of vehicles plying on the roads due to restrictions imposed two days



ago to check the spread of coronavirus, an official of West Bengal Pollution Control Board said on Friday. There is far lesser emission of sulphur, nitrogen, carbon particulates in the air as number of vehicles have dwindled while commercial activities have come down significantly resulting in less air pollution, he said.

Environmentalist S M Ghosh said this is good for both Covid-19 patients and others having respiratory problem.

The air quality index (AQI) in the city was between 39 to 63 pm 2.5 in all but one air station in the city at 6 pm, the official said.

Only in Rabindra Bharati University air monitoring station next to arterial B T Road the air quality index was 95, that too within 100 mark or satisfactory level (51 to 100 AQI), he said. At Ballygunje AQI level was 63, at Bidhannagar 51, at Fort William 60 and at Rabindra Sarobar 56.

At Jadavpur it was 39, marked as good. The AQI hovered between 201 to 250 AQI in February- March (classified as poor ) in several air monitoring stations during early evening hours in February and got down to 101-200 (moderate level) since April gradually coming to the satisfactory level in end April, he said.

Satisfactory AQI in environment parlance means minor breathing problem to sensitive people, moderate labeling means breathing problem to people with respiratory problem and heart diseases and poor tag means breathing problem to most on prolonged exposure, he added.

Ghosh said in the past two days only 30 micrograms per cubic meter was recorded (pm 2.5 or 2,5 micron size) in the open, while the level of respirable particulate matter in a room on the side of a main road is only 8 mg/cubic meter.

## **Ennore power plants violate emission norms, pose serious health risks: Study**

*Date:-11-May-2021, Source: [chennai.citizenmatters.in](http://chennai.citizenmatters.in)*

A report by Healthy Energy Initiative — India (an initiative that works in healthcare and climate change spaces) reveals that two Thermal Power Plants (TPPs) in the Ennore thermal cluster in Tamil Nadu were found violating the Ministry of Environment, Forest and Climate Change (MOEFCC) prescribed norms up to 53% of the total operational time in two years, between 2019-2020.



**The dual onslaught of unplanned industrialisation and deforestation has damaged the ecology at Ennore**



**With Ennore power plant in the backdrop, the fishermen in the area are struggling to make a living as pollution drastically affects the catch of fish and other aquatic organisms**

In March 2021, just as the second wave of the COVID-19 Pandemic was surging in India, the MOEFCC issued a notification extending the deadline to meet the 2015 emission norms for thermal power plants until 2024.

Zero action to meet the new norms has led to industries violating with impunity over the last six years — affecting the

environment and the health of the people around the power plants, reveals the new report.

### **Emissions go unchecked**

Fossil fuel-related emissions are said to have contributed upto 22% of COVID-19 mortality in South Asia. Several other studies have concluded that air

pollution is an important cofactor increasing the risk of mortality from COVID-19. Chennai is one of the COVID-19 hotspots in south India, with more than 3,00,000 COVID cases recorded till May 2021.

Ennore thermal cluster has thermal power plants with a total installed capacity of 3,300 MW, fly ash ponds and coal handling yards and two coal handling ports located in the vicinity of Chennai and they contribute significantly to the poor air quality in the region. In addition to the existing TPPs, new units adding an additional 2,780 MW are under various stages of construction.

### **Non-availability of data**

Perusal of data recorded by the Tamil Nadu Pollution Control Board reveals that despite the technology in place, the instances of “no data availability” indicated a laid back approach in discharging duty and a lack of political will to monitor, contrary to the spirit of the law.

“Non-availability of data is not only a statutory violation, it is also a regulatory roadblock in holding polluting industries accountable. Gross number of violations in the periods that had records for stack emissions show that the TPPs were offenders who repeatedly violated prescribed norms, with no consequence from regulatory authority. This violates the spirit of the law and results in unchecked air pollution from fossil fuel emissions that greatly impacts the environment, has big climate consequences and degrades public health,” said Pooja Kumar, Researcher with Healthy Energy Initiative – India.

### **Impact on health**

Prolonged exposure to fossil fuel emissions and particulate matter is known to cause cardiovascular diseases, cardiac arrest, lung cancer, premature death in people with heart or lung disease, decreases lung function and increases respiratory symptoms among people.

“TPPs are a major contributor to air pollution and thereby accelerate climate change. The outbreak of COVID is just the tip of an iceberg. If we fail to address the underlying issues of air pollution and climate change, we will be slammed with many such infectious disease outbreaks in the future. Regulatory authorities should immediately implement stringent norms to control the pollution from TPPs,” said Dr Vishvaja Sambath, author of the report.



## **Air pollution from crematorium irks residents of Gnanapuram**

*Date:-12-May-2021, Source: thehindu.com*



### **Smoke coming out of the chimney of the electric crematorium at Chavulamadam in Visakhapatnam**

Residents of Gnanapuram in Visakhapatnam have been complaining about pollution problems due to the burning of a large number of bodies at the Chavulamadam crematorium. They say that daily about 60 to 70 bodies are being cremated, of which 10 to 11 are being cremated in the electric crematorium.

Corporator of ward 41, Kodigudla Purnima, said the capacity of the crematorium was around 15 to 17 bodies a day. “And when we talk of capacity, they include space, infrastructure and manpower. But at present about 60 bodies are being lit in the traditional form with firewood and around 10 are being sent to the electric crematorium and this has been the scenario at least for the past 15 days,” she said.

Smoke and fine ash from the funeral pyres were engulfing the area and there was also emission of thick black smoke from the electric crematorium. It appeared that the scrubbers were not functioning in the electric one, she added.

With the residents claiming that they are witness to at least 50 to 60 bodies wrapped in plastic body bags, according to the COVID-19 protocol, being brought to the crematorium on a daily basis, a question arises from where they are coming.

The district is reporting only 8 to 12 COVID-19 deaths, while the body count at the crematorium is at least five to six times higher. Whether the death count due to the COVID-19 is being underplayed, asks the corporator.

A senior engineer from the GVMC confirmed that the crematorium has been receiving a huge number of bodies, which is much more than its capacity.

When contacted, Health Department officials said the body count at the crematorium included those who had died of natural causes, accidents etc.

But even then the count looks abnormal, said Joseph Betha, a senior advocate and resident of Gnanapuram.

The residents who gathered at a community hall recently demanded that the bodies be distributed to other crematoriums in the city. “In total, there are 143 crematoriums in the city spread across 72 wards and we demand that the bodies be distributed across a few more crematoriums to reduce the load at Chavulamadam so that people can breathe easy,” said Ms. Purnima.

According to a GVMC official, as per the direction of the government, all COVID-related bodies are to be brought to one crematorium and Chavulamadam has been identified as the one.

## **Coronavirus Lockdown in India Results in Reduction of Air Pollutants**

*Date:-13-May-2021, Source: news.fullerton.edu*

The COVID-19 pandemic lockdown in India has resulted in environmental benefits, including a significant reduction of air pollutants such as black carbon aerosols, which can pose an adverse risk to human health, according to a new Cal State Fullerton study.

Environmental engineer Sudarshan Kurwadkar is a co-author of the research, published May 10 in the journal Air Quality, Atmosphere, and Health. The study documents how the strict coronavirus pandemic lockdown resulted in a significant reduction of atmospheric concentrations of black carbon and other air pollutants in India’s major urban cities.



This paper reported the overall decrease in black carbon and polycyclic aromatic hydrocarbons before and after the lockdown.

These findings are critical to driving home the message that even short-term interventions can dramatically impact the environment and reduce inhalation of air pollutants, said Kurwadkar, professor of civil and environmental engineering.

“A brief lockdown allowed Mother Nature to breathe a sigh of relief. Not surprisingly, many urban areas worldwide reported a dramatic reduction in air pollutants and overall improvement in visibility and air quality index.

“The study demonstrated that every small change in our lifestyle affects the environment significantly.

It is up to us to act together to preserve and protect our planet by being proactive and making changes to sustain and promote a healthy environment.”

## **City Risk Analysis Shows 43 of World's 100 Most Environmentally Vulnerable Cities Are in India**

*Date:-16-May-2021, Source: weather.com*

Some 1.5 billion people live in cities facing the biggest environmental challenges, including threats from climate change and pollution, according to a new report.

The 37-page analysis, released Wednesday by corporate risk management firm Verisk Maplecroft, ranked the world's 576 largest cities on a number of factors, ranging from environmental risks to natural hazards to heatwaves.

As per the analysis, India is the most at-risk country, with 43 of the top 100 cities on the list. China had 37.

Delhi has been ranked the second-highest risk city in the world, followed by other Indian cities like Chennai (3rd), Agra (6th) and Kanpur (10th). Close behind are Jaipur (22nd), Lucknow (24th), Bengaluru (25th) and Mumbai (27th). Pollution has been identified as the main threat to the urban population of India as foul air was attributed to nearly 20% of deaths in the country in 2019, says the report.

"A significant danger for many cities is how climate change will multiply weather-related risks," Will Nichols, the firm's head of environment and climate change research, said in the report. "Higher temperatures and the increasing severity and frequency of extreme events such as storms, droughts and flooding will probably change the quality of living and economic growth prospects of a large number of locations."

Jakarta, singled out for a triple whammy of flooding, air pollution and earthquakes, ranked No. 1 overall. The Indonesian capital has plenty of company from its neighbours – 99 of the 100 most at-risk cities are in Asia, which has some of the highest density populations in the world.

Los Angeles was the highest-ranking U.S. city on the list at 257th for overall environmental risk. Glasgow, Scotland, was ranked least vulnerable to climate change. The report refers heavily to the impacts of rising temperatures driven by greenhouse gas emissions.

"Failing to adapt to heat stress will not only be deadly but also devastating – it will scorch economies, inflate inequalities, drive migration and amplify natural hazard risks already damaging key urban economies," Liz Hypes, senior

environment and climate change analyst for Verisk Maplecroft, said in the report.

Last year was one of the two hottest ever recorded on Earth. Global temperatures have risen by about 2 degrees Fahrenheit since 1880, according to NASA's Goddard Institute for Space Studies. Most of that warming has come since 1975, and the National Oceanic and Atmospheric Administration says several additional degrees of warming is possible by the end of the century if greenhouse gas emissions continue unchecked.

The risk analysis report is intended to help guide corporate decisions but also provides insight for governments and communities. "The key word for cities, asset owners and corporates alike is resilience," Hypes said.

### **Light rains bring down mercury in Delhi; Squalls likely in NCR region on Wednesday**

*Date:-18-May-2021, Source: indiatvnews.com*

Light rains pulled down the mercury in the national capital with the maximum temperature settling at 30.8 degrees Celsius, nine notches below the season's average, while the weather department has warned of squalls in the NCR region on Wednesday.

As Cyclone Tauktae weakens further, its remnants will bring moderate rains to several parts of north India including the Delhi-NCR region, the Indian Meteorological Department (IMD) said on Tuesday.

"Tomorrow, it will stretch from Rajasthan to Haryana. Due to this, east and west Uttar Pradesh, east Rajasthan, the Delhi-NCR region will witness moderate rain.

There is a possibility of heavy rains in some parts of Delhi," said Kuldeep Srivastava, Head of the Regional Meteorological Centre of the IMD.

The IMD has issued an orange colour-coded warning for Wednesday for the NCR region with a forecast of rains and squally winds of 50-60 km per hour. It has predicted thunderstorms with rain for Thursday.

The Met office issues colour-coded warnings to alert people ahead of severe or hazardous weather that has the potential to cause damage, widespread disruption or danger to life.





### **Light rains bring down mercury in Delhi; Squalls likely in NCR region on Wednesday**

Orange is for weather conditions that can impact significantly, while yellow, the least dangerous of all the weather warnings, indicates the possibility of severe weather.

The relative humidity recorded at 5.30 PM was 70 percent.

Delhi's air quality was in the 'satisfactory' category on Tuesday. Data from Central Pollution Control Board showed that the hourly air quality index (AQI) at 7.05 pm stood at 84.

An AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

### **Thursday likely to be cloudy, rainy in Noida**

*Date:-19-May-2021, Source: [timesofindia.indiatimes.com](https://timesofindia.indiatimes.com)*

NOIDA: Noida, Greater Noida and neighbouring Ghaziabad experienced a pleasant rainy spell all through Wednesday. The mercury plummeted to around 20 degrees by evening.



The maximum temperature recorded for the day in these areas was around 21 degrees. The rainfall in the three cities ranged between 25mm-50mm. The humidity reported was around 88%. The sky is likely to remain overcast on Thursday and the rainy spell is likely to linger for the

next 24 hours, with the sky turning sunny only on Friday. The day temperature on Thursday is likely to rise to around 30 degrees.

For those who ventured out, the rainfall came as a relief – though it had little impact on transport and traffic because of the prevailing lockdown.

The weather condition, mostly induced by inflowing North-easterly winds has made an impact on the local air quality. Noida, Greater Noida and Ghaziabad have all reported an AQI in the range of 70s on Wednesday.

The mid-May weather is a sharp contrast to the weather in May last year when poor to very poor air quality prevailed in the region.

On the same day in May last year, Ghaziabad had poor AQI in the orange band of an average 250 while Noida was in the very poor range of 300-399. “The meteorological condition has made an impact on the air quality and is likely to settle the suspended pollutants for now,” pollution department officials said.

## **Delhi air quality ‘good’ for first time in 2021: Factors behind the improvement**

*Date:-20-May-2021, Source: indiatoday.in*

The heavy rainfall on Wednesday combined with the consecutive lockdowns has significantly brought down the pollution level in Delhi. Delhi received record amounts of rainfall on Wednesday in the impact of Cyclone Tauktae.





### **Delhi received record rainfall on Wednesday due to the impact of Cyclone Tauktae**

On Thursday, the air quality index (AQI) in parts of East Delhi hovered below the 100-mark that falls in 'moderate' category while parts of North, South and West Delhi recorded AQI reading below 100.

In the neighbouring Ghaziabad, which was on top of the list of bad air quality last year, the AQI was recorded at 38, which falls in the 'good' category. In Gurugram, the air quality hovered between 5-29 in several parts, which is also in the 'good' category.

"The consecutive lockdowns, followed by a spell of rain has brought down the pollutants in the air. The present situation is likely to continue for a couple of days. After that, the pollution level will rise but due to no civil construction activities and smoke producing chimneys of industries are also shut due to the lockdown, air quality will not degrade to hazardous levels," said a weather department official.

During the lockdown last year, the air quality had improved to the 'good' category across the national capital region. With minimal vehicular movement on the roads and the industries and construction work shut, Delhi residents could breathe fresh air after a long time.

"Pollution always gets down during the rainy season. Monsoon is likely to hit Delhi by June-end, after which the AQI levels will stay in moderate categories," the weatherman added.

In 24 hours till 5.30 am, Delhi received 119.3 mm rainfall, which is a record single-day rainfall for the city since 1951. The heavy rain caused by the impact of Cyclone Tauktae left several parts of the city waterlogged, but has improved the air quality.

### **Himalayas visible from UP's Saharanpur as pollution levels dip, see amazing pics**

*Date:-21-May-2021, Source: zeenews.india.com*



COVID-19 induced lockdown has shown a positive outcome in Saharanpur as it made the snow-covered Himalayan mountain range visible in Uttar Pradesh.

Previously the mountain range had remained hidden for decades due to pollution, but as the air pollution reduced following restricted activity because of COVID-19 guidelines, the beautiful scene has once again emerged for the residents to cherish.



Many people including Dushyant Kumar, a government employee and an amateur photographer, captured the magnificent sight and shared images on social media. Indian Forest Services officer Ramesh Pandey also took to Twitter to share some mesmerising pictures from Saharanpur.

Last year, in 2020 as well, the snow-capped peaks of the Himalayas had emerged to sight after the lockdown. The rainy weather and a clear sky made the scenery even more strikingly pleasing with improved air quality.

### **In Pune, increase of 70% in PM2.5, 61% in PM10 in seven years: Report**

*Date:-22-May-2021, Source: indianexpress.com*

A comparison of an emission inventory of 2012-2013 with the current year's (2019-20) inventory in Pune Metropolitan Region (PMR) suggests a significant increase in Pune's overall emission load over the years.

The Pune emission inventory report, meant to understand the contribution of various sources of emissions in Pune air quality, has been released by Prof. Nitin Kalmalkar, Vice-Chancellor of SPPU. The report maps pollution sources in each 400m x 400m grid of Pune Metropolitan Region for major pollutants, namely PM2.5, PM10, NO<sub>x</sub>, CO, SO<sub>2</sub>, BC, HC.





**The air quality of Pune is mainly regulated by particulate pollutants (PM2.5 and PM10)**

The report has been released in presence of Director, IITM, Prof. Ravi Nanjundiah, lead author Prof. Gufran Beig, Founder Project Director, SAFAR, and Dr. B.S. Murthy of IITM and Prof. Gosavi, Head, Environment Science Department, SPPU. The air quality of Pune is mainly regulated by particulate pollutants (PM2.5 and PM10). A significant growth in the emissions of particulate pollutants has been observed during the past seven years, the report has said.

Dr Gufran Beig, lead author of the report, told The Indian Express that an increase of 70% and 61% is found in PM2.5 and PM10, respectively, from 2012-13 to 2019-20. There has been an enormous growth in the number of vehicles in PMR during the past decade. The transportation sector is found to be the major contributor in PM2.5 emissions as compared to the rest of the sources.

Though industrial production has increased over the years, emissions show a minimal rise as compared to other sectors. This might be due to the improved fuel quality used in units, efficient technological innovations and stringent enforcement of standards, according to the report. Similarly, a significant increase is observed in the emissions of Organic Carbon (81.3%), NO<sub>x</sub> (72.8%), and VOCs (69.8%). Sulfur dioxide emissions show a 30.2% increase, lowest

amongst the eight pollutants considered in this work.

The emission estimates in such high resolution by SAFAR are likely to serve as an essential information base for scientists, policymakers and the NCAP programme of CPCB. This report also provides the rate of change in anthropogenic emissions of atmospheric constituents during the past seven years.

However, regarding the concentration of pollution in some areas, for instance, there has been no increasing or decreasing trend, says the report. For instance, at the university circle, although the number of vehicles has doubled but surprisingly the level of pollution has not shown any increasing or decreasing trend in the last seven years as compared to 2012-13. This is because during the intervening years there has been a growth of bridges and flow of vehicles has been regularised, Dr Beig said.

The emission inventory campaign has been led by Indian Institute of Tropical Meteorology (IITM), Pune, under the Ministry of Earth Sciences along with SPPU, Pune and under expert Advice of Prof. Saroj Kumar Sahu of Utkal University. Geographical Information System (GIS)- based statistical emission model developed by scientists of IITM is used to develop fine resolution of 400m gridded products.

A six-month long emission inventory campaign involving more than 200 students from IITM, SPPU and Utkal University was carried out during 2019-20 in Pune Metropolitan region, including Pune, Pimpri and Chinchwad regions, with around 2,50,000 hours of work. This exercise was to collect real time primary activity data of 26 different local sources of air pollution.

The click counters, low volume samplers and various survey forms were used to get activity accounting. This exercise was earlier done in 2012-13 at the advent of the SAFAR system with a resolution of 1km. Since then, significant changes have occurred in land use and demography and many new sources, which were earlier ignored, have now been quantified. Emission inventory is a scientific way to identify aggregated local source contributions and their region specific spatial distribution within a confined boundary like PMR.

The focus of the present campaign was more towards various small sectors/factors like condition of road, pattern of transport flow from surrounding regions, fast moving-slow moving-stagnant traffic scenario, uninformed sector, construction activity, aviation, practices by immigrant works, hospital rush and vehicles from outside state, changing lifestyles/cooking habits.

## **Fresh Air And Clear Sky After Heavy Rain During Lockdown Made Delhi Look Like A Hill Station**

*Date:-23-May-2021, Source: indiatimes.com*



Most people might not remember the last time they saw such a clear blue spring sky in Delhi. Usually teeming with smog, smoke, aerosols and other pollutants, the city does not have much in the way of a skyline or an appealing view for its inhabitants.

But, thanks to the heavy showers and statewide lockdown, tables have turned, for the better. Lo and behold! The sky is clear and clean, so much so, it hoodwinked many into thinking that it might be a hill station. Take a look at the pictures:

Delhiites witness a clear blue sky on Saturday as air pollution level drops due to the last few days of rain and pandemic induced lockdown.

### **Hyderabad residents breathe easy as air quality improves post COVID lockdown**

*Date:-24-May-2021, Source: timesnownews.com*



Hyderabad: In a bid to stem the COVID-19 surge, the state government has announced the night curfew on April 20. Hyderabad's air quality improved over the last one month as the Air Quality Index (AQI) level of the city has dropped from moderate level to 'satisfactory' category.



As per the report, lockdown measures to curb coronavirus has also helped in slowing down of air pollution levels.

National Air Quality Monitoring Programme (NAMP) stations across the city have reported that on the first day of the lockdown, air quality was significantly bad which is now recorded a 'Good' AQI of 43 on May 19 at Uppal.

The report further suggests that Balanagar, Jeedimetla, Jubilee Hills, and Charminar recorded AQI values of 73, 60, 58, and 54 respectively which has significantly dropped since the imposition of lockdown.

According to the Telangana Today report, prior to the lockdown in Balanagar AQI stands 166, which is now 93 as of May 19. Uppal's air quality level has dropped 128 to 85 during the lockdown period. The air quality index recorded at Jeedimetla is 60 which was 121 before the lockdown measures.

The Air Quality Index makes measuring air quality by placing it on a scale of 0 to 500, an air quality between 201 and 300 is considered poor, 301-400 very poor, and 401-500 severe, while an AQI above 500 falls in the severe plus category.

### **Power Ministry decides to set up National Mission on use of biomass in coal based thermal power plants**

*Date:-25-May-2021, Source: newindianexpress.com*

NEW DELHI: In order to address the issue of air pollution due to farm stubble burning and to reduce carbon footprints of thermal power generation, the Ministry of Power on Tuesday decided to set up a National Mission on use of biomass in coal-based thermal power plants.

The ministry said this would further support the energy transition in the country and our targets to move towards cleaner energy sources.

According to the Ministry of Power, the objective of the "National Mission on use of biomass in thermal power plants" will be to increase the level of co-firing from the present 5 per cent to higher levels to have a larger share of carbon-neutral power generation from the thermal power plants, to take up R&D activity in boiler design to handle the higher amount of silica, alkalis in the biomass pellets, to facilitate overcoming the constraints in the supply chain of biomass pellets and agro-residue and its transport upto to the power plants and to consider regulatory issues in biomass co-firing.



"The modalities of operation and structure of the Nation Mission are under finalization. It is being envisaged that the Mission would have a Steering Committee headed by Secretary (Power) comprising of all stakeholders including representatives from Ministry of Petroleum & Natural Gas (MoPNG), Ministry of New & Renewable Energy (MNRE), etc.," it said.

It further said the Executive Committee would be headed by Member (Thermal), CEA. NTPC will play a larger role in providing logistic and infrastructure support in the proposed National Mission.

"The Mission would have full-time officers from CEA, NTPC, DVC and NLC or other participating organizations. The duration of the proposed National Mission would be a minimum of 5 years," it added.

The ministry has also formed five Sub-Groups under the Mission.

Sub-Group 1 will be responsible to carry out research on properties/ characteristics of biomass, Sub-Group 2 will carry out technical specification and safety aspects including research in boiler design, etc. to handle the pilot project for the higher amount of co-firing of biomass with coal in pulverized coal (PC) fired boilers.

Furthermore, Sub-Group 3 is for resolving the issues of the supply chain during the mission period and sensitization programme, Sub-Group 4 to select designated labs and certification bodies for the testing of agro-based biomass pellets and Municipal Solid Waste (MSW) pellets and Sub-Group 5 will be

formed on regulatory framework and economics of biomass co-firing in coal-based thermal power plants.

The proposed National Mission on biomass will also contribute in the National Clean Air Programme.

### **Delhi experienced highest spike in PM2.5 on Diwali, reveals CPCB report**

*Date:-26-May-2021, Source: timesnownews.com*



**The highest spike in PM10 pollutants on Diwali was recorded in Lucknow, with the number mounting to 114 per cent**

New Delhi: A recent report released by the Central Pollution Control Board (CPCB) has revealed that Delhi recorded its highest PM2.5 pollutant spike on Diwali.

The report, which is based on 'ambient air quality during Deepawali festival 2020'. As per the report, Delhi saw a spike of 82.9 per cent in PM2.5 pollutants on Diwali last year.

The report stated that the national capital recorded the third highest rise in PM10 pollutants on Diwali, followed by Lucknow and Bhopal.

### **Data of 8 cities monitored by pollution watchdog**

Meanwhile, the annual concentration limit of pollutants was surpassed on Diwali in Delhi, Agra, Kolkata, Bhopal and Lucknow.

To prepare the report, the CPCB monitored the data of eight cities - Delhi, Agra, Bhopal, Kolkata, Bengaluru, Lucknow, Shillong and Vadodara, The Times of India reported.

The data was monitored pre-Diwali - November 7 to November 14, on Diwali and post-Diwali - from November 15 to 21. In Bhopal, a spike of 81.3 per cent was recorded while in Lucknow, the number fell down to 67.6 per cent.

Kolkata recorded a rise of 53.6 per cent, followed by 30.5 per cent Shillong and 26 per cent in Vadodara.

### **Lucknow recorded highest spike of PM10 pollutants**

The highest spike in PM10 pollutants on Diwali was recorded in Lucknow, with the number mounting to 114 per cent. Bhopal and Delhi trailed the capital of Uttar Pradesh with a spike of 86.2 per cent and 67.1 per cent, respectively.

The report added, "During the entire Diwali monitoring period, 24 hourly averages of both PM10 and PM2.5 were found above the National Ambient Air Quality Standard. "

### **Delhi records maximum temperature of 41.2 degrees Celsius**

*Date:-27-May-2021, Source: indiavnews.com*

Delhi recorded a maximum temperature of 41.2 degrees Celsius on Thursday, a notch above the season's normal, the meteorological department said.

The minimum temperature settled at 22.2 degrees Celsius, five notches below the season's average, while the humidity at 5:30 pm was 22 per cent, it said.

The India Meteorological Department (IMD) had predicted mainly clear sky on Friday with the minimum and maximum temperatures hovering around 24 degrees Celsius and 40 degrees Celsius, respectively.





### **Delhi records maximum temperature of 41.2 degrees Celsius**

Delhi's air quality was in the 'moderate' category on Thursday. Data from the Central Pollution Control Board showed that the hourly air quality index (AQI) at 7:05 pm stood at 144.

An AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

### **Telangana: Air Pollution falls drastically in Hyderabad amid lockdown**

*Date:-28-May-2021, Source: thehansindia.com*

Lockdown has resulted in a lot of good results for the environment. Air quality in particular zones has improved significantly. People in cities and towns are breathing fresh air. Environmentalists say clean air is good for those who are suffering from respiratory problems. Pollution has been significantly reduced due to the ongoing lockdown in Telangana. Many cities have come into the green zone. Even though the pollution levels increased after last year's lockdown, now people are able to breathe fresh air as pollution with the second phase of lockdown. Pollution levels decreased by another 20 percent in the second week compared to the first week of May. PCB officials said that the air

pollution intensity in the city had been significantly fallen down with the tight enforcement of lockdown.



**Air Pollution falls drastically in Hyderabad amid lockdown**

Pollution intensity has also been significantly reduced in industrial areas like never before. Pollution levels in Pasamailaram and Bollaram areas are also below normal. However, due to the

constant vehicular traffic in the

metropolis, noise pollution is also high along with air pollution. As the air quality improves with the lockdown, those with respiratory problems are able to breathe comfortably. Experts say that this lockdown has not only controlled Covid-19 but also reduced air pollution.

### **Corona curfew curbs, rain help improve air quality of UP cities**

*Date:-30-May-2021, Source: hindustantimes.com*

Lucknow: The cyclone –induced rain and the curbs during the period of corona curfew in Uttar Pradesh helped better the Air Quality Index (AQI) of many cities in May as per data of the Central Pollution Control Board (CPCB). The average AQI of Uttar Pradesh in May was recorded below 150 , similar to that recorded last year and one of the lowest since 2000.

The average AQI recorded in Lucknow between May 1 to May 30 this year, was around 150. In 2020, when country-wide lockdown was imposed to curb the spread of Covid-19, the city had recorded a similar AQI. However, in 2019 the average AQI in Lucknow was recorded at around 300 in the month of May.

According to CPCB classification, AQI between 101 to 200 is categorised as moderate with very little impact on human health and AQI between 201 and 300 as poor. AQI between 301 and 400 is categorised as very poor and that above 400 as severe.

According to experts, beside corona curfew curbs, the above average rainfall across the state also led to improvement of air quality. The state recorded more than 60 mm of rainfall in May, almost double than the normal rainfall “The state recorded around 12 days of rainfall caused by western disturbances or conditions caused first by Tauktae and Yaas cyclones. There were rain, thunderstorms and strong winds in most parts of the state,” said state MeT department director JP Gupta.

These weather conditions helped AQI of major UP cities to improve considerably. Cities like Lucknow, Agra, Noida, Moradabad, Kanpur and Baghpat which record the worst AQI in the country showed considerable improvement in their AQI this month.

Meanwhile, experts warn that the improvement is temporary which will subside as the curbs are relaxed in the state. “The improvement in AQI of UP cities in May is a positive sign but these changes are temporary that will subside quickly with relaxation of corona curfew norms. The citizens and decision-makers must try to make arrangements so that we can have cleaner air all around the year,” said senior environmentalist Devesh Kumar.

### **World No-Tobacco Day: How Breathing in Indian Cities is Equivalent to Smoking Packs of Cigarettes in One Day**

*Date:-31-May-2021, Source: weather.com*

Did you know that breathing Delhi’s air in November is equivalent to smoking 10 to 15 cigarettes every single day? The fact that smoking is injurious to health has been ingrained in our minds thanks to decades of extensive campaigning against this addictive, cancer-causing product. Explaining the health impacts of air pollution, on the other hand, has been much more difficult given the complex nature of pollutants.

World No-Tobacco Day is celebrated every year on May 31 since 1988 to reiterate the dangers of using all forms of tobacco use, including cigarettes, chewing, hookahs and pipes. The theme for 2021 is "Commit to quit" and it urges smokers to quit this habit that cut shorts millions of lives every year. But, when one realises that our city's air is affecting our health as severely as direct smoking, can it lead to a better commitment towards ending our polluting practices?

Physicist Richard Muller and his daughter Elizabeth Muller introduced this innovative approach of linking air pollution to cigarette smoking in 2015. Their



method compares the health impacts of ambient air pollution with that of cigarettes. Through extensive research, these scientists from Berkeley Earth arrived at a rough value conversion of the primary pollutant fine particulate matter (PM2.5) to cigarettes equivalent.

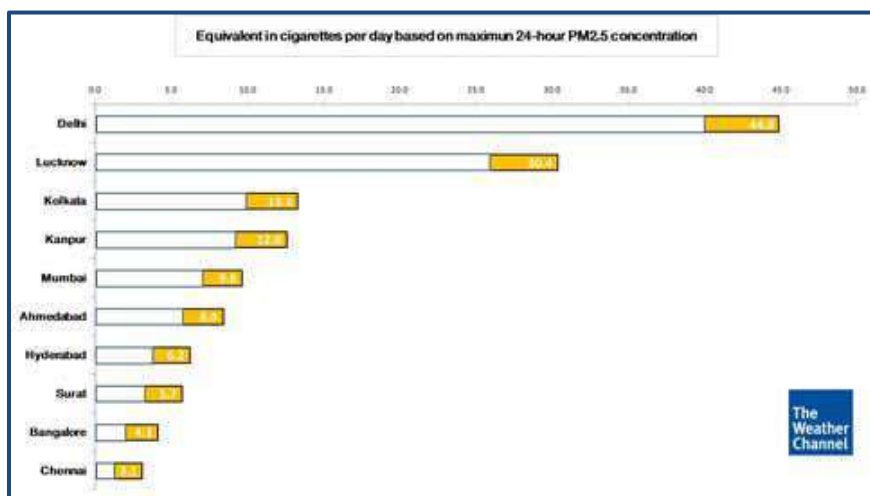
Their estimates show that the health impacts of a day's exposure to 22 parts per million (ppm) of PM2.5 are equivalent to that from smoking one cigarette.

### **The 'cigarette equivalent' of pollution in Indian cities**

Air pollution results in 12.4 lakh premature deaths in India in one year. Tobacco, on the other hand, kills more than 10 lakh people every year. Together, they are responsible for more than 20% of all the deaths in the country and therefore, comparing the health impacts has attracted significant attention in India over the past few years.

Using the conversion method proposed by the Berkeley Earth and air pollution data from the Central Pollution Control Board (CPCB) for the year 2018, The Weather Channel India analysed the equivalent number of cigarettes per day based on maximum 24-hour PM2.5 concentration and annual average PM2.5 for ten megacities in India (excluding Pune and Jaipur due to lack of data) last year. Here is a quick walk through of our analysis:

Cigarette equivalent in terms of annual average means the residents of these cities are facing the health impact similar to smoking as many numbers of cigarettes every single day of the year. Cigarette equivalent based on maximum 24-hour concentration refers to the health impact equivalent of the number of cigarettes on the city's most polluted day of the year.

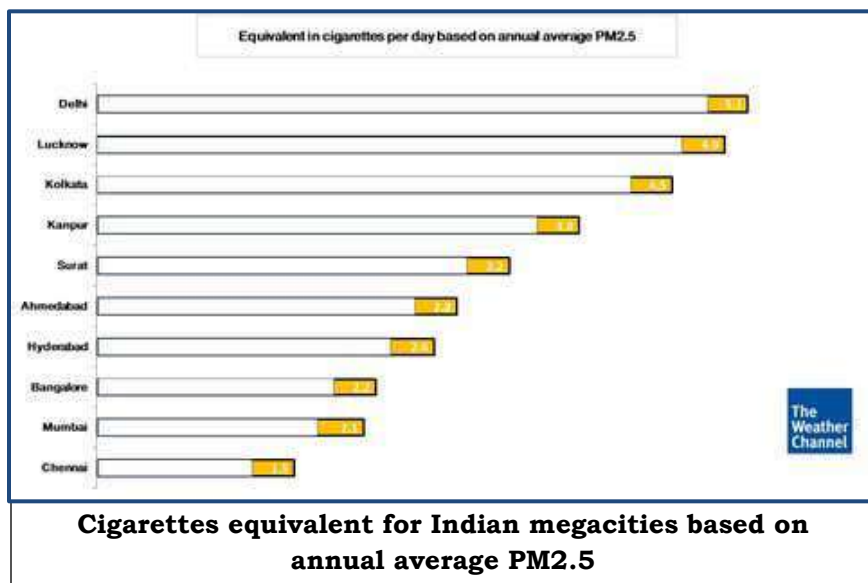


**Cigarettes equivalent for Indian megacities based on maximum 24-hour PM2.5 concentration**

As the graph shows, Delhi was the most polluted megacity in terms of both yearly average PM2.5 as well as a maximum 24-hour PM2.5. On a few occasions during October and November 2018, the PM2.5 levels at several locations of

Delhi crossed 880

ppm, pushing the cigarette-equivalent figure to over 40. Considering the annual average PM2.5 levels, exposure to ambient air in Delhi was equivalent to smoking more than five cigarettes every single day for all 365 days. Meaning, if you are breathing the Delhi air for an entire year in 2018, you have suffered health impacts equivalent to smoking 1,858 cigarettes!



In terms of annual average pollution, Lucknow (PM2.5: 108 ppm) and Kolkata (PM2.5: 99 ppm) closely follow Delhi (PM2.5: 112 ppm). Mumbai and Chennai remained the least polluted megacities as the coastal sea breeze

helps in dispersing pollutants.

### Why compare pollution and cigarettes?

While a drastic rise in parameters like Air Quality Index (AQI) or ppm concentration values may concern public health professionals, a layman may not fully comprehend the severity of the issue by reading these numbers. Therefore, researchers from Berkeley Earth, say that the idea of comparing pollution levels with cigarettes is perhaps one of the most effective means of emphasising the gravity of the situation.

“It is probably true that the call to act against air pollution is more effective when we communicate using such comparative language”, says Dr Joel D Kaufman, a specialist in occupational and environmental medicine from the University of Washington Medical Center.

However, it must be noted that such analysis and comparison, in no way, meant to undermine the severity of health impacts from cigarettes. “It is not correct to compare the two. It trivialises the dangers of smoking as well as simplifies the issue of addressing air pollution,” says Prarthana Borah, India Director of Clean Air Asia India Office.

Smoking has far more direct impact on a personal level as it directly affects the smokers and people around them. Cigarettes directly exposes the smoker to an estimated 7,000 harmful chemicals, a whopping 69 of whom are identified to be carcinogenic. Both air pollution and smoking are a large-scale public health concerns, wherein the former affects the larger population, the latter has farmore impacts on a personal level.

### **Comparing the pollutant weight or the impacts**

During the late-2000s, a prominent researcher, Arden Pope, compared the weight of PM<sub>2.5</sub> inhaled from a cigarette to that of the ambient air and showed that the pollution level in Beijing is equivalent to smoking 0.3 cigarettes per day.

Experts say that this was an extreme underestimation fine particulate matter present in the air is more toxic than those from burning tobacco. PM<sub>2.5</sub> in ambient air is a mixture of direct emissions from industries, burning fuels, fine heavy metals, sulfates, nitrates, and secondary aerosols, and is more harmful in terms of varied health impacts.

Therefore, researchers from Berkeley Earth compared the health impacts of cigarettes and pollution to arrive at the conversion value discussed above.

### **Where not to compare**

At the core, however, the hazards of pollution and smoking are different in nature. While the health impacts are comparable, experts say the comparison should be limited to understanding the extent and not in managing the two public health hazards. “From a public health perspective, both are important. The air pollution problem is unique because people do not choose to breathe the air in their community, and the solutions to the problem are not at the individual level but at the societal level,” explains Dr Kaufman.

“It is important for people to realise we are talking about two different problems. Smoking is related to individual behaviour and personal decision making. Air Pollution is a result of unplanned development leading to increased vehicular emissions, advancing energy from unclean sources to meet the excess demand and the growth of unplanned cities,” explains Prarthana.

Even as the academic debates over the exact parameters of comparison continue, it is important that we acknowledge the massive health risk both pollution and smoking pose. The time is ripe to double down on our efforts to

eliminate both the epidemics that, together, are attributed for every one in five deaths in India.

## **June 2021**

### **Air quality improved during India lockdown, study shows**

*Date:-1-June-2021, Source: eurekaalert.org*

Research by scientists from University of Southampton (UK) and the Central University of Jharkhand (India) and has shown the first COVID-19 lockdown in India led to an improvement in air quality and a reduction in land surface temperature in major urban areas across the country.

The study found that travel and work restrictions imposed early in the pandemic resulted in a significant environmental improvement, due to an abrupt reduction in industrial activities and a major decrease in the use of land and air transport.

The international team used data from a range of Earth Observation sensors, including those from the European Space Agency's Sentinel-5p and NASA's MODIS sensors, to measure changes in surface temperature and atmospheric pollutants and aerosols. They concentrated on six major urban areas: Delhi, Mumbai, Kolkata, Chennai, Bangalore, and Hyderabad - comparing data from the 2020 March to May lockdown with pre-pandemic years.

Their findings, published in the journal Environmental Research, provide a strong evidence base for potential environmental benefits through larger scale policy implementation.

The researchers revealed a significant reduction in Nitrogen Dioxide (NO<sub>2</sub>), a greenhouse gas emitted from the combustion of fossil fuels, which equated to an average decrease of 12 percent throughout India and 31.5 percent over the six cities. There was a 40 percent reduction over the national capital, New Delhi. In India alone, about 16,000 premature deaths occur annually due to exposure to poor air quality.

The study also found Land Surface Temperature (LST) over major cities in India substantially declined in contrast with the previous five-year average (2015-2019) with day temperatures being up to 1°C cooler and those at night up to 2°C cooler.

Co- author Professor Jadu Dash, from University of Southampton, commented: "The lockdown provided a natural experiment to understand the coupling between urbanisation and local microclimate. We clearly observed that reduction in atmospheric pollutants (due to reduction in anthropogenic activity during lockdown) resulted in a decrease in local day and night-time temperature. This is an important finding to feed into the planning for sustainable urban development."

Along with surface temperature, the atmospheric fluxes at the surface and top of the atmosphere also significantly declined over major parts of India. The reduction of greenhouse gas concentration, higher atmospheric water vapour content and meteorological conditions played a complex role in the land and near-surface temperature reduction.

Commenting on the research, Dr Bikash Parida, from Central University of Jharkhand said: "Aerosol optical depth (AOD) and absorption AOD showed a significant reduction which could be connected with the reduction in the emission sources across India during the lockdown. The aerosol type sources, such as organic carbon (OC), black carbon (BC), mineral dust, and sea salt also reduced significantly. Moreover, in central India, increases in AOD were attributed to the supply of dust aerosols transported from the western Thar desert region."

Dr Gareth Roberts from the University of Southampton added: "Satellite instruments play a vital role in acquiring information on the Earth's environment in a timely manner. This study has illustrated the importance of Earth Observation data for monitoring changes in the atmospheric pollutants, which are significant health risk, and in highlighting the impact that anthropogenic activities have on regional air quality."

### **Air quality improved during Covid lockdown in India, study shows**

*Date:-2-June-2021, Source: business-standard.com*

Research by scientists from the University of Southampton (UK) and the Central University of Jharkhand (India) and has shown the first COVID-19 lockdown in India led to an improvement in air quality and a reduction in land surface temperature in major urban areas across the country.

The study found that travel and work restrictions imposed early in the pandemic resulted in a significant environmental improvement, due to an

abrupt reduction in industrial activities and a major decrease in the use of land and air transport.



The international team used data from a range of Earth Observation sensors, including those from the European Space Agency's Sentinel-5p and NASA's MODIS sensors, to measure changes in surface temperature and atmospheric pollutants and aerosols. They concentrated on six major urban areas: Delhi, Mumbai, Kolkata, Chennai, Bangalore, and Hyderabad -- comparing data from the 2020 March to May lockdown with pre-pandemic years.

Their findings, published in the journal *Environmental Research*, provide a strong evidence base for potential environmental benefits through larger-scale policy implementation.

The researchers revealed a significant reduction in Nitrogen Dioxide (NO<sub>2</sub>), a greenhouse gas emitted from the combustion of fossil fuels, which equated to an average decrease of 12 per cent throughout India and 31.5 per cent over the six cities. There was a 40 per cent reduction over the national capital, New Delhi. In India alone, about 16,000 premature deaths occur annually due to exposure to poor air quality.

The study also found Land Surface Temperature (LST) over major cities in India substantially declined in contrast with the previous five-year average (2015-2019) with day temperatures being up to 1°C cooler and those at night up to 2°C cooler.

Co-author Professor Jadu Dash, from the University of Southampton, commented: "The lockdown provided a natural experiment to understand the coupling between urbanisation and local microclimate. We clearly observed that reduction in atmospheric pollutants (due to reduction in anthropogenic activity during lockdown) resulted in a decrease in the local day and night-time temperature. This is an important finding to feed into the planning for sustainable urban development."

Along with surface temperature, the atmospheric fluxes at the surface and top of the atmosphere also significantly declined over major parts of India. The reduction of greenhouse gas concentration, higher atmospheric water vapour content and meteorological conditions played a complex role in the land and near-surface temperature reduction.

Commenting on the research, Dr Bikash Parida, from the Central University of Jharkhand said: "Aerosol optical depth (AOD) and absorption AOD showed a significant reduction which could be connected with the reduction in the emission sources across India during the lockdown.

"The aerosol type sources, such as organic carbon (OC), black carbon (BC), mineral dust, and sea salt also reduced significantly. Moreover, in central India, increases in AOD were attributed to the supply of dust aerosols transported from the western Thar desert region," Dr Parida said.

Dr Gareth Roberts from the University of Southampton added: "Satellite instruments play a vital role in acquiring information on the Earth's environment in a timely manner. This study has illustrated the importance of Earth Observation data for monitoring changes in the atmospheric pollutants, which are a significant health risk, and in highlighting the impact that anthropogenic activities have on regional air quality.



## Delhi breathes easy as Covid-19 lockdown lowers pollution levels again

*Date:-3-June-2021, Source: indiatoday.in*



**The average PM2.5 for May of both the years is almost identical at about 55-56 ug/m3.**

Covid-19 lockdown in the national capital may not be good news for many but it has definitely helped clear the air in Delhi.

Due to closure of markets, malls, industries, and construction works during the second wave of Covid-19 starting mid-April, the air quality this year is similar to that of last year, when a nation-wide lockdown was implemented in March.

The average PM2.5 for May of both the years is almost identical at about 55-56 ug/m3. However, this value is about 42 per cent lower than the value in May 2019, when there was no lockdown. In May 2019, the average PM2.5 level recorded was 95 ug/m3, suggesting that lockdown had a significant impact on reducing Delhi's PM 2.5 level. Particulate Matter 2.5 (PM2.5) describes fine inhalable particles, with diameters that are generally 2.5 micrometers and smaller.

If we dig deeper into the data, some more interesting findings come to the fore. The air in 2020 is almost 33 per cent cleaner than 2019 and 2021 if we compare the overall average of pollution levels for the first five months from January to May.

The average PM2.5 for the first five months (Jan to May) in 2021 is 121ug/m<sup>3</sup>. This is 33% higher than the corresponding period in 2020 when it was recorded at 91 ug/m<sup>3</sup> and almost identical to the pre-pandemic year 2019 level when the average PM2.5 level was recorded at 122ug/m<sup>3</sup>. The concerning point is that this average is higher this year despite the lockdown in April-May. Which means, if the lockdown would not have happened this year, then the average air quality for the first five months could have been worse.

Anumita Roy Chowdhary, Executive Director, Research and Advocacy with Center for Science and Environment (CSE) said, "It was a much-needed relief for the Delhi air in the form of lockdown. The first three months of 2021 were more polluted compared to the first three months of previous three years. The average level of PM2.5 concentration was 204 ug/m<sup>3</sup> in January, 159 ug/m<sup>3</sup> in February, 100 ug/m<sup>3</sup> in March, but it came down significantly to 89 ug/m<sup>3</sup> in April and 55 ug/m<sup>3</sup> in the month of May."

A more granular look at the weekly data for the year shows that the air in February and March this year was 20% dirtier than what was observed in 2019. Even though in 2020, lockdown was implemented at the end of March, the first three months were much cleaner in comparison to 2019 and 2021.

### **Slight dip in Lucknow's air pollution due to Corona Curfew: IITR report**

*Date:-4-June-2021, Source: hindustantimes.com*

LUCKNOW Though the state capital saw a slight reduction in air pollution levels due to the Corona Curfew, Gomti Nagar remained the most polluted area of Lucknow, as per the Indian Institute of Toxicology Research (IITR), which released its 'pre-monsoon-2021 report of assessment of ambient air quality of Lucknow on Friday.

The RSPM concentration in the ambient air saw a decreasing trend from 2017 to 2020. This may be due to partial/complete lockdown, which may be attributed to lowered vehicular density on road, less consumption of petrol/diesel fuel and complete/ partial closure of industrial establishments during lockdown periods, said the report.

“The five years’ pre-monsoon data has been compared to find out the prevailing trend of air pollution in Lucknow and a slight change in the values may be attributed to some local environmental/climatic factors and curfew restrictions imposed by the government,” said the report.

Among residential areas, Gomti Nagar recorded an average 128.7 microgram/cubic meter of the respirable suspended particulate matter (PM10) followed by Indira Nagar that recorded an average RSPM level of 124.5, in the report. The next is Vikas Nagar, with an average 117.3 RSPM level and Aliganj with lowest RSPM level of 111.9.

“RSPM is of size 4 to 5 microns that settle inside human organs such as lungs when we breathe in polluted air,” said Dr AA Mahdi, HoD, biochemistry at King George’s Medical University.

Among commercial areas, Charbagh with 143.8 RSPM levels remained the area with highest air pollution, followed by Alambagh 133.9, Chowk 121.1 and Aminabad 109.8. The Amausi industrial area recorded RSPM level of 152.5.

The National Ambient Air Quality Standards (NAAQS) has kept 100 microgram/cubic meter as the optimum value of RSPM in the air while WHO kept it at a maximum 50 microgram/cubic meter. None of the areas were within the NAAQS or WHO standards.

“Pollutants in the air can directly be linked to diseases such as COPD, asthma and other respiratory disorders. A secondary result could be general weakness or even premature deaths,” said Dr Sandeep Kapoor, director, Health City and Trauma Centre.

The pre-monsoon ambient air quality assessment of Lucknow was carried out by the environmental monitoring division of CSIR-Indian Institute of Toxicology Research, Lucknow during April-May, 2021

### **PM2.5 level slightly up**

The PM2.5 level, which refers to atmospheric particulate matter (PM) that have a diameter of less than 2.5 micrometers, was recorded a bit more than the limit prescribed by the National Ambient Air Quality Standards (NAAQS).

In residential areas -- Aliganj, Vikas Nagar, Indira Nagar and Gomti Nagar, the 24-hour average concentrations of PM2.5 were in the range of 60.7 to 68.2 microgram/cubic meter while the NAQS prescribed limit is 60 microgram/cubic meter and WHO’s 25.

In commercial areas like Charbagh, Alambagh, Aminabad and Chowk, the average concentrations of PM<sub>2.5</sub> were in the range of 62 to 71.1 microgram/cubic meter with an average of 114.5. In industrial area Amausi, the average concentration of PM<sub>2.5</sub> was 61.5 microgram/cubic meter.

### **Increased noise pollution**

In residential areas, Aliganj, Vikas Nagar, Indira Nagar and Gomti Nagar, the day and night time noise levels were recorded between 67.0 and 70.7 (day time) and 55.4 and 60.0 (night time) dB(A), respectively. The values were higher than the prescribed limits of 55 and 45 dB (A) for day and night time, respectively.

In commercial areas, Charbagh, Alambagh, Aminabad and Chowk, the day and night time noise levels were recorded between 67.2 and 79.0 and 52.3 and 61.3 dB(A), respectively. Noise level at all the commercial sites during day time were above the prescribed limits of 65 dB (A), as per the report.

### **Punjab signs pact to launch use of emissions trading scheme**

*Date:-5-June-2021, Source: tribuneindia.com*



In a bid to address the problem of growing industrial air pollution, the Punjab government on Saturday announced partnership with the Abdul Latif Jameel

Poverty Action Lab (J-PAL) South Asia and the Energy Policy Institute at the University of Chicago (EPIC India) to launch the use of an emissions trading scheme (ETS).

The state's Industry and Commerce and the Science, Technology and Environment Departments would work with them to design and establish pollution markets in Punjab.

The partnership includes providing technical assistance and capacity building to public officials to effectively use data and research evidence from established and functioning emissions trading market in Surat in Gujarat.

As a first step in this partnership, the state government and the Punjab Pollution Control Board would also launch an ETS to regulate emissions from 200 dyeing industries in Ludhiana besides reducing particulate and greenhouse gas (GHG) emissions in the state.

Elaborating on the partnership, Principal Secretary Industries and Commerce Alok Shekhar said, "The state government is keen to combat environmental pollution through regulation that promises a win-win situation of cleaner production, coupled with lower compliance costs for industries.

"ETS is one such initiative that can help regulate critically and severely polluted industrial belts in Punjab." In his address, Michael Greenstone, the Milton Friedman Distinguished Service Professor in Economics, Director of EPIC and Co-Chair of Energy, Environment and Climate Change of J-PAL, said, "Pollution reductions can be delivered -- the world's first ETS for particulate pollution in Gujarat has already shown this.

"Punjab is now becoming the second Indian state to adopt this pioneering vision. For various other Indian cities battling polluted air and expensive regulations, ETS has the potential to improve air quality and health, reduce the regulatory burden on industries, and decrease government enforcement expenditures."

Notably, this initiative is part of an ongoing partnership between the state government and J-PAL South Asia, wherein since 2017 J-PAL South Asia has worked with state departments to facilitate rigorous, policy-relevant research and the scale-up of successful programmes.

ETS offers a market-based approach to reduce air pollution in which governments set a cap on emission levels and distribute emissions permits among firms.

The approach involves using continuous emissions monitoring systems to send real-time and continuous readings of particulate emissions and enable better and more targeted regulatory oversight standards.

A randomised evaluation conducted by J-PAL South Asia of the world's first ever ETS for particulate matter across 350 highly polluting industries in Surat found evidence that the scheme offers a mechanism for improving air quality that is transparent and predictable.

Moreover, it also has the potential to transform the trade-off between environmental regulation and economic growth by lowering compliance costs for firms.

### **Delhi's air quality to deteriorate to 'poor' category**

*Date:-6-June-2021, Source: indiavnews.com*

The air quality in Delhi is likely to deteriorate and crossover from "moderate to poor" category on Tuesday due to strong surface winds raising dust locally and also transporting it from nearby region, the India Meteorological Department (IMD) warned on Sunday.

The predominant pollutant will be PM10 as the strong surface winds are favorable for raising dust locally and transport of dust from nearby region, said the the National Weather Forecasting Centre of the IMD.

It further warned that the air quality is likely to remain in the "moderate to poor category" for subsequent five days.

Meanwhile, it said also that the air quality over the national capital is likely to remain in "moderate category" on Sunday as well as Monday.

The IMD has also predicted partly cloudy sky with a possibility of very light rain and drizzle on Sunday as the predominant surface wind is likely to be coming from Southwest directions of Delhi with wind speed 10-16 kmph.

"The predominant surface wind is likely to be coming from northwest or West directions of Delhi with wind speed 16-28 kmph and partly cloudy sky with possibility of very light rain and drizzle on Monday. The wind speed is likely to coming from West directions of Delhi on Tuesday too with wind speed up to 28 kmph, mainly clear sky and strong surface winds (speed 25-35 kmph) during the day."



Predicted maximum mixing depth is likely to be approximately 3,500 metre on Sunday and 4,100 metre on Monday and 4,000 metre on Tuesday over Delhi, the IMD said.

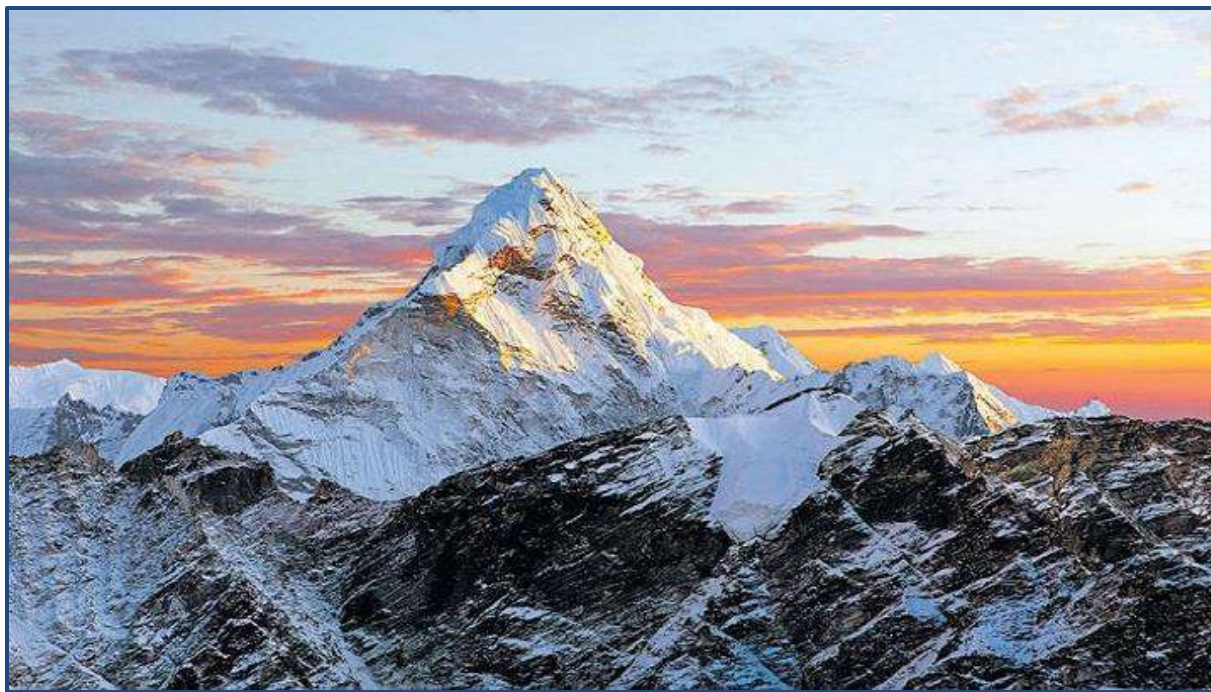
However, it said that the maximum ventilation index is likely to be approximately 23,000 meter<sup>2</sup>/second on Sunday and 33,000 m<sup>2</sup>/s on Monday and 46,000 m<sup>2</sup>/s on Tuesday.

"The ventilation index lower than 6,000 m<sup>2</sup>/s with average wind speed less than 10 kmph is unfavorable for dispersion of pollutants."

The strong surface winds are favorable for raising dust locally and transport of dust from nearby region, thereby making PM<sub>10</sub> predominant pollutant.

### **New study to help accurate estimation of black carbon over Himalayas**

*Date:-7-June-2021, Source: indiavnews.com*



#### **New study to help accurate estimation of black carbon over Himalayas**

Scientists have made extensive observations of black carbon and elemental carbon and estimated monthly and wavelength-dependent values of mass absorption cross-section (MAC) over the central Himalayan region for the first time. An accurate estimation of black carbon (BC), the second-most important



global warming pollutant after carbon dioxide, will now be possible using optical instruments in the Himalayan region, thanks to a parameter called MAC specific to the region that scientists have estimated.

It will also improve the performance of numerical weather prediction and climate models.

"Scientists at the Aryabhata Research Institute of Observational Sciences (ARIES), an autonomous institute under the Department of Science & Technology (DST), in collaboration with scientists from the University of Delhi, IIT Kanpur and Space Physics Laboratory, ISRO, have made extensive observations of black carbon and elemental carbon and estimated monthly and wavelength-dependent values of MAC over the central Himalayan region for the first time," the DST said in a statement.

The researchers have derived the values of MAC, an essential parameter which is used for obtaining black carbon mass concentrations.

In a study published in the 'Asia-Pacific Journal of Atmospheric Sciences', Priyanka Srivastava and her PhD supervisor Manish Naja have calculated the annual mean value of MAC and found it to be significantly lower than the constant value used earlier.

These lower values are a result of transport of processed (not fresh) air pollution emissions at this otherwise clean site.

It is found that these changes are caused by the seasonal variability of biomass burning, air mass variation, and meteorological parameters.

According to the ARIES team, these higher resolution multi-wavelength and long-term observations used in calculating MAC will help improve the performance of numerical weather prediction and climate models in estimating the warming effects caused by BC emissions.

The precise knowledge on BC at various wavelengths will help in source apportionment studies done to constrain the sources of BC emissions. This can thus serve as important information to form the mitigation policies, it added.

## **Despite COVID Pandemic, Carbon Dioxide In The Air At Highest Level Since Measurements Began**

*Date:-8-June-2021, Source: swachhindia.ndtv.com*



Despite a massive reduction in commuting and in many commercial activities during the early months of the pandemic, the amount of carbon in Earth's atmosphere in May reached its highest level in modern history, a global indicator released on Monday (June 7) showed. Scientists from the National Oceanic and Atmospheric Administration (NOAA) and the Scripps Institution of Oceanography at the University of California San Diego, said the findings, based on the amount of carbon dioxide in the air at NOAA's weather station on Mauna Loa in Hawaii, was the highest since measurements began 63 years ago.

The measurement, called the Keeling Curve after Charles David Keeling, the scientist who began tracking carbon dioxide there in 1958, is a global benchmark for atmospheric carbon levels.

Instruments perched on NOAA's mountaintop observatory recorded carbon dioxide at about 419 parts per million last month, more than the 417 parts per million in May 2020.

Because carbon dioxide is a key driver of climate change, the findings show that reducing the use of fossil fuels, deforestation and other practices that lead to carbon emissions must be a top priority to avoid catastrophic consequences,

Pieter Tans, a scientist with NOAA's Global Monitoring Laboratory, said in a report on the emissions.

"That is a mountain of carbon that we dig up out of the Earth, burn, and release into the atmosphere as CO<sub>2</sub> – year after year."

The amount of carbon in the air now is as much as it was about 4 million years ago, a time when sea level was 78 feet (24 meters) higher than it is today and the average temperature was 7 degrees Fahrenheit higher than it was before the Industrial Revolution, the report said.

Despite the pandemic lockdown, scientists were not able to see a drop in the overall amount of carbon in the atmosphere partly because of wildfires, which also release carbon, as well as the natural behavior of carbon in the atmosphere, the report said.

The carbon dioxide levels measured were not affected by the eruption of Hawaiian volcanoes, Tans said, adding the station is situated far enough from active volcanoes that measurements are not distorted, and occasional plumes of carbon dioxide are removed from the data.

### **Noida sizzles at 42 degrees Celsius; air quality 'very poor'**

*Date:-9-June-2021, Source: hindustantimes.com*

Noida: The city sizzled as the mercury crossed 42 degrees Celsius (°C) on Wednesday, with the weather department expecting the day time temperatures to be warm and dry for two days.

According to the India Meteorological department (IMD), Noida saw a maximum and minimum temperature of 42.3°C and 33.2°C on Wednesday, a rise of over two and three °C, respectively, from the previous day. At the Safdarjung observatory, considered the average for the National Capital Region, the minimum and maximum temperature was recorded at 42.2°C and 31.4°C, respectively.

According to weather analysts, the city is likely to remain dry and warm, with only marginal change in temperature for two days. However, some respite seems to be on the horizon with light rain showers likely on Sunday.

"The maximum and minimum temperature will remain almost the same for two days, however, there could be a variation in temperature by a decimal point or two. The major change or respite from excessive heat is expected between June

12 and 13, when either the western or eastern Uttar Pradesh, including parts of the NCR, will see light rain showers or comparative cooler easterly winds,” said Kuldeep Srivastava, head, regional weather forecasting centre, IMD.

Meanwhile, the air quality in Noida deteriorated with Wednesday seeing ‘very poor’ air quality.

According to the Central Pollution Control Board (CPCB), the air quality index (AQI) of Noida on a scale of 0 to 500, on Wednesday was 347 against 223 a day earlier. Greater Noida’s AQI was against 338 against 245 a day earlier. The AQI of Ghaziabad was 300 against 228 a day earlier.

The AQI between 101 and 200 is considered ‘moderate’, between 201 and 300 is ‘poor’, between 301 and 400 is considered ‘very-poor’ and above 400 is considered ‘severe’.

### **AQI of Bihar cities worsens despite huge investment, policy support**

*Date:-10-June-2021, Source: hindustantimes.com*

Huge investments, policy support and tie-ups with multiple expert groups notwithstanding, air quality index (AQI) of top Bihar cities remains a major worry.

The average AQI of Patna, Gaya and Muzaffarpur in the first week of June this year was found to be worse than the corresponding period of last year, which passed under the lockdown phase. This is despite the fact that the Bihar State Pollution Control Board (BSPCB) started striving for stringent implementation of the clean air action plan and spending of around ₹208 crore to check air pollution.

As per the Central Pollution control Board (CPCB) data, average AQI of Patna was found to be 92.25 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) parts per million (ppm) between June 1-8 this year as compared to last year’s 85.75  $\mu\text{g}/\text{m}^3$ , which too was beyond the permissible limit of 60  $\mu\text{g}/\text{m}^3$ .

Similarly, average AQI of Gaya and Muzaffarpur was found to be 61  $\mu\text{g}/\text{m}^3$  and 100.62  $\mu\text{g}/\text{m}^3$  respectively against last year’s 58.57  $\mu\text{g}/\text{m}^3$  and 68.57  $\mu\text{g}/\text{m}^3$  during the corresponding period.

The state environment and forest department and the BSPCB had signed agreements with various agencies like United Nations Development Programme

(UNDP), United Nations Environment Programme (UNEP), Development Alternatives Group, Asian Development Research Institute (ADRI), etc, for different types of intervention to check air pollution over the last couple of years.

The BSPCB has also inked a deal with Indian Institute of Technology (IIT), Delhi, to help identify the major factors responsible for release of toxic contents in the ambient air. “The study would help up check those factors, which generally affect the air quality,” said Ghosh.

BSPCB chief Ashok Ghosh said that meteorological conditions should be taken into account while comparing the data. “The board has been actively pursuing the goal of implementing the clean air action plan, which was formulated with support from the ADRI a year and half ago. The action required convergence of roles of different government departments. A committee headed by the chief secretary has been formed to implement the action plan, but the outbreak of Covid19 pandemic slowed the process,” Ghosh said.

Principal secretary, department of environment and forest, Dipak Kumar Singh, said improvement of air quality was a long-term process and hence the change could be visible in so quickly. “Dust particles is a major issue for a state like Bihar that has a large tract of alluvial soil in Gangetic plain. Construction is another important irritant. We are coordinating with different departments to check the pollutants, but desired result remains elusive so far,” he said.

Environmentalist and public health expert Gopal Krishna said the Bihar government had done a lot on paper, but it was unable to implement the policies and schemes which could really bring about perceptible change. “Neither the common people nor the government agencies are bothered about the issues of air pollution. The government could not be serious to improve the air quality until it is linked with public health. BSPCB is grappling with infrastructure issues. The act related to air pollution, which was enacted in 1981, also needs to be amended,” said Krishna.

### **Delhi aims to prevent air pollution in October-November**

*Date:-12-June-2021, Source: thestatesman.com*

The Delhi government has started taking steps to reduce pollution. It aims to prevent the air from becoming toxic in October-November.



The Kejriwal government has written a letter to the neighboring states of Delhi to stop stubble burning in their respective states. Apart from this, it has also recommended the spraying of bio decomposer so that instead of burning the stubble, farmers can melt it.

Moreover, the government has filed a petition in the Supreme Court for the closure of the thermal power plant. It said that around 10 thermal power plants are running around Delhi due to which pollution is increasing in Delhi-NCR region. Hence, to reduce pollution in Delhi, it is imperative that the thermal power plants be closed. The thermal power plant in Delhi has already been shut down.

### **India's contribution to climate change in last 200 years just 3%: Javadekar**

*Date:-14-June-2021, Source: business-standard.com*

Unbridled carbon emissions especially by Europe and the US over the last 200 years, and in the last 40 years by China have caused the climate change disaster, Union Environment Prakash Javadekar said on Monday.





He also said that India's contribution to climate change in the last 200 years has been only three per cent.

Developed nations owe USD 1.1 trillion to developing nations as a part of climate change mitigation under the Paris Agreement, and this was discussed at the G7 Summit, which concluded on Sunday, Javadekar said at the virtual 'Environment Conclave: Revival, Regeneration and Conservation of Nature'.

"India's contribution to climate change in the last 200 years is just three per cent. The unbridled carbon emissions particularly by Europe, USA and in the last 40 years by China, caused climate change disaster. These countries prospered economically but polluted the world," he said.

"India is one of the countries with the least contribution in climate change," Javadekar said at the webinar organised by the FICCI Ladies Organisation (FLO).

The FLO is a wing of apex trade body Federation of Indian Chambers of Commerce and Industry (FICCI). The minister said that as part of the Paris agreement, rich countries promised to provide USD 100 billion each year to help developing nations combat climate change.

"But for the last 11 years nothing has come. In the just concluded G7 meet yesterday they discussed this financial issue seriously because they know they cannot postpone it further," Javadekar said. He said that as soon as schools -- shut due to the Covid pandemic -- reopen, his ministry will initiate a nursery programme in 5,000 schools.

Under this programme, students of classes six to eight will plant saplings and nurture them till they pass out from their schools, Javadekar said.

"This will inculcate (in them) a habit of taking care of plants, bring discipline and will also help in generating much-needed oxygen (O<sub>2</sub>). This will be also introduced in IITs (Indian Institutes of Technology) and other higher education institutes soon," he said.

Javadekar lauded the government's efforts to combat air pollution by introducing BS-VI emission norms for vehicles in April last year and completing the construction of the western and eastern peripheral expressways around Delhi, saying these have helped reduce pollution in the national capital in a big way.

"The adoption of the zig-zag technology in 3,000 out of 6,000 brick kilns around the National Capital Region (NCR) has also helped in reduction of air pollution. Soon all brick kilns will follow the suit," he said.

In zig-zag kilns, bricks are arranged to allow hot air to travel in a zigzag path which results in better mixing of air and fuel, allows complete combustion, reducing coal consumption by about 20 per cent.

Javadekar added that the central government is also taking steps to ensure the country becomes free of single-use plastic by next year.

In a statement the FICCI FLO said that the conclave was aimed at spreading awareness about issues related to the environment and to collectively work together for a better world.

Speaking at the conclave, FICCI FLO president Ujjwala Singhania said the FLO encourages its members' enterprises to manage their triple bottom line - profits, people and planet.

"There is an urgent need to formulate a development model which focuses on responsible and eco-friendly government policies that will promote sustainable use of natural resources," she said.

"The FLO this year has taken the pledge of planting over one lakh trees by our 18 chapters across India. An impactful beginning to this initiative was made on World Environment Day," Singhanian said.

She said that the FLO has adopted 143 villages across India with an objective to ensure integrated development with adequate infrastructure and to develop eco-friendly small-scale industries to create sustainable livelihood.

Chair of the FICCI environment committee Mukund Rajan said that with global warming and climate change taking a toll on the planet, there is a need to focus more on preserving bio-diversity.

"Global warming and climate change is taking its toll on us in form of various natural disasters, cyclones, extreme climate events and ongoing COVID-19 pandemic. This shows we should focus more on preserving biodiversity and our corporates to find solutions for environmental challenges within the natural environment itself. Our markets are coping up to predict and cope with such events," he said.

### **Monsoon breaks speed limits, what it means for agriculture, pollution in North India**

*Date:-15-June-2021, Source: indiatoday.in*



Monsoon is changing. Here is another proof. Monsoon though had a delayed

onset over Kerala, it is covering the country faster. Monsoon has actually already covered two-thirds of the country almost two weeks ahead of schedule.

The India Meteorological Department (IMD) on Monday said it expected Delhi to receive its first monsoon showers on Tuesday. Delhi's usual monsoon date is June 27. The last time, Delhi saw monsoon so early was in 2008 — June 15.

Significantly, Punjab which usually receives monsoon in the last week of June has already soaked showers from the south-west winds. Punjab's agrarian cousin Haryana is no different.

Punjab and Haryana receiving higher than normal rain fall in the month of June so far.

According to the IMD data, Punjab has received 158 per cent surplus monsoon rain in the first two weeks of June (1-14). Punjab recorded 38 mm rain against the normal of 14.7 mm for this period.

Haryana received 33.7 mm rain against the normal of 13.7 mm, accounting for a surplus of 146 per cent during June 1-14. Himachal Pradesh too received monsoon ahead of schedule and 26 per cent surplus rain at 42.2 mm against the normal of 33.5 mm for that period.

Speedier arrival of monsoon and more voluminous outpours may impact farming in the north Indian states. Punjab could particularly be impacted. Punjab and Haryana have by law banned paddy sowing before May 10 while transplantation cannot be done before June 20.

The law was made to time crucial farming activities with the arrival of monsoon in these states so that fetching of groundwater could be minimised. Mechanised agriculture and dependence on chemical fertilisers have caused serious depletion of groundwater tables in Punjab and Haryana.

The governments in Punjab and Haryana release a schedule for the paddy farmers every year. The defaulting farmers are penalised. In Haryana this year, several farmers were served notice for violation at the rate of Rs 4,000 per acre of land.

Reports from Punjab said, farmers had started transplantation of paddy from June 10 while Haryana was expected to see transplantation from Tuesday. Early arrival of monsoon has forced farmers to hasten their paddy farming processes and triggered concerns about early withdrawal of the rain-bearing winds.

Paddy is the major kharif crop in North India. It requires more water than most foodgrain crops. An early withdrawal of monsoon from the region may impact produce from paddy farms. This is also the region from where farmers have participated in the anti-farm bill agitation. Hundreds of farmers have stayed at the Delhi borders demanding scrapping of three farm laws that Parliament passed in 2020. The Supreme Court later put those laws on hold.

There is another problematic issue linked to anticipated early withdrawal of monsoon: pollution. October is usually the month when pollution levels start rising in the North Indian states, particularly in Punjab, Haryana and the National Capital Territory of Delhi. October is also the time when crop-residue burning is undertaken by farmers, even though the authorities have been strict in the past couple years.

Conventionally, monsoon starts withdrawing from Punjab and Haryana in early September. However, in 2019, monsoon withdrawal began on October 9. That was the year, when air pollution levels remained “moderate” instead of regular “poor” and “very poor” till mid-October.

It was a strong indication that the delayed departure of monsoon helped bring down pollution levels in the air over North India. If early arrival of monsoon in North India is coupled with early departure of the south-west seasonal winds, air pollution could be a major headache for the public and authorities across North India this year.

## **11 thermal plants in NCR accounted for 7% of Delhi air pollution in Oct-Jan: Study**

*Date:-16-June-2021, Source: [economictimes.indiatimes.com](https://economictimes.indiatimes.com)*

The 11 coal-fired power plants in the National Capital Region contributed just 7 per cent to Delhi's PM2.5 pollution on an average between October 2020 and January 2021, while vehicles contributed 14 per cent, according to a new study. The findings are significant considering that the Delhi government had recently moved to the Supreme Court, seeking closure of the coal-fired power plants in the vicinity of the city using outdated polluting technology.

On April 1, the Union Environment Ministry had issued a notification with amended rules allowing thermal power plants within 10 kilometres of the National Capital Region (NCR) and in cities with more than 10 lakh population to comply with new emission norms by the end of 2022.



In its latest analysis, the Council on Energy, Environment and Water (CEEW), a Delhi-based not-for-profit policy research institution, said, "Given the EPCA (Environment Pollution (Prevention and Control) Authority) directives on account of GRAP (Graded Response Action Plan) implementation and

presumably low demand due to lockdown, the power plants also operated at much lower levels in October and November 2020."

"We observe that energy generation from NCR coal-fired plants was 25 and 70 per cent lower in October and November, respectively, compared to the corresponding months in 2019, implying a lower contribution in these months," the report read.

The research team of L S Kurinji, Adeel Khan, and Tanushree Ganguly found that the average contribution of emissions from the 11 power plants in Delhi-NCR was 7 per cent between October 2020 and January 2021.

"However, once the 'fuss' about air quality dissipated and demand picked up, the daily energy generation levels scaled up to 2019 levels in December 2020 and January 2021," it said.

The share of vehicular emissions to Delhi's PM 2.5 pollution was 14 per cent on an average between October 2020 and January 2021.

According to the study, a relatively longer stubble-burning period and unfavorable meteorological conditions were primarily responsible for Delhi's worsening air quality in winters last year. Household heating and cooking were responsible for 40 per cent of the pollution burden in December 2020 and January 2021.

The analysis showed the contribution of stubble burning to Delhi's PM<sub>2.5</sub> levels exceeded 30 per cent for seven days (between October 10 and November 25) in 2020 as against three days in 2019.

"This season was longer compared to 2019 or 2018 as fires started early in late September and a significant increase in the number of fires was observed," it said.

The stubble burning phase (October 15 to November 15) in 2020 experienced 172 hours of calm and light winds (speed less than 5 km/h) compared to 101 hours in 2019.

In the winter of 2020, Delhi recorded only six rainy days as against 10 in the winter of 2019. The months of October and November in 2020 were cooler, with the air temperatures being 1-1.5 degrees Celsius lower than the corresponding months in 2019, according to the study.

"We find that air quality in the winter of 2020 was worse than in the winter of 2019. Lower vehicular congestion and power generation levels in October and November 2020 are indicative of reduced emissions from these two activities," the report read.

"A relatively longer stubble burning period, colder and drier winter conditions, and calmer winds in October and November 2020 were primarily responsible for the worsening Delhi's air quality that year. As the winter season progressed, most anthropogenic activities such as power generation and vehicular levels bounced back to previous year's levels," it said.

The interplay of meteorological conditions on Delhi's air quality cannot be discounted, but there is a need for steeper cuts in emissions across sectors. The GRAP presents the state government with an opportunity to constitute an air quality forecasting cell that can advise the government to take necessary measures to prevent severe air quality episodes in the capital city, the CEEW said.

"We recommend that in addition to supporting source identification studies, the government should also encourage air quality modelling and forecasting efforts. Augmenting the existing monitoring infrastructure would help air quality modellers validate their forecasts," it said.



## Household Heating, Cooking Behind 40% Of Delhi's Pollution: Study

*Date:-17-June-2021, Source: ndtv.com*



**Vehicles contributed 14% to Delhi's air pollution, study said.**

Delhi Pollution: The study also said that emissions from 11 coal-fired power plants in NCR accounted for 7% of Delhi's pollution on an average between October 2020 and January 2021, while vehicles contributed 14%.

New Delhi: Household heating and cooking accounted for 40 per cent of Delhi's PM 2.5 pollution in December 2020 and January 2021, according to a new study.

Though recent assessments on the use of biomass in Delhi are not available, a large number of homeless people burn firewood and waste to keep themselves warm in winters.

"The contribution to PM 2.5 from the residential sector (including domestic cooking, space heating, water heating, and lighting) was as high as 40 per cent in December 2020 and January 2021," the Council on Energy, Environment

and Water (CEEW), a Delhi-based not-for-profit policy research institution, said in a study report.

Delhi is estimated to have 1.5 lakh to two lakh homeless people. According to the Delhi Urban Shelter Improvement Board, as of January 2021, as many as 319 shelter homes had been created with a boarding capacity of 19,116 people.

"However, these shelter homes can accommodate only around 10 per cent of the homeless population in Delhi, which leaves a sizeable portion of the city's homeless population exposed to the elements.

"This population, therefore, is forced to use firewood/biomass fires to keep themselves warm during winters. Waste is also burnt for warmth and disposal purposes, which also contributes significantly to the pollution burden of the national capital," the CEEW said.

According to the study, a relatively longer stubble-burning period and unfavourable meteorological conditions were primarily responsible for Delhi's worsening air quality in winters last year.

It also said that emissions from 11 coal-fired power plants in the National Capital Region accounted for just seven per cent to the Delhi's PM2.5 pollution on an average between October 2020 and January 2021, while vehicles contributed 14 per cent.

The findings are significant considering the Delhi government had recently moved the Supreme Court seeking closure of coal-fired power plants using outdated polluting technology in the vicinity of the city.

On April 1, the Union Environment Ministry had issued a notification with amended rules allowing thermal power plants within 10 kilometers of the National Capital Region (NCR) and in cities with more than 10 lakh population to comply with new emission norms by the end of 2022.

### **Delhi's air pollution documentary to be a part of climate issues section at Cannes**

*Date:-19-June-2021, Source: economictimes.indiatimes.com*

NEW DELHI: Indian filmmaker Rahul Jain's Delhi pollution documentary "Invisible Demons" is part of the Cannes Film Festival's new sidebar on climate issues. Titled "Cinema for the Climate", the new section will feature one fiction

movie and six documentaries, focusing on the issue of climate change, the festival announced Friday.



**Rahul Jain's "Invisible Demons" is described as a "shocking documentary" about pollution in New Delhi and the "invisible demons" that are the fine particles**

Jain's "Invisible Demons" is described as a "shocking documentary" about pollution in New Delhi and the "invisible demons" that are the fine particles.

"Rahul Jain's camera tries to breathe as it makes its way through this ecological hell, giving us both something to see and something to think about," a brief on the Festival's official site read.

Jain, who hails from New Delhi, graduated with Bachelors of Fine Arts in Film and Video from the California Institute of The Arts.

His first film, "Machines", was a documentary about the factory life at a large textile mill in Gujarat.

The line-up also includes French actor-director Louis Garrel's feature film "The Crusade", a drama about children who come together to protect the planet.

Garrel stars in the film along with actors Laetitia Casta and Joseph Engel.

The five documentaries in the sidebar section are -- "Marcher sur l'eau" (Above Water) by Aissa Maiga (Niger-France); "Animal" by Cyril Dion (France); "I Am So Sorry" by Zhao Liang (France - China); "Bigger Than Us" by Flore Vasseur (France); and "La Panthere des neiges" by Marie Amiguet (France).

Alongside the new programme, Cannes has announced an environmental action plan to reduce waste and decrease the festival's carbon footprint.

## **COVID-19 Lockdown Reduced Atmospheric Nitrogen Oxide Levels in India**

*Date:-21-June-2021, Source: azocleantech.com*

COVID-19 has altered the planet in unfathomable ways. Some results have even been encouraging, with novel vaccines being designed at record speed. Even the exceptional lockdowns, which made a major impact on commerce and travel, had a positive impact on the environment, and thus, ironically, on health.



Studies from throughout the world, including India, Europe and China, have revealed significant reductions in the level of air pollution. However, to fully comprehend the effect of anthropogenic factors, it is necessary to distinguish them from natural atmospheric events, such as wind movements.

To make this point, researchers from Japan's Research Institute for Humanity and Nature performed a study using mathematical modeling and satellite data, to explain the major effect of lockdown on nitrogen oxides in Delhi, India — one of the most polluted cities in the world — and its surrounding territory.

The new study was conducted as part of the RIHN project called Aakash, under the activity "Mission DELHIS (Detection of Emission Change of Air Pollutants: Human Impact Studies)." The word Aakash means "Sky" in Hindi which originated from Sanskrit.

Nitrogen oxides undergo change due to photochemical and dynamic conditions of the atmosphere, and they are emitted from the surface of the Earth by both anthropogenic and natural activities. As a result, looking just at their atmospheric concentration levels gives only a hazy picture of man-made contributions, argued Hayashida.

In 2020, Delhi was placed under strict lockdown for two months, from March until the end of May.

This time corresponds with the change in atmospheric conditions, like actinic flux, from low in the spring period to high in the early summertime, as well as from stagnant winds to high ventilation throughout the whole northern India area.

Using multi-year satellite data, the researchers examined inter-annual and seasonal variations to estimate what the levels would be if there had not been a lockdown. They used a steady-state continuity equation to predict top-down emissions. The results of the study clearly demonstrate that natural conditions could not describe the substantial reduction in nitrogen oxide levels in 2020. It is not even close.

Surprisingly, rural levels rebounded faster after the lockdown when compared to urban levels, an effect ascribed to agricultural operations, like crop-residue burning, which continued almost instantly. Agricultural operations, unlike industries, continued but at a slower pace during the lockdown period, which has a less stringent impact on agriculture.

According to Hayashida, her team's study should make an impact on how hazardous chemical species released into the atmosphere are investigated.

"Our findings show the importance of analyzing top-down emissions and not just atmospheric concentrations. We expect our approach to guide effective policy on air pollution," concluded Hayashida.

### **Delhi pollution: 10-unit rise in PM<sub>2.5</sub> causes 7 hospital admissions with respiratory disease a week, says study**

*Date:-23-June-2021, Source:financialexpress.com*



A

**The Delhi government had experimented with the solution, prepared by IARI scientists, last year and had also got a survey done by the Development Department to ascertain its effectiveness**

10-unit increase in PM <sub>2.5</sub> leads to more than seven hospital admissions due to respiratory diseases in Delhi each week, said a study conducted by Maulana Azad Medical College.



The report of the 15-month study, which started in April 2019 to assess the impact of air pollution on health, was submitted to the Delhi Pollution Control Committee (DPCC) around three months ago, an official said.

The Maulana Azad Medical College (MAMC) was asked by the DPCC to conduct the study.

A team led by Dr Nandini Sharma, former dean and the head of the Department of Community Medicine, MAMC, collected data from Baba Saheb Ambedkar Hospital, Lok Nayak Hospital, Deen Dayal Upadhyay Hospital, Guru Teg Bahadur Hospital, Lal Bahadur Shastri Hospital and Madan Mohan Malviya Hospital.

According to the report, the rate and trend of the cardio-respiratory morbidity in terms of hospital admissions were corroborated with the change in values of Air Quality Index (AQI), PM10 and PM2.5 levels.

It showed that “an increase of 10 units of PM 2.5 leads to 7.09 new cumulative respiratory admissions per week, keeping other factors constant”.

“The increase in respiratory admissions (bronchitis, bronchial asthma) is directly proportional to increase in AQI,” the report read.

The study has been able to generate evidence that cardiopulmonary admissions in hospitals increase significantly with rising air pollution.

“An increase of 10 units of PM2.5 will increase 1.1 new cumulative cardiac admissions in these hospitals each week,” it said.

The research team also collected community-based data on the restriction of activity, perceived stress, awareness about the cause and perceived interventions required for improving air quality from 1,879 people in all 11 districts of Delhi.

It was found that as educational status improves, awareness about air pollution increases.

A Majority of the respondents (96.5 per cent) perceived that automobiles were the major reason for air pollution, while 77 per cent said industries are responsible for worsening air quality in Delhi.

Sixty-five per cent of the respondents attributed poor air quality to the burning of waste, while 46 per cent said it was due to construction activities. Only 28



per cent of the respondents perceived stubble burning and firecrackers as the cause of air pollution.

## **Cross country study finds link between air pollution and Covid-19**

*Date:-25-June-2021, Source: hindustantimes.com*

Areas with poor air quality and higher emissions of particulate matter (PM) 2.5 are more likely to have Covid-19 infections and related deaths, according to a joint study by four institutes across the country. This is the first time that a pan-India study has found a direct correlation between air pollution and Covid-19.

Statistical analysis established that there was a significant correlation between Covid-19 cases and PM2.5 concentrations in all states in India, with a correlation coefficient of 0.66. The correlation coefficient for PM2.5 concentrations and deaths resulting from Covid-19 was 0.61. In statistics, a correlation coefficient above 0.5 means the two data sets have a compelling correlation to each other.

The study titled 'Establishing a link between fine particulate matter (PM2.5) zones and Covid-19 over India' based on anthropogenic emission sources and air quality data was published in the peer-reviewed journal Urban Climate on June 10. The study was conducted by scientists from Utkal University, Bhubaneswar; Indian Institute of Tropical Meteorology (IITM), Pune, Department of Earth and Atmospheric Sciences, National Institute of Technology Rourkela; School of Earth, Ocean and Climate Sciences, Indian Institute of Technology, Bhubaneswar. It was partially funded by the Ministry of Earth Sciences, the Government of India.

"We have done a statistical analysis to see if there is any correlation between district-level air pollution data and Covid-19 cases. While there are some studies in Europe to find a correlation between the two data sets, in India there have been no prior studies to understand these correlations. Our findings suggest a significant correlation between the district level air pollution data and Covid-19 cases. We found that regions with huge amounts of fossil fuel such as petrol, diesel, and coal etc. combustion in transport and industrial activities, also experiences a lot more Covid-19 cases," said Saroj Kumar Sahu, lead author of the study and assistant professor at Utkal University.

The study involves three kinds of data sets—National Emission Inventory (NEI) of PM<sub>2.5</sub> for 2019, developed by the scientists; a number of Covid-19 positive case and corresponding death as of November 5, 2020, adopted from the government of India website and air quality index data (in-situ observations) collected for 16 stations across the country. The scientists divided specific areas into different hotspot zones across India. From 36 states, 16 districts were picked for the study, including Mumbai and Pune.

Maharashtra recorded the second-highest emission load- 828.3 Gigagram per year (Gg/Yr) of PM<sub>2.5</sub>, after Uttar Pradesh which recorded 1138.08 Gg/year, according to the National Emission Inventory developed by the scientists. Between March and November 2020, Maharashtra recorded 17.19 lakh Covid-19 cases, which was the highest in the country.

“However it is important to note that in terms of PM<sub>2.5</sub> emission per person, Maharashtra is ahead of Uttar Pradesh,” said Sahu.

Among the 16 cities captured in the study, Mumbai and Pune recorded the third and fourth highest ‘bad air quality days’ respectively. For Mumbai, out of a total of 165 bad air quality days, 22 were very poor. Pune recorded a total of 117 bad air quality days. Parallely, Mumbai recorded 2.64 lakh Covid-19 cases and 10,445 deaths during the period studied, which was the highest in the country while Pune recorded 3.38 lakh Covid-19 cases and 7,060 deaths. The transport and industrial sector was the major PM<sub>2.5</sub> contributor in Maharashtra and correlated with a rise in Covid-19 cases.

“What is worrying is that there is evidence that the novel coronavirus sticks to fine particles like PM<sub>2.5</sub> allowing them to move from one part to another by making the airborne transmission of Covid-19 more effective. Through our analysis, it has become clear that rising pollution load is becoming more of a catalyst to aggravate the Covid-19 cases,” said Sahu, adding that polluted hotspots are also triggering long-term effects and more studies are needed to understand this.

Apart from Mumbai and Pune, the study also found that two other hotspots - Nagpur and Chandrapur - in Maharashtra witnessed high pollution as well as higher Covid-19 cases and casualties. Gufran Beig, senior scientist and founder project director, System of Air Quality Weather Forecasting and Research (SAFAR) and co-author of the paper said that at hotspots within Maharashtra exposure to daily air pollution can make a person’s lungs weak.

“When human-induced emissions are added combined with the double impact of the Covid-19 virus, the damage to lungs will be much faster and worsen health conditions,” said Beig.

The study found that all the districts where cases of Covid-19 crossed 20,000 recorded emissions more than 200 Gg/yr of PM2.5. “It confirms that sources of the tiny particle are fossil fuel and mostly dominated in developed and urban places,” said the study.

Sahu said the study results will help slow down the spread of the virus by providing more preventive steps and resources in areas with high pollution levels for present situations as well as for future possibilities. Among solutions, the study highlighted that there was a need to adopt cleaner technology, better transport emission norms like Bharat Stage (BS) VI at the earliest, and ensure better coal technology like ultra-supercritical power plants to reduce particulate emissions.

Ashok A Shingare, member secretary, Maharashtra Pollution Control Board, who was not a part of the study said, “By and large we are aware that if there are more pollutants in the air, there is a predominance of more pneumatic diseases in those regions. Considering the Covid-19 impacts the pulmonary system, there has to be and is a clear correlation for health ailments emerging out of both air pollution and Covid-19. Keeping the transport sector as the major source of air pollution in Mumbai and Pune, we have leapfrogged from BS-4 to BS-6 but implementation and adoption of these new vehicles are lacking. There is a need for building more awareness and to keep economics in mind for faster adoption of BS 6.”

### **Experts flag air quality management in Punjab**

*Date:-26-June-2021, Source: timesofindia.indiatimes.com*

CHANDIGARH: Concerned citizens from across Punjab along with a panel of experts came together for a virtual discussion- ‘Air Quality Management in Punjab’ as part of the Clean Air Punjab network in collaboration with EcoSikh.

The session was attended by over 100 participants from Punjab and other neighbouring states.

The panellists for the workshop included Dr Prabhjyot Kaur Sidhu-Principal Scientist & Head, Department of climate change and Agricultural Meteorology, Punjab Agricultural University, Ludhiana, Kahan Singh Pannu- Former IAS officer & Advisor NHAI Punjab, Raj Ratra – Senior Environment Engineer,

Punjab Pollution Control Board, Sarath Guttikunda- Founder/Director Urban emissions, Tanushree Ganguly- Programme Lead, Risks & Adaptation-Air Quality, Council on Energy Environment & Water (CEEW), Gunjan Jain, Communication strategist, Climate Trends and Jaskirat Singh - Founder and CEO Webrosoft were part of the panel.

## **Vehicular emissions in Mumbai double in five years, says study**

*Date:-29-June-2021, Source: hindustantimes.com*

The transport sector's contribution to air pollution in the city has almost doubled in the last five years, reveals a new study by the System of Air Quality Weather Forecasting and Research (SAFAR), an initiative under the Indian Institute of Tropical Meteorology (IITM), Pune, which is under the Union ministry of earth sciences.

The study, conducted over one year between 2019 and 2020, shows that vehicular emissions contributed 30.5% of all PM2.5 particles in Mumbai during the study period. This is up from 16% contributed by the same sector in 2016-17, as per a previous source apportionment study conducted by SAFAR.

PM2.5 refers to small, ultrafine particles less than 2.5 microns in diameter, which can enter the bloodstream via the respiratory system and travel throughout the body, causing health problems such as asthma, lung cancer and heart disease. PM2.5 is made up of hundreds of different chemicals and is emitted by a range of sources, from construction work to industrial smokestacks, power plants, open fires and automobiles.

According to SAFAR, other prominent sources of PM2.5 in Mumbai include the industries and power sector, which contributed 18% of the city's overall PM2.5 pollution load. Another 15% came from domestic sources - such as residential cooking practices in slums, burning of garbage, wood, cow dung and other cheap fuels.

Windblown dust (referring to transboundary pollutants originating outside of the city) made up another 15% of PM2.5 pollutants, while the remaining 21.5% is estimated to have come from an amalgam of sources, including solid waste plants, brick kilns, crematoria, aviation and various miscellaneous activities.

A similar source estimation for PM2.5 pollutants by SAFAR in 2016-17 had shown transport accounted for 16% of this distribution, while industry and power was the biggest contributor at 36%. Domestic sources of PM2.5 made up 27% of the inventory, while the share of windblown dust was 21%.

Experts said this trend is indicative of the substantial threat posed by vehicles powered by conventional, non-renewable fuels like petrol and diesel. Such vehicles have exploded in number on city streets in the past decade. Gufran Beig, senior scientist and the founding project director of SAFAR, said, “This (trend) is a combination of both an increase in the number of vehicles in Mumbai and more stagnation at traffic junctions leading to congestion.”

While all major Indian cities have witnessed a significant rise in the number of vehicles over the past decade, Beig pointed out that cities like Delhi have pushed for the adoption of compressed natural gas (CNG), in both public transport and private vehicles. “The uptake of clean fuel has been very less across Mumbai. The majority of the vehicles continue to be petrol and diesel,” he said.

As per data with the Maharashtra transport department, Mumbai has already registered at least 40 lakh new vehicles, a threshold which it crossed earlier this year. Of these, 11.6 lakh are private cars and 24 lakh are two-wheelers. This is up from 30.69 lakh vehicles registered by 2016-17, and 20.28 lakh vehicles in 2011-12. A recent, state-wide economic survey estimated that there are roughly about 2,000 vehicles per kilometre of road in Mumbai. As the city gets more congested and more vehicles idle in traffic, the more emissions they generate.

That automobiles are a significant threat to clean air in the city was highlighted as early as 1982, when the Indian Journal of Environmental Protection had published a study titled Level of Air Pollution in Bombay. “The urgent task is to reduce the number of cars and their movement in the city. It should not be difficult to provide an efficient public transport system,” the study said.

Though Mumbai’s favourable position along the coastline helps in the quick dispersal of pollutants, experts have expressed concern over the SAFAR study’s findings. “We may soon approach a natural tipping point where environmental buffers will not make any difference to the overall pollution scenario. A sector-wise plan to tackle emissions at source is needed,” said Beig.

Commenting on the preliminary results, Anumita Roy Chowdhury, executive director of research and advocacy at the Centre for Science and Environment, Delhi, said, “Even though we have to see the exact numbers, the source apportionment analysis seems logical in identifying the transport sector as a rapidly growing source.” She also pointed out that the increase in vehicles coincides with a slowdown in the establishment of new industries and power plants around Mumbai, which is consistent with SAFAR’s findings.

## **Study links Black Carbon with premature deaths**

*Date:-30-June-2021, Source: [tribuneindia.com](http://tribuneindia.com)*



Black Carbon has a significant adverse effect on human health and can lead to a premature death, according to a new study, which could help improve the estimation of the future air pollution mortality burden.

The Indo-Gangetic plain is exposed to Black Carbon (BC) with serious implications on regional climate and human health, but the health effects in terms of mortality due to BC aerosol exposure have never been evaluated in India, the study says.

Most pollution-based epidemiological studies essentially relate exposure to the concentration of particulate matters (PM-10 and/or PM-2.5) that invariably generalise all particulates with equal toxicity without distinguishing among them by source and composition, which genuinely have different health consequences.

Scientist R K Mall led the team of other scientists including Nidhi Singh, Alaa Mhawish, Tirthankar Banerjee, Santu Ghosh, R S Singh from the Department of Science & Technology-Mahamana Centre of Excellence in Climate Change Research (MCECCR) at Banaras Hindu University which conducted the study.

The team explored the individual as well as the cumulative impact of BC aerosol, fine (PM 2.5), and coarse (PM 10) particulates, and trace gases SO<sub>2</sub> (sulphur dioxide), NO<sub>2</sub> (nitrogen dioxide), O<sub>3</sub> (trioxygen) on premature mortality in Varanasi.

Their research was recently published in a reputed journal 'Atmospheric Environment'.

"The study could also help estimate the future burden of mortality associated with air pollutants considering the present association and incorporating a growing population rate. This will help government and policy-makers for better planning to mitigate the adversity associated with changing climate-air pollution-health nexus," the Department of Science and Technology said in a statement.

A typical urban pollution hotspot in central the Indo-Gangetic Plain (IGP) experiences a very high aerosol loading and trace gas concentrations throughout the year due to prevalence of a subsidence zone.

Also, such centres have observed decadal increasing trends both in Aerosol Optical Depth and Black Carbon aerosols.

The scientists from the MCECCR supported by the Climate Change programme of Department of Science and Technology (DST) utilised daily all-cause mortality and ambient air quality from 2009 to 2016 to clearly establish a significant impact of BC aerosols, NO<sub>2</sub> and, PM<sub>2.5</sub> exposure on mortality, a DST statement said.

The inclusion of co-pollutants (NO<sub>2</sub> and PM 2.5) in the multi-pollutant model increased the individual mortality risks for BC aerosols, it said.

It added the effect of pollutants was more prominent for males in the age group of 5-44, and in winters. The scientists found that the adverse effect of air pollutants was not limited to the day of exposure but can extend as high as up to 5 days (lag effect).

They further showed that mortality rises linearly with an increase in air pollutants level and shows adverse impact at higher levels.

The inclusion of BC as a potential health hazard inspires and provides a background for more epidemiological studies to provide evidence of health effects of air pollutants from different parts of India, the DST added.



**July 2021**

## **How to Reduce Vehicle Pollution in India?**

*Date:-1-July-2021, Source: carblogindia.com*

In today's day and age, India is among the most polluted countries in the world, with a significant part of its pollution being caused by vehicles.

Here, we've put together some tips to reduce pollution from vehicles. Vehicular Pollution is a menace that all the countries across the globe are struggling against. The harmful emissions released by the vehicles cause damage not only to the environment but also to the health of people breathing in that air. With Governments becoming more conscious about their respective carbon prints to slow down Global Warming, stringent emission regulations are in place in most countries.

Moreover, these regulations keep getting stricter with almost every passing year in order to meet the Zero Emission from vehicles target in a decade or so, that most countries have set for themselves. India is the world's 5th largest car manufacturer and plays a crucial role in working towards minimizing the environmental pollution caused by vehicles in the global scenario.

Therefore, some active policymaking along with modern technologies become relevant in achieving this. In case you've been wondering how to reduce vehicle pollution in India, here are some of the modern policies and technologies that are either in place at moment or planned for the immediate future to ensure a better environment in times to come.

The much talked about, Scrappage Policy took a long time coming but it finally here. There are millions of dysfunctional vehicles that have been dumped on the roads or other public spaces by their owners due to being too old to function properly.

Since there was no official way to scrap your old vehicle, they have been getting decayed at various places in the public space. Needless to say, that has caused a ton of environmental pollution in terms of air, land and water pollution.

This has, over time, become a major health hazard for a whole lot of people residing in the nearby areas. To tackle this, the Government of India brought in the scrappage policy, wherein the owners of old vehicles will be able to go to their nearest scrappage centre to give away their vehicles. At these centres, the automation process will ensure proper scrapping of the vehicle and the

recyclable parts will be collected. The harmful liquids from the vehicles will be disposed of properly.

To make this process accessible and popular, Government will announce a few incentives that will motivate the owners to go through with this process. This includes things like cash discount on the purchase of the next vehicle, reduction in registration or road taxes and things like these.

Also, the vehicles which are older than 15 years (for private use) and 20 years (for commercial) use will have to go through regular fitness tests to ensure that their vehicles don't cross the emission limit.

If these vehicles fail this fitness test, they will be deemed illegal for roads. This is a positive step towards tackling the issue of environmental pollution in the long run and the effects might be visible in a couple of years' time.

### **Alternative Fuels**



Of course, in case you've been wondering how to reduce vehicle pollution in India, an obvious answer would be to curb the usage of conventional fuels: Petrol and Diesel. In addition to causing air pollution, these are manufactured from non-renewable resources, which are depleting rapidly. The need to shift to other sustainable forms of energy sources is of utmost importance.

The Government is pushing for CNG and Ethanol-blended fuels to ensure a smooth transition from internal combustion engines to electric powertrains. EVs will take a long time to become a mass-market phenomenon due to various challenges at this time.

Hence, a transition phase is necessary to reach there which might be achieved through these alternate fuel usage. The most useful features of using such fuels include making almost no changes to the engine, retrofitting the old engines with such mechanical components, ease of production through organic methods.

The prime example apart from CNG usage is the Ethanol-blended fuels. Ethanol can be manufactured relatively easily. Or in the case of Bio-Diesel, it can be produced by corns which could be grown easily.

A small blend of Ethanol (for instance, upto 20%) doesn't require changes to the engine mechanicals. Some parts of India are already selling 8% Ethanol-blended fuel and the Government aims to achieve 20% Ethanol-blended fuel (also known as E20) by 2025. This will reduce the overall requirement of fuel by the country and also contribute towards cleaner emissions.

### **Electrification**

We, of course, can't talk about minimizing vehicular pollution without talking about Electrification. Electric Vehicles are the long-term solution to tackle and curb the issue of vehicular emissions. A few of the countries have already taken a giant leap ahead in this field which includes the Scandinavian countries (Sweden, Norway, Finland) in general along with the Netherlands. The US and China have high volumes of EVs and the number is growing rapidly. As a matter of fact, the EV segment, although very small in India, is also witnessing steep growth over the past couple of years. The future only seems to go in one direction with the carmakers working hard on improving the infrastructure for EVs in the country. The EV segments in India are also diversifying steadily. We have few options for buying an entry-level EV (Tata Nexon, MG ZS EV, etc). Then we have the ultra-luxury EVs in the form of Mercedes-Benz EQC and Jaguar I-Pace. Now, Tesla is about to come up with its first offering in our market which will most likely sit somewhere in between these segments.

The challenges that the electrification process is facing currently are the lack of infrastructure, range anxiety in customers, substantially high initial costs (almost 1.5 times the price of the same car with an internal combustion

engine), charging times, etc. However, it is only a matter of time before technology advances so much that these issues might no longer exist. That is why, in the meanwhile, hybrid powertrains and alternate fuels are gaining popularity and have almost become necessary. Also, many carmakers have completely walked away from diesel engines for good. Many others have set a deadline for themselves to stop manufacturing internal combustion engines completely in the coming years. The government of India also imparts subsidies for buying electric cars in India in a bid to promote the mass adoption of EVs which is a great initiative.

### **People living in cities with high PM2.5 levels more likely to get Covid**

*Date:-2-July-2021, Source: [economictimes.indiatimes.com](https://economictimes.indiatimes.com)*



**According to the study, bad air quality days have a visible relationship with the number of COVID-19 casualties.**

NEW DELHI: People living in the national capital and in states such as Maharashtra, Uttar Pradesh, Madhya Pradesh and Tamil Nadu are more likely

to contract COVID-19 due to prolonged exposure to high concentration of PM 2.5, according to a new pan-India study.

Sixteen major cities, including Delhi, Mumbai, Chennai, Bangalore, Kolkata, Pune, Ahmedabad, Varanasi, Lucknow and Surat, reported the highest number of COVID-19 cases, and PM2.5 emissions are also higher in these areas due to fossil fuel-based anthropogenic activities, it said.

PM2.5 refers to fine particles which penetrate deep into the body and fuel inflammation in the lungs and respiratory tract, leading to the risk of having cardiovascular and respiratory problems, including a weak immune system.

The study conducted in 721 districts across India establishes a strong relationship between the PM2.5 emission load and COVID-19 infections and resulting deaths, according to one of the authors, Gufran Beig, who is the director of the System of Air Quality and Weather Forecasting and Research (SAFAR).

Researchers from Utkal University, Bhubaneswar; Indian Institute of Tropical Meteorology, Pune; National Institute of Technology, Rourkela and IIT-Bhubaneswar studied data related to emissions, air quality and COVID-19 cases and deaths in these districts till November 5 last year.

This study provides the first practical evidence for India that "cities having pollution hotspots where fossil fuel emissions are dominating are highly susceptible to COVID-19 cases", the findings read.

The study has been named 'Establishing a link between fine particulate matter (PM2.5) zones and COVID -19 over India based on anthropogenic emission sources and air quality data'.

Higher numbers of COVID-19 cases have been found in Delhi and states such as Maharashtra, Rajasthan, Tamil Nadu, Uttar Pradesh, Andhra Pradesh, Telangana, Gujarat, Bihar, Karnataka, Odisha and Madhya Pradesh with prolonged exposure to the high concentration of PM2.5, the report said.

If the trend of good correlation coefficient persists then communities living in these areas are more likely to get affected by COVID-19, according to the study.

According to the study, bad air quality days have a visible relationship with the number of COVID-19 casualties.

"There's an exponential increase in the number of casualties once the bad air quality days cross the value of 100," it said.

Delhi, which witnesses 288 bad air quality days per year on an average, reported 4,38,529 coronavirus cases and 6,989 deaths due to the disease till November 5 last year.

Mumbai, which records 165 bad air quality days a year on an average, reported 2,64,545 cases and 10,445 deaths during the period. Pune, which records 117 bad air quality index days a year, reported 3,38,583 cases and 7,060 fatalities.

However, there are some anomalies - Srinagar that records 145 bad air days a year had 20,413 cases and 375 fatalities till November 5, while Bengaluru, which witnesses just 39 bad air quality days in a year, reported 3,65,959 cases and 4,086 deaths.

"The study shows the correlation coefficient between PM2.5 emission load and COVID-19 cases is high but not 100 per cent. In such a case, there will be some anomalies which could be attributed to several confounding factors, including the number of tests," Beig explained.

The researchers also said that residential emissions from biofuel burning (emissions from cooking, heating etc) "emerged as a crucial sector in elevating PM2.5 load over the country even during the lockdown situations and correlating with COVID-19 cases rise".

### **Noida weather: Respite from heat wave to continue, more rains likely**

*Date:-3-July-2021, Source: hindustantimes.com*

Noida: Noida and its adjoining areas received some respite from the heat wave on Saturday as the mercury dropped by 4°C over the past 24 hours due to the drizzling, the weather department said.

According to the India Meteorological Department (IMD), the respite is likely to continue as cloudy weather is likely to persist for the next few days.

The southwest monsoon is, however, not inching towards the National Capital Region anytime before July 7.

"The heat waves have abated due to rainfall activities. There is a western disturbance at the lower level, and a trough from Rajasthan to Nagaland that is passing through Delhi. This weather condition is likely to persist for a few days,

leading to light rainfall till July 5. Sunday may also see some drizzling. The monsoon, however, is yet to advance from the Himalayan foothills,” said Kuldeep Srivastava, head, regional weather forecasting centre, IMD.

Noida saw recorded two millimetre of rain till Saturday morning.

The IMD recorded a maximum and minimum temperature for Noida on Saturday at 38.3°C and 26.4°C, against 42.3°C and 31.7°C a day earlier.

At the Safdarjung monitoring station, considered average for the National Capital Region, the maximum and minimum temperatures were recorded at 38.6°C and 24.1°C, respectively.

The air quality of the region, meanwhile, saw a massive improvement. According to the Central Pollution Control Board (CPCB), the air quality index (AQI) of Noida was 186 on Saturday, while Greater Noida’s was 158 and Ghaziabad’s was 164.

Just a day before, the AQI was 283 for Noida, 291 for Greater Noida and 334 for Ghaziabad.

An AQI level from zero to 50 is considered ‘good’, between 50 and 100 is considered ‘satisfactory’, between 101 and 200 is ‘moderate’, between 201 and 300 is ‘poor’, between 301 and 400 is ‘very poor’ and above 400 is considered ‘severe’.

## **Maximum temperature settles at 39.8 degrees C in Delhi**

*Date:-4-July-2021, Source: timesofindia.indiatimes.com*

NEW DELHI: The national capital on Sunday recorded a maximum temperature of 39.8 degrees Celsius, three notches above normal, the India Meteorological Department said .

The minimum temperature in the city settled at 26.2 degrees Celsius, and the relative humidity was recorded at 68 per cent, it said.

The weather office said the city was likely to see partly cloudy skies with the possibility of thunder and lightning on Monday. The minimum and the maximum temperatures will be settling around 27 and 40 degrees Celsius respectively, it added.





Delhi's air quality was in the moderate category on Sunday morning. Data from the Central Pollution Control Board showed that the hourly air quality index (AQI) at 6.05 pm stood at 137.

An AQI between zero and 50 is considered good, 51 and 100 satisfactory, 101 and 200 moderate, 201 and 300 poor, 301

and 400 very poor, and 401 and 500 severe.

### **Our children are at risk of air pollution. Now is the time to act**

*Date:-5-July-2021, Source: [downtoearth.org.in](http://downtoearth.org.in)*

Air pollution poses a greater threat to humanity than before, particularly when India is reeling under the aftermath of the novel coronavirus disease (COVID-19) pandemic.

India reported as many as 980,000 premature deaths in 2019 because of particulate matter 2.5, according to State of Global Air report. In fact, India is home to half the top 50 most polluted cities in the world.

Toxic air increases the risk of infants being underweight at birth. This has lifelong impacts on their health. A study conducted at Queen Mary University of London showed direct evidence of pollution particles present in mothers' placentas.

"There is a massive association between the air pollution a mother breathes and the effect it has on the foetus," the lead researcher, Lisa Miyashita, said.

Before children are even brought into the world, their health is callously placed in jeopardy by the toxic air around them. As they grow up, air pollution stunts their lung growth and increases the likelihood of issues such as asthma, chest pain, shortness of breath and even lung cancer.



A collective of mothers — called Warrior Moms — is fighting this battle across India through active environmental advocacy on social media and pressuring the authorities to enforce laws.

We believe in the ideology of anti-fragility. Just as a plant can grow through the cracks of a concrete wall, the process of healing makes us better than we were before, even under trying circumstances of utmost grief.

While the Union government's campaigns such as Yuddh Pradushan ke Viruddh scratch the surface of a deep-rooted issue, the state simply lacks the drive to ask the right questions.

Instead of fostering a clean environment, the government's measures intend to bring the toxicity to a 'socially-acceptable' level. We demand trees instead of smog towers; biodiversity parks instead of amusement parks; and bona fide waste management instead of lethal waste to power plants. The aim is to work on the sources of pollution instead of on technology and gadgets to fight toxic air.

The state's relaxed and static stance on the environment is insufferable for the planet and the future of our children. Take into consideration the non-

implementation of the Thermal Power Plants (TPP) norms, which permit the construction of thermal power plants within 10 kilometres of the national capital region.

These norms are responsible for 3,900 premature deaths among children annually, and approximately 140,000 pre-term births, according to Creating Resources for Empowerment in Action, an organisation that advocates for sexual and reproductive health rights.

Likewise, the National Clean Air Programme (NCAP) offers solutions that fail to factor the complexities of the real world, thus limiting its impact. Rather rudimentary reforms in vehicle density, parking and construction activities prevent the document from tackling the relevant socio-political factors such as industrial and household waste, overpopulation or even social awareness.

In the fiscal year 2020-2021, the Union environment ministry allocated an unnecessarily large segment of NCAP's budget to source apportionment studies. At least Rs 97.6 crore — 20 per cent of the whole budget — has been appointed to identify the main contributor of emissions.

These funds could be reallocated to a more practical and productive use, as these studies lack the capacity to directly impact pollution mitigation.

Comprehending these issues is just the prelude to a sustainable society. As our children struggle to breathe, Warrior Moms expand its arms of motherhood to all citizens through our activism. We join hands to ameliorate our generation's mistakes, to work towards bringing back clean air.

It wishes to remind the leaders that right to breathe clean air is a fundamental right enshrined in Article 21 of the Constitution of India. Our children deserve it.

### **Delhi's NO<sub>2</sub> pollution increased by 125% in one year, finds study**

*Date:-7-July-2021, Source: business-standard.com*

Delhi recorded an increase of 125 per cent in NO<sub>2</sub> (nitrogen dioxide) pollution between April 2020 and April 2021, according to a Greenpeace India study which analysed NO<sub>2</sub> concentrations in India's eight most-populous state capitals.



NO<sub>2</sub> pollution has increased in all the eight capitals studied Mumbai, Delhi, Bengaluru, Hyderabad, Chennai, Kolkata, Jaipur and Lucknow but Delhi has seen the most dramatic increase during the period, the report said.

NO<sub>2</sub> is a dangerous air pollutant that is released when fuel is burned, as in most motor vehicles, power generation, and industrial processes.

Exposure to NO<sub>2</sub> can severely impact people's health at all ages, affecting the respiratory and circulatory systems and the brain, leading to an increase in hospital admissions and mortality.

"Satellite observations reveal NO<sub>2</sub> pollution increased to 125 per cent of April 2020 levels. The analysis suggests the increase would have been even greater (146 percent) had weather conditions been similar to 2020," read the report, titled Behind the Smokescreen: Satellite Data Reveal Air Pollution Increase in India's Eight Most Populous State Capitals.

Although relatively better than the capital, other Indian cities too recorded an equally worrying increase in NO<sub>2</sub> levels.

NO<sub>2</sub> pollution increased by 52 per cent in Mumbai, 90 per cent in Bengaluru, 69 per cent in Hyderabad, 94 per cent in Chennai, 11 per cent in Kolkata, 47 per cent in Jaipur and 32 per cent in Lucknow in April 2021 compared to the same month last year, the study showed.

As the pandemic continues to have a severe impact on India during 2021, there is growing evidence that polluted cities suffer disproportionately more coronavirus cases.

The health impact of fossil fuel-related air pollution is severe and has been reflected time and again in several reports. Yet there has been little change in our reliance on fossil fuels, including coal, oil and gas. Increased economic activity is still largely coupled with toxic air pollution in most cities, Greenpeace India said.

The air quality levels in these cities are alarming. The cities and the people are already paying a huge price for our reliance on burning fossil fuels, this business as usual cannot continue. People saw clean skies and breathed fresh air during the nationwide lockdown though it was an unintended consequence of the pandemic," said Avinash Chanchal, senior climate campaigner at Greenpeace India.

"The disruption caused by the pandemic is a case to transition to cleaner, equitable and sustainable decentralised energy sources such as rooftop solar and clean and sustainable mobility must be central to recovery efforts across cities. The recovery from the pandemic must not come at the expense of a return to previous levels of air pollution," he added.

"Motor vehicles and industries based on fossil fuel consumption are the major drivers of NO<sub>2</sub> pollution in Indian cities. The governments, local administration and city planners must initiate the transition from privately owned vehicles to an efficient, clean and safe public transport system that is run on clean energy that of course, must provide COVID-19-related safety measures," Chanchal said.

## **Indian cities witnessed spike in NO<sub>2</sub> pollution between April 2020 and 2021: Report**

*Date:-8-July-2021, Source: wionews.com*

NO<sub>2</sub> (nitrogen dioxide) pollution has increased in all eight of India's most populated cities, according to Greenpeace India's satellite observation-based study.

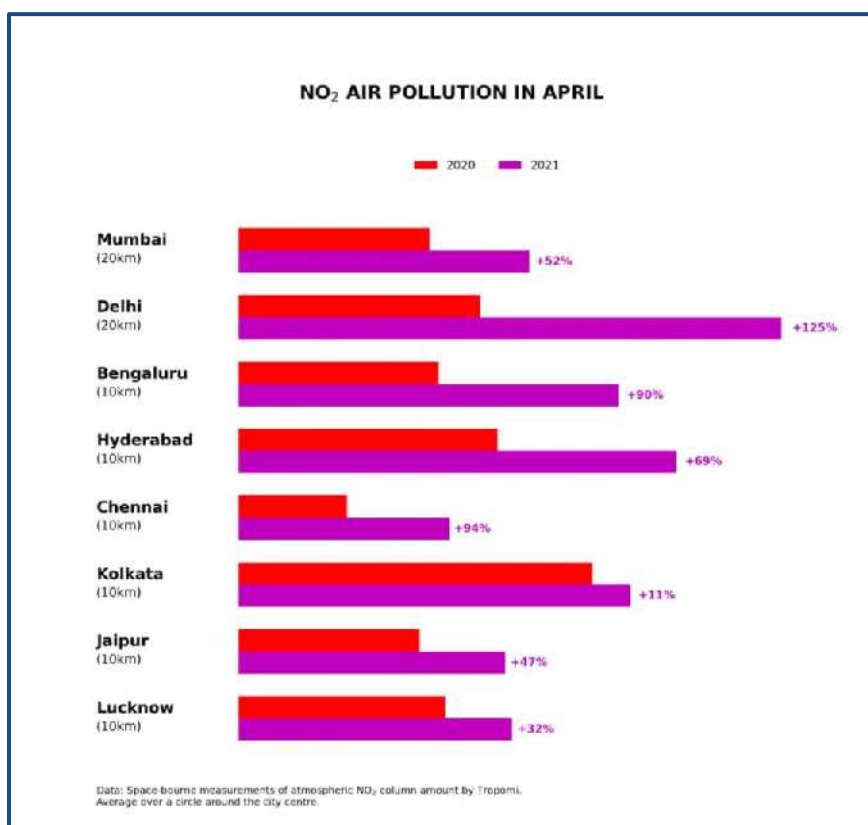
This study was a direct comparison of NO<sub>2</sub> levels of April 2020 and April 2021, thus juxtaposing the total lockdown month with a partial normalcy month.

NO<sub>2</sub> is a dangerous air pollutant that is released via vehicle emissions, power generation, and industrial processes.

The satellite observations of NO<sub>2</sub> analyzed in this study are monthly averages of measurements made by the Tropomi sensor on board the Sentinel-5P satellite, which has been operating since February 2018 (Copernicus, 2018).

Their data claims that NO<sub>2</sub> pollution in Chennai increased by 94% in a direct comparison between April 2020 and April 2021. The weather had only little contribution to this change.

Whereas, in Delhi, NO<sub>2</sub> was higher by 125%, in Mumbai, 52% higher, Hyderabad by 69%, Bengaluru by 90%, Kolkata by 11%, Jaipur by 47% and Lucknow by 32% in April 2021, than in the same month of the previous year.



Specifically on North Chennai(Manali station), their data says that (in 2019) the region recorded unacceptable pollution levels for 119 days. It also states that while emissions from 38 red category industries including thermal power plants, petro-chemical industries, ports are the reason for North Chennai's pollution, vehicular pollution contributes more to Central and South Chennai's

woes.Prabhakaran Veeraarasu, Environmental Engineer, from the NGO Poovulagin Nanbargal said that Chennai's data was a stark reminder to have a demographic, sectoral approach to address Chennai's pollution. "Shifting towards decentralised renewable energy, developing public transport infrastructure, encouraging non-motor transport and ensuring last mile



connectivity can be our targets to reduce vehicular pollution in Chennai” he added.

The report infers that India’s cities witnessing clean air in April 2020 (during the Lockdown) was an unintended consequence, that led to people breathing clean air and seeing clear skies. It suggests that the disruption caused by the pandemic is a case to transition to cleaner, equitable and sustainable decentralised energy sources such as rooftop solar and clean and sustainable mobility must be central to recovery efforts across cities. “The recovery from the pandemic must not come at the expense of a return to previous levels of air pollution,” said Avinash Chanchal, Senior Climate Campaigner, Greenpeace India.

He added that fossil-fuel dependent private vehicles and industries are the major contributors of NO<sub>2</sub> pollution, thus urging Governments to initiate the transition from privately owned vehicles to an efficient, clean and safe public transport system that is run on clean energy, follows Covid-19 safety protocols.

### **Chennai air quality: City sees 94% spike in NO<sub>2</sub> pollution**

*Date:-9-July-2021, Source: [chennai.citizenmatters.in](http://chennai.citizenmatters.in)*



#### **The North Chennai Thermal Power Station along Ennore Port**

A new report from Greenpeace India reveals that a year after initial nationwide lockdowns due to Covid-19, NO<sub>2</sub> (Nitrogen Dioxide ) pollution has increased in all eight most populous state capitals studied highlighting worsening air quality. Among Mumbai, Delhi, Bengaluru, Hyderabad, Chennai, Kolkata, Jaipur and Lucknow, Delhi saw the most dramatic increase between April 2020



and April 2021. Chennai stood at second position with an increase of 94% between April 2020 and April 2021.

### **NO<sub>2</sub> in Chennai**

NO<sub>2</sub> is a dangerous air pollutant that is released when fuel is burned, as in most motor vehicles, power generation, and industrial processes. Exposure to NO<sub>2</sub> can severely impact people's health at all ages, including the respiratory and circulatory systems and the brain, leading to increases in hospital admissions and mortality.

According to satellite observations, NO<sub>2</sub> pollution in Chennai increased by 94% between April 2020 and April 2021. The weather had only little contribution to this change. Whereas, in Delhi, NO<sub>2</sub> was higher by 125%, in Mumbai, 52% higher, Hyderabad by 69%, Bengaluru by 90%, Kolkata by 11%, Jaipur by 47% and Lucknow by 32% in April 2021 than in the same month of the previous year.

As the pandemic continues to have a severe impact in India and cases are spiking in other countries, there is growing evidence that polluted cities suffer disproportionately more coronavirus cases. The health impact of fossil-fuel related air pollution is severe and has been reflected time and again in several reports. Yet there has been little change to our reliance on fossil fuels, including coal, oil and gas, increased economic activity is still largely coupled with toxic air pollution in most of the cities.

### **Steps to improve air quality**

In 2019, the air quality data from Manali station, predominantly working class neighborhood of North Chennai recorded unacceptable pollution for 119 days. Emissions from 38 red category industries including thermal power plants, petrochemical industries, ports are the reason for North Chennai pollution, whereas vehicular pollution contributes more to Central and South Chennai pollution. "Greenpeace's study clearly shows this difference by comparing the lockdown and post-lockdown pollution scenario in Chennai. It is a stark reminder to have a demographic sectoral approach to address Chennai's pollution. Shifting towards decentralised renewable energy, developing public transport infrastructure, encouraging non-motor transport and ensuring the last mile connectivity can be the focused targets to reduce vehicular pollution in Chennai," said Prabhakaran Veeraarasu, Environmental Engineer, Poovulagin Nanbargal. "The air quality levels in these cities are alarming. The cities and the people are already paying a huge price for our reliance on

burning fossil fuels, this business as usual cannot continue. People saw clean skies and breathed fresh air during the nationwide lockdown though it was an unintended consequence of the pandemic. The disruption caused by the pandemic is a case for transition to cleaner, equitable and sustainable decentralised energy sources such as rooftop solar and clean and sustainable mobility must be central to recovery efforts across cities. The recovery from the pandemic must not come at the expense of a return to previous levels of air pollution,” said Avinash Chanchal, Senior Climate Campaigner, Greenpeace India.

“Motor vehicles and industries based on fossil fuel consumption are the major drivers of NO<sub>2</sub> pollution in Indian cities. The governments, local administration and city planners must initiate the transition from privately owned vehicles to an efficient, clean and safe public transport system that is run on clean energy that of course, must provide COVID-19 related safety measures,” added Chanchal.

### **Monsoon expected to hit Delhi today; rain, thundershowers likely**

*Date:-10-July-2021, Source: indiatoday.in*



**The weather department has predicted cloudy skies with one or two spells of rain or thundershowers on Sunday.**

The southwest monsoon gave its date with Delhi a miss on Saturday and is now expected to hit the national capital in the next 24 hours, the India Meteorological Department (IMD) said.

The weather department has predicted cloudy skies with one or two spells of rain or thundershowers on Sunday.

The easterly winds have made conditions favourable for the advancement of the southwest monsoon and it is likely to cover parts of north India, including Delhi, Haryana and Punjab, in a day, it said.

'Hence, the conditions continue to remain favourable for further advancement of southwest monsoon over Delhi, remaining parts of west Uttar Pradesh and some more parts of Punjab, Haryana and Rajasthan during the next 24 hours,' the IMD added.

On Friday, the weather office had predicted that the monsoon would reach the national capital on Saturday, 13 days after its usual date of June 27.

This will be the most-delayed monsoon in Delhi in the last 15 years.

According to Kuldeep Srivastava, head of the IMD's regional forecasting centre, the monsoon had reached the capital on July 7 in 2012 and July 9 in 2006.

In 2002, Delhi had received its first monsoonal showers on July 19. The most delayed monsoon arrival in the city was recorded in 1987 on July 26, he had said.

The maximum and the minimum temperatures of Delhi on Saturday settled at 39.8 degrees Celsius, four degrees above normal, and 28.6 degrees Celsius, a notch above normal, respectively.

Relative humidity recorded at 5.30 pm was 47 per cent, the Met said.

Data from the Central Pollution Control Board (CPCB) showed that Delhi's hourly air quality index (AQI) at 7.05 pm was 96.

An AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.


## Yellow veil dims stars in 75% of Ahmedabad sky

Date:-12-July-2021, Source: [timesofindia.indiatimes.com](https://timesofindia.indiatimes.com)

AHMEDABAD: At nightfall, the brilliance of stars is obscured by a sickly yellow curtain of light pollution across 75% of Ahmedabad's sky. Streetlights, neon signs, and illumination of buildings cast the jaundiced pallor, blocking Amdavadis' view of the glimmering canvas of the cosmos.

### THE DIMINISHING SKIES

- Clear starry skies aren't visible from 75% of city area because of light pollution
- Light pollution is highest at airport and in the Maninagar area. Skies appear orange
- The sky appears yellowish from Bodakdev, Satyagraha Society, Corporate Road, and Jodhpur Tekra
- In light pollution Ahmedabad is sixth, while Surat is eighth among 10 major cities in the country



- Each kilowatt of electric energy releases 1.3 pounds of carbon dioxide gas, 2gm of sulphur dioxide, and 1.60gm of nitrogen dioxide gas into the atmosphere

A study led by IIT-Kharagpur; School of Planning and Architecture, Bhopal; and ITM University, Gwalior, has focused on severe light pollution. The study said that over the airport and Maninagar in Ahmedabad, the nighttime sky is even worse, assuming the flaming orange hue.

Among 10 large cities analyzed by the study, Ahmedabad stands sixth in light pollution and Surat takes the eighth spot. Above them lie New Delhi, Hyderabad, Bangalore, and Mumbai in that order.

In Ahmedabad, the sky turns yellowish in areas such as Bodakdev, Satyagraha Society, Sarkhej, Corporate Road, and Jodhpur Tekra. In Bopal-Ghuma, the sky appears greyish. To spot stars, one will have to travel 6km north from Sanand.

Moving towards Nidhrad, Chandrasan, Dodar, Kanjari, Kunvar, Mankol, Vasan, Jetalpur, or Khoraj, one will notice the sky clearing up and stars will become visible.

The study said that 45% of the city's sky registers light pollution in the range of 13-25 nano-watts per centimetre square per steradian (nano-watts/cm<sup>2</sup>/sr). Another 40% records 25-50 nano-watts/cm<sup>2</sup>/sr. The sky over the airport and Maninagar has the worst reading, at 50-100 nano-watts/cm<sup>2</sup>/sr.

The researchers are Tanya Kaur Bedi (IIT-Kharagpur), Kshama Puntambekar (SPA, Bhopal), and Sonal Singh (ITM, Gwalior).

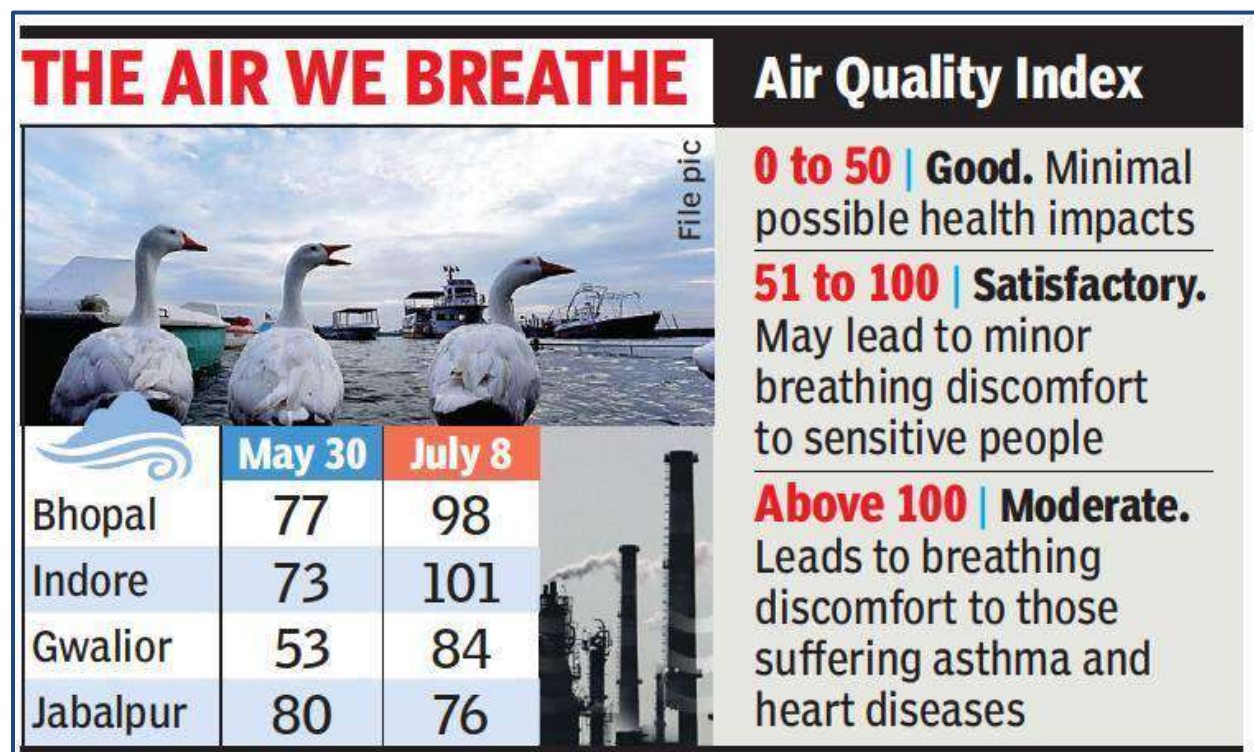
They have cited a 2020 study of the United States Environmental Protection Agency. The US study said that each kilowatt of electric energy releases 1.3 pounds of carbon dioxide gas, 2gm of sulphur dioxide, and 1.60gm of nitrogen dioxide gas into the atmosphere.

Bedi told TOI: “Very few studies are underway in the field of light pollution.” Bedi added: “In fact, light pollution has been rising especially in New Delhi, Gujarat, West Bengal, Telangana, Tamil Nadu, Maharashtra, Karnataka, and Uttar Pradesh from 2003 to 2013.”

## Post unlock, air pollution surges in Madhya Pradesh

*Date:-13-July-2021, Source: timesofindia.indiatimes.com*

BHOPAL: Corona curfew not only breaks the Covid chain, but also helps in improving the air quality. Around 50 days of lockdown between April and June had brought down the air pollution substantially in major Madhya Pradesh cities. But after unlock, the pollution levels have again started rising in most of the cities across the state.







Air quality index of Bhopal on May 30 was 77 that rose to 98 on July 8. In Indore, AQI was 73 on May 30, which went up to 101. In Gwalior, AQI was 53 on May 30 which rose to 84 on July 8 while in Jabalpur AQI was 80 on May 30, which hovered around 76 on July 8.

Air quality is measured taking into

account the levels of sulphur dioxide (SO<sub>2</sub>), nitrogen oxide (Nox), RSPM10 and fine particulate matter (PM<sub>2.5</sub>) in the air. While the rise in sulphur dioxide is due to vehicle emissions, the increase in nitrogen oxide is due to human activity, including vehicles and sewage, among others.

PM 10 is due to dust, construction, including building of roads while PM<sub>2.5</sub> is due to dust, human activity and climatic conditions. Of the four, officials said, PM<sub>2.5</sub> is the most harmful to health since it causes severe lung diseases.

Air quality index between 0 and 50 is termed as good with minimal possible health impacts while air quality between 51 and 100 is satisfactory but may lead to minor breathing discomfort to sensitive people. Air quality above 100 is moderate and leads to breathing discomfort to the people with lungs, asthma and heart diseases.

AQI above 200 leads to breathing discomfort for most of the people on prolonged exposure. Officials said the air quality remained best during the corona restrictions.

From April 8, the government announced weekend lockdowns in city limits across the state due to a surge in Covid-19 cases. It was later converted into a lockdown on all days with only the ones pressed in emergency services allowed to move. Unlocking process started in June in the state.

## **Fly ash from power stations in Bihar wreaks havoc on human health, crops: Study**

*Date:-15-July-2021, Source: hindustantimes.com*



PATNA: Villagers and farmers residing around Kahalgaon super power thermal station are reeling under the constant fear of damage to their health and standing crops owing to improper management of fly ash generated in the course of production of electricity, according to a joint study by two non-profit organizations.

Research organisations Asar Social Impact Advisors, Research on Energy and Clean Air and Manthan Adhyay Kendra recently released a study, titled “Lest We Forget - A status report of neglect of coal ash accidents in India (May 2019-May 2021)”. Fly ash is also known as coal ash.

The report stated that residents living around power plants such as Kahalgaon and Bokaro power stations were at the receiving end of the casual approach in handling fly ash, despite penalties and fines being levied on coal-based power plant operators. “Despite clear-cut rules for fly ash management, villagers and farmers are exposed to suffer,” the report said.

While people face health issues due to heavy concentration of small particles in the air, crops on around 80 hectares of land were damaged late last year and



early this year, as the station's ash dyke breached its embankment and a pipe of ash slurry burst near Chaitola and Masdaha.

Scores of houses had also been flooded with ash slurry in Bokaro after a pond built to store the fly ash near the Bokaro thermal power station overflowed in September 2019. Power station authorities attributed the accident to excessive rain.

The study maintained that fly ash still remained in fields and a few wells in the villages rendering them unfit for use even several months after the incidents occurred. Power plants have failed at not only removal of ash, remediation of sites, addressing health impacts but also in paying full compensation to affected villages. "About 200 acres of farmland was left covered in ash slurry, destroying standing rabi crops," the report said.

According to locals, airborne ash has been leading to tuberculosis cases and breathing issues especially across central India. Impacts also included severe pollution in natural water bodies as ash was dumped directly in rivers, the study recorded.

Balkrishna Kumar of Masdaha village said that it takes four-five seasons to grow crops on any farmland once they are covered with fly ash. "Hundreds of people in villages like Ekchari, Bholsar, Chaitola and Masdaha suffer from respiratory diseases and tuberculosis. But, neither the NTPC nor the state government took any initiative to identify the ailing people and provide them with adequate treatment," said Kumar.

District agriculture officer, Bhagalpur, Sanjay Kumar said that the district administration assessed the damage to Rabi crops due to fly ash flooding and submitted the report to the National Thermal Power Corporation (NTPC) for payment of compensation. The NTPC management has also been asked to dispose of the fly ash as per the rules.

Chairman of Bihar State Pollution Control Board Ashok Ghosh said he was unaware of recurring fly ash accidents in the Kahalgaon area. He, however, said that he would seek a detailed report from the NTPC regarding management of fly ash and adherence to the stipulated norms.

Saurav Kumar, public relations officer at NTPC's Kahalgaon plant, said the power station complies with all guidelines of central and state pollution control boards, and 100% fly ash produced is sent to cement factories for use in production of cement as part of its commitment toward the environment.

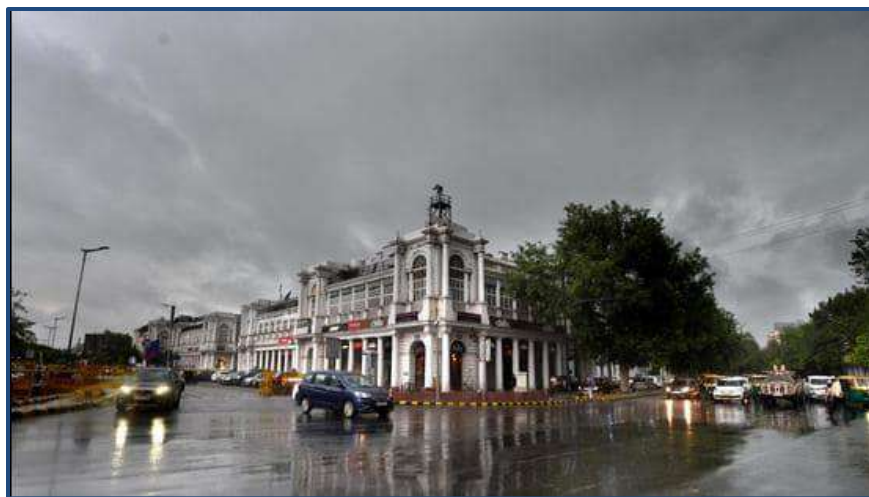
“There was a minor incident in which water overflowed from one of the ash dykes at Kahalgaon, resulting in temporary flooding of water in some agricultural lands in the vicinity. However, NTPC Kahalgaon is committed to compensate the villagers for the same as per the direction and finalisation of compensation by the district administration,” Kumar said in a statement.

On the villagers’ claim that it takes four-five seasons to grow crops on any farmland once the land is covered with fly ash, Kumar clarified that the land in the vicinity of the ash dyke area was presently covered with standing crops and there was no impact of flyash on grain productivity.

“NTPC organizes medical camps in various villages to provide free treatment and medicines. There was no conclusive finding that people were getting sick due to flyash-led pollution,” said the PRO.

### **Delhi weather: IMD predicts light rain today and tomorrow**

*Date:-16-July-2021, Source: hindustantimes.com*



Delhi is likely to see light rain on Friday as per the India Meteorological Department (IMD) forecast. Light rain or drizzle has also been predicted for Saturday.

The minimum temperature on Friday is likely to be 26 degrees Celsius while the maximum temperature is predicted to hover around 37 degrees Celsius. The minimum temperature on Thursday was 23.4 degrees Celsius and the maximum temperature was 36.6 degrees Celsius.

Delhi’s air quality was in the satisfactory category on Friday morning. Data from Central Pollution Control Board showed that the hourly air quality index (AQI) at 7am stood at 91. On Thursday, the average 24-hour AQI stood at 83 in the satisfactory category. An AQI between zero and 50 is considered good, 51 and 100 satisfactory, 101 and 200 moderate, 201 and 300 poor, 301 and 400 very poor, and 401 and 500 severe.

On Thursday, the union ministry of earth science's air quality monitoring centre, System of Air Quality and Weather Forecasting and Research (Safar) said, "The overall air quality is in the satisfactory category as forecasted. Surface winds are high and the southwest monsoon has advanced into Delhi. Thundershowers observed over Delhi. Increased rainfall activity is likely to influence AQI positively. Widespread rainfall is likely during the next few days. Satisfactory to good AQI is forecasted for the next three days."

### **Covid-19 virus piggybacks only black carbon emission, says study**

*Date:-18-July-2021, Source: hindustantimes.com*



#### **PM2.5 consists of black carbon, often called soot and polycyclic aromatic hydrocarbons (PAHs) among others**

A new study has suggested that Covid-19 virus piggybacks only black carbon emitted during biomass burning and not all PM2.5 particles. The study, conducted by Pune-based Indian Institute of Tropical Meteorology and published in the journal ELSEVIER, is based on data collected from Delhi from September to December last year and the 24-hour average of particulate matter (PM) 2.5 and black carbon (BC).

PM2.5 are fine particles which penetrate deep into the body and ignite inflammation in the lungs and respiratory tract that leads to the risk of having cardiovascular and respiratory problems including a weak immune system. PM2.5 consists of black carbon, often called soot and polycyclic aromatic hydrocarbons (PAHs) among others.

Several studies have linked air pollution to higher Covid-19 cases. A study carried out in Italy correlated the incidence of coronavirus cases with PM2.5 levels, authors Aditi Rathod and Gufran Beig said, reports news agency PTI.

"However, in this paper, we argue that not all PM2.5 particles carry the virus. It is only black carbon which is emitted during biomass burning which carries the virus," Beig, senior scientist and founder-project director, System of Air Quality Forecasting And Research (SAFAR), said.

"Delhi was worst affected by the novel coronavirus infection. However, when the situation was returning to normal after about six months with minimum fatalities, it suddenly encountered a reversal with a 10-fold increase in infection counts, coinciding with the onset of the stubble burning period in neighbouring states," the study noted.

The study says that the aged biomass black carbon particles tend to aggregate and react with other compounds to grow in size, providing temporary habitat to viruses leading to the rapid increase in Covid-19 cases, which declined after the crop burning stopped.

The researchers found that the concentration of black carbon "directly corresponds to the speed at which infections spread after the onset of winter and stubble burning period and then reduced with a declining trend in BC with reduction in stubble fire counts".

The surge in black carbon emission is directly related to the additional contribution of stubble burning-induced PM2.5 concentration transported externally from stubble burning regions, the study stated.

In another study conducted earlier, Beig and his co-authors had said that people living in Delhi, Maharashtra, Uttar Pradesh, Madhya Pradesh and Tamil Nadu are more likely to contract Covid-19 due to prolonged exposure to high concentration of PM 2.5. "Higher number of Covid-19 cases have been found in places like Maharashtra, Delhi, Rajasthan, Tamil Nadu, Uttar Pradesh, Andhra Pradesh, Telangana, Gujarat, Bihar, Karnataka, Odisha and Madhya Pradesh with prolonged exposure to high concentration of PM2.5," the report had said.

## 11% rise in Kolkata's nitrogen dioxide pollution this year; least among 8 state capitals: Report

*Date:-19-July-2021, Source: timesofindia.indiatimes.com*



KOLKATA: A recent report titled “Behind the Smokescreen” by Greenpeace India reveals that a year after the initial nationwide lockdown due to Covid-19, nitrogen dioxide (NO<sub>2</sub>) pollution has increased by 11% in the city. Though the rise is the least in Kolkata among eight most populous state capitals, the NO<sub>2</sub> pollution affects

health, especially respiratory and circulatory systems and the brain.

Mumbai, Delhi, Bengaluru, Hyderabad, Chennai, Jaipur, Lucknow and Delhi saw the maximum rise in the NO<sub>2</sub> pollution between April 2020 and April 2021. Comparing with April, 2020, it was higher by 125% in Delhi, 94% in Chennai, 52% in Mumbai, 90% in Bengaluru, 47% in Jaipur, 52% in Mumbai, 32% in Lucknow and 69% in Hyderabad in the same month this year. In Kolkata, the NO<sub>2</sub> air pollution was 11% higher in April this year than in the same month, last year.

The study estimated that 1.3 million children in India live with asthma due to chronic exposure to the NO<sub>2</sub> pollution from vehicles, power plants and factories.

“The air quality levels in these cities are alarming. The cities and the people are already paying a huge price for our over-reliance on burning fossil fuels. People saw clean skies and breathed fresh air during the nationwide lockdown, though it was an unintended consequence of the pandemic,” said Avinash Chanchal, senior climate campaigner, Greenpeace India.



## HEALTH AT RISK

- Nitrogen dioxide primarily gets in the air from vehicular emissions and power plants
- The NO<sub>2</sub> pollution triggers asthma among children and elderly people
- It increases susceptibility to respiratory infections
- It leads to respiratory symptoms
- NO<sub>2</sub> and other NO<sub>x</sub> interact with water, O<sub>2</sub> and



Vehicular pollution in the city

- other chemicals in the atmosphere to form acid rain
- Acid rain harms sensitive ecosystems

“As per CSIR NEERI, a massive 25% of particulate matter pollution in Kolkata comes from vehicular emissions. It’s largely anthropogenic and hence it is solvable through stringent measures. Vehicles are the largest contributor to air pollution in Kolkata and we must find ways to promote cycles, electric vehicles in the city at a rapid pace, or we may be staring at another health crisis in the coming years,” said Vinay Jaju, SwitchON Foundation, a network partner of Greenpeace.

### India burns: Air pollution & how to control it

*Date:-20-July-2021, Source: newindianexpress.com*

India burns its crop. India burns its garbage. India burns a lot it wants to get rid of.

Let’s look around. Crop burning is a practice. Our food-bowl states grow crops for us. At the end of the crop, every plant has produced two things: Things we as well as our buffalos, cows and goats will eat, and stuff that no one will eat. This is considered to be fit to burn. And burn we do. In the crop harvest months, the entire country wears a pall of crop-burning gloom. There is a haze in our lives that one has come to expect every year come the season to burn.



If rural agrarian India does this with gusto, urban and mini-metro India is not too far with its burning fetish. Burning (not controlled incineration) is par for the course in our big cities and towns alike. We love to burn dry leaves and twigs to warm ourselves in the winter months. We love to burn dry garbage all year round. It's considered a great way to get rid of a voluminous mess. Burn up those mounds of leaf and garbage and within hours the ground is clear. All that is left is ash and plastic residue. The rest has gone into the air, polluting it along with everyone who breathes it all in.

This burning fetish is one that belongs not only to the individual in his little home with a garden in front of it, but also to those who dump garbage at street corners and institutions that belong to the government and our Armed Forces as well. I live right next to one such establishment, the Air Force Camp, Murugeshpalya in Bengaluru. And a lot is burned literally every other day. Burn it all in the open air and let loose particulate matter into the air all around.

We also burn for business. While large factories all around come under the Pollution Control Act and its stringent measures, smaller establishments of every kind have a wanton existence. Our jaggery and tile factories pollute at will, just as every other small enterprise does its own thing, often not worrying too much about what is let out as pollutants into the air. The sad thing is that dry and wet pollution can be seen visibly, but air pollution is well nigh invisible. At times there is just no colour to it and even if there is, it seems to dissipate all too fast. Tracking back to the source is all the more difficult.



Evidence in air pollution has this happy aspect that it disappears fast and quick.

And then we burn for fun. Every anecdotal bonfire is one such piece of fun. Fortunately, India is not a land of the regular bonfire. But we have our festivals. Firecrackers are a classic act that pollute the air that much more. Festival time is not much of a celebration for those sick with respiratory ailments.

We also burn for commuting. Fortunately, pollution control laws that dictate emission standards are tight in India. There is a mandatory pollution control check every vehicle has to go through every six months. And despite it all, we pollute as we travel. The pandemic had cleared the air of this one pollutant for months. But once life resumed to normal, so did the pollutant.

Each one of us, in some way or the other, is a sinner in this country that silently celebrates air pollution. The sad fact is that we don't take note of it. Not till it affects any one of us or a dear one in the family. By then, it is too late. Contributing to the degree of air pollution seems a national passion. All of us do it in our own small way. We need to sit up and smell the pollution.

There is a dire need to address the issue of air pollution in India. According to numbers published by IQair from Switzerland, 22 of the 30 most air polluted cities in the world are in India. And New Delhi is the most polluted capital city in the world. A dubious distinction that must make us worry.

Air pollution and tackling it are serious businesses in India. A big business opportunity. The solution needs to address two issues. The first is the one at the producer end. The second is at the point of managing it all once pollution has actually entered into our air streams and public spaces. As of now, we are managing it a bit too late, at a point of time when this pollution has entered into our lungs, repeatedly, over the days and years of our lives.

Air pollution needs two approaches. A preventive approach and a curative. Both are important for the country. At the end of preventive air pollution we need to be investing in filters that stop and break the spread of the insidious pollutant in terms of particulate matter that is all around us. We live in a world that has new technology in place for this very effort. Let's urge its use.

At the end of curative air pollution, massive motors and machines that can gobble up dirty air and spew out the clean air should be introduced. The new trees of the new future ahead of us. Sad, but true.

In between these two approaches, there is an urgent need to educate ourselves very quickly about the quality of air we breathe in today at home, in office, in our schools and colleges, and in every public space we love to thrive in.

As I urge you to look at this subject seriously, let us remember that every breath we take is a polluted one today. We don't drink polluted water, so why do we breathe in polluted air? The answer lies in the fact that we just don't know how polluted the air we breathe is. What we don't know, we don't care about. What we don't see, we don't give a hoot about. Not till it makes our every breath a loud wheeze we hear ever so loudly as we sleep.

### **Delhi weather: Cloudy sky with a chance of light rain today**

*Date:-21-July-2021, Source: hindustantimes.com*



#### **Dark clouds hover over South Extention in New Delhi on Tuesday, July 20**

Delhi is likely to see a cloudy sky with light rain on Wednesday, as per the India Meteorological Department (IMD) forecast.

The minimum temperature on Wednesday is likely to be 25 degrees Celsius (°C) while the maximum temperature is predicted to reach 34°C.

The minimum temperature on Tuesday was 24°C, three notch below normal and the maximum temperature was 31.9°C.

Delhi's air quality was in the satisfactory category on Wednesday morning. Data from the Central Pollution Control Board showed that the hourly air quality index (AQI) at 7am stood at 78. On Tuesday, the average 24-hour AQI was 81.

An AQI between zero and 50 is considered good, 51 and 100 satisfactory, 101 and 200 moderate, 201 and 300 poor, 301 and 400 very poor, and 401 and 500 severe.

### **‘India, China most vulnerable to joint risks of climate change, air pollution’**

*Date:-21-July-2021, Source: hindustantimes.com*



**The world's two fastest developing economies with 2.5 billion plus people have witnessed a spurt in particulate matter induced air pollution levels in the past two decades**

India and China are among the world's top five countries that are most vulnerable to climate change and air pollution with the capacity to deal with the risks, a first of its kind research assessing the combined risks of air pollution and climate change, said on Thursday.

The world's two fastest developing economies with 2.5 billion plus people have witnessed a spurt in particulate matter induced air pollution levels in the past two decades and have seen high risks due to climate change induced extreme rainfall, frequent cyclones and heat waves in recent past, the study says.

“Deaths resulting from toxic pollution are highest where the distribution of toxic pollution is greatest and, critically, also where the impacts of climate change pose the greatest risk,” the study, Global distribution and coincidence of pollution, climate impacts, and health risk in the Anthropocene, said, in a specific reference to India and China.

For more than 30 years, the scientists on the UN's Intergovernmental Panel on Climate Change (IPCC) have assessed impacts of human induced climate change whereas bodies such as World Health Organisation have focused on health impacts of rising air pollution globally.

Scientists at the University of Notre Dame found a “strong and statistically significant” link between the two environmental hazards and said the countries which are at most risk of climate change are also the countries with highest risks of toxic pollution.

A vital difference between climate change and air pollution is that greenhouse gases that cause global warming are considered non-toxic whereas air pollutants such as particulate matter or nitrogen dioxide are toxic.

“It is not surprising to find that these risks are highly correlated, but this study provides the data and analysis to inform policy, data and analysis that were previously lacking,” associate professor of Political Science at the university Debra Javeline said, in a statement.

To make the study useful for policymakers, the authors ranked 177 countries on “Target”, a measure that combined a country's climate impact risk, toxic pollution risk and its potential readiness to mitigate these risks. Most countries such as India and China, have high air pollution and green house gas (GHG) emissions. China is the world's leading total GHG emitter and India is on track to join it at the top and they are two top ranked countries to emit toxic air pollution.

Based on these criteria, the study ranked Singapore, Rwanda, China, India, Solomon Islands, Bhutan, Botswana, Georgia, the Republic of Korea and Thailand as top 10 countries. “The top one-third of countries at risk of toxic pollution and climate impacts represent more than two-thirds of the world's

population, highlighting the magnitude of the problem and unequal distribution of environmental risk,” researchers wrote in the paper published in peer-reviewed scientific journal PLOS One.

Among those countries appearing at the bottom of the list are Equatorial Guinea, Iraq, Jordan, Central African Republic and Venezuela. “These (bottom of the table) nations are most likely to have outstanding governance issues that currently stand in the way of effectively addressing pollution and climate change,” the study said.

On India and China, the two largest countries, together representing over 2.5 billion people, the study said they have relatively high Proportion Mortality ranks --- India ranked 5th and China 13th with 23.5% and 17.9% of annual deaths associated with toxic pollution, equalling 2.3 and 1.9 million premature deaths annually, respectively.

The study also pointed out that the two countries have come up with national pollution reduction policies to reduce pollution deaths. In the case of China, it said, its National Plan on Air Pollution led to 40% reduction in pollution levels.

“The improved air quality resulted in significant corresponding reductions in respiratory disease and cardiovascular disease mortality rates,” the study said, adding that there is strong potential for co-benefits from efforts focused on China and India in risk reduction for neighbouring countries and other countries at-risk of climate change more broadly.

Anumita Roy Chowdhary of Centre for Science and Environment said the study interestingly provides broad parameters linking air pollution and climate change and provides insight on how tackling both with singular policy instruments can be co-beneficial. “We know that reducing air pollution helps in managing green house gas emissions and vice-versa. The study, however, analyses the capability of 180 countries to deal with twin environmental problems,” she said.

University’s postdoctoral research associate Drew (Richard) Marcantonio said the idea of ranking (Target) is to highlight where action can be taken to reduce risk to human health and whether it can be done through incentives or sanctions. “A range of measures can be used to promote risk reduction such as trade incentives..., or other policy and regulatory enforcement mechanisms,” the study said, adding that it provides moral reflection to determine what actions should be taken and who should take them.

## **Decision Support System to help Delhi fight air pollution**

*Date:-23-July-2021, Source: timesnownews.com*



### **Delhi air pollution**

New Delhi: Noxious air in Delhi is a year-round problem, and the situation worsens in the winter months due to various reasons, including unfavourable meteorological conditions and crop residue burning in neighbouring states. This year, a new pollution source tracking model is expected to start giving data on air pollutants emitted into Delhi's air from different sources. This would help in preparing better strategies to mitigate air pollution in the national capital.

Developed by scientists of the Indian Institute of Tropical Meteorology (IITM) in Pune, the Decision Support System (DSS) will help in determining the contribution of various air pollution sources, such as road dust, vehicular emissions and stubble burning, in real-time. The DSS will be attached to the existing air quality monitoring networks in the national capital, according to a report by Hindustan Times.



The DSS project's head, Sachin Ghude, said that currently trials are being conducted to increase the accuracy of the new pollution source tracking system. "We have tagged each pollution source in Delhi. With this, at any given time we will be able to know which pollution sources are acting up and how much are they contributing. We will also be assessing where these sources are located," the HT report quoted Ghude as saying.

Ghude further stated that Central Pollution Control Board (CPCB) will monitor the developments pinpointed through the DSS, adding that both the policymakers as well as the public will have access to real-time information about sources of air pollution in the national capital.

The causes of air pollution in Delhi are numerous. According to government data, local pollution sources such as construction sites, vehicles and factories are the biggest offenders. The air quality is at its worst in the last three months of the year as well as in January, due to stubble burning in Punjab, Rajasthan, Haryana and western Uttar Pradesh.

### **Bending Delhi's air pollution curve**

*Date:-24-July-2021, Source: hindustantimes.com*



**Meteorological conditions in Delhi intensified the impact of local and regional emissions on Delhi's air quality.**



Delhi is among the most polluted cities in the world (IQ Air 2021). In 2019 alone, air pollution caused over 17,000 premature deaths and an economic loss of \$1,207 in the national Capital (Pandey et al. 2021). With regards to air quality, 2020 was an aberration. The pandemic-induced lockdown measures provided temporary respite from the year-round poor air quality. Despite the lockdown, Delhi's annual average PM<sub>2.5</sub> in 2020 was more than two times its permissible limit. Barring a few days in April and May, Delhi experienced National Ambient Air Quality Standard (NAAQS) compliant air quality on most days during the lockdown. Yet, the annual average PM<sub>2.5</sub> concentration in 2020 was 93 µg/m<sup>3</sup>, which is more than twice the permissible limit for PM<sub>2.5</sub> in India. Despite low activity levels for close to eight months (March to November) in 2020, Delhi residents were exposed to NAAQS non-compliant air for more than half of the year.

Winters saw poor quality despite proactive measures by the government. While the NAAQS non-compliant air quality in Delhi is not a new phenomenon, the winter of 2020 witnessed proactive measures from the State government in the wake of Covid-19 and evidence pointing at the association between high air pollution and Covid mortality (Petroni et al. 2020; Cole, Ozgen, and Strobl 2020; Wu et al. 2020). This includes the Yuddh Pradushan Ke Virudh (war against pollution) campaign and a seven-point action plan to combat air pollution in Delhi which listed measures ranging from combating dust and mitigating hotspots to a mobile application called Green Delhi for complaints and a 'war room' for monitoring air pollution control activities (PTI 2020). Similar to 2019, the Graded Response Action Plan (GRAP), also came into force on October 15, 2020 and the Environmental Pollution Control Authority (EPCA) oversaw its implementation until the announcement of its dissolution on October 28, 2020 (Koshy 2020; EPCA 2020).

However, despite these measures, the PM<sub>2.5</sub> levels remained almost three times higher than the NAAQS on an average between October 2020 and January 2021. We also observe that PM<sub>2.5</sub> levels in winter 2020 were higher than those in 2019. To explain this end, we analyse meteorological parameters, source activity levels, and contributions to establish primary drivers of pollution during different phases of the winter season. Through this brief, we intend to help the Delhi government, the Central Pollution Control Board (CPCB) and the Delhi Pollution Control Committee (DPCC) to identify priority areas of intervention for the year 2021. We summarise key highlights as follows.

Air quality in winter 2020 was worse than winter 2019. Delhi observed 92 severe and very poor air quality days in the winter of 2020 compared to 80 such days in 2019. Compared to an average PM<sub>2.5</sub> concentration of 161 µg/m<sup>3</sup> in 2019, between October and November 2020, this value was 172 µg/m<sup>3</sup>. It further shot up to an average level of 192 µg/m<sup>3</sup> in the period between December 2020 to January 2021 compared to 178 µg/m<sup>3</sup> during the same period previous year. Contributions from stubble burning and household emissions from cooking and space heating were significant fractions of the pollution pie. Modelled source contribution estimates of particulate matter (PM<sub>2.5</sub>) by UrbanEmissions suggest that relative contribution from farm fires was the highest (~30%) in the period between October 15 and November 15, 2020. We find that compared to the stubble burning period in 2019, a longer harvesting season in 2020 led to a significant increase in the number of fires. In the following months, contribution from household emissions (including domestic cooking, space heating, water heating, and lighting) primarily drove poor air quality in Delhi. It is worth highlighting that these values are modelled estimates and are subject to the sector-specific assumptions used in the model.

Calmer winds in October and November amplified the impact of farm fires on Delhi's air quality. The stubble burning phase (October 15 to November 15) in 2020 experienced 172 hours (70% higher) of calm and light winds (<5 km/h) compared to 101 hours in 2019. Winds predominantly from the north-west direction facilitated the transport of smoke emanating from farm fires and calm winds in Delhi further intensified its adverse impact on air quality. Interestingly, for brief periods in the season, even when high fire counts were reported in Punjab and Haryana, Delhi's air quality was not affected due to favourable meteorological conditions (easterly and southerly winds) (Figure ES3).

Lowered activity levels at the start of winter due to lockdown bounced back to the previous year's levels as the winter progressed. While Delhi's average PM<sub>2.5</sub> concentration during the stubble-burning period (October'20 and November'20) was 172 µg/m<sup>3</sup>, it increased to 192 µg/m<sup>3</sup> during peak winter (December'20 and January'21). The higher PM<sub>2.5</sub> levels in December 2020 and January 2021 were primarily caused by locally-emitted pollutants and added burden of household emissions from space heating. Activity levels were low at the start of the season, but most activities, including vehicular traffic and power generation, bounced back to the previous year's levels (proxied by indicators such as congestion and electricity generation levels in Figures ES4 and ES5) as the season progressed.

Delhi needs a dedicated air quality forecasting cell to facilitate roll out of preventive measures. We attribute the brief periods of moderate air quality during winter 2020 largely to favourable meteorological conditions. It is evident that adverse meteorological conditions in Delhi intensified the impact of local and regional emissions on Delhi's air quality. While meteorological conditions cannot be controlled, sustained air quality gains can be realised only by steeper emission cuts across sectors. Delhi has in place a publicly available air quality forecast system provided by UrbanEmissions for over five years. The Indian Institute of Tropical Meteorology (IITM), under the aegis of ministry of earth sciences (MoES), has also built an official air quality warning system for Delhi (PIB 2018). However, none of these forecasts were actively used to take pre-emptive measures to reduce emission loads from anthropogenic activities.

Some countries roll out emergency measures in response to air quality forecasts and not after air quality actually dips to dangerous levels. For instance, Beijing's ministry of ecology and environment issues a red alert if the daily mean citywide air quality index (AQI) is forecasted to be greater than 200 for four days (96 hours) or more; greater than 300 for two days (48 hours) or more; or greater than 500. In contrast, the Delhi government issues orders to execute emergency measures under GRAP ex-post, that is, after air quality concentrations reach a certain threatening level. Responsive measures cannot prevent the occurrence of high pollution episodes. Further, adding relative source contributions to air quality forecasts, similar to the way UrbanEmissions issues forecasts, can help identify the primary contributors during a particular episode. Integrating such forecasts with a decision support system would enable the local regulatory agencies to implement on-demand emission control interventions targeting prominent sources during forecasted high-pollution episodes.

GRAP presents the state government with an opportunity to constitute an air quality forecasting cell that can advise the government to take necessary measures to prevent severe air quality episodes in the capital city. We recommend that going forward, the Delhi government, the CPCB, and the DPCC use the air quality forecasts not only to issue public health warnings but also for taking pre-emptive actions in the national capital. We must move from a system that enforces the GRAP as an ex-post measure to one that prevents the occurrence of high pollution episodes through pre-emptive emission control measures.

## **Ban BS-III vehicles in MMR to prevent air pollution: MPCB panel**

*Date:-25-July-2021, Source: hindustantimes.com*

An independent committee constituted by the Maharashtra Pollution Control Board (MPCB) has recommended a complete ban on the entry and operation of Bharat Stage (BS)-III vehicles in the Mumbai Metropolitan Region (MMR). The committee was formed last November to address concerns around vehicular pollution in Mumbai.

Officials said the move, if implemented, would bring about an immediate reduction in emissions while spurring the uptake of latest BS-VI emissions norms. Experts, however, cautioned that commercial vehicles such as inter-city taxis and goods carriers may be adversely affected by this proposal.

An MPCB official, seeking anonymity, clarified that no final decision has been taken in the matter. "The committee report was submitted in June and is awaiting comments from other departments. The state government will take a decision after considering all commercial and environmental aspects," the official said.

The recommendation was part of an exhaustive list of mitigation measures proposed by the 13-member committee, headed by former additional chief secretary (transport) Satish Saharabuddhe. The committee consists of officials from MPCB, Mumbai Metropolitan Region Development Authority (MMRDA), Automotive Research Association of India (Pune), Society of Indian Automobile Manufacturers (Delhi), representatives from Indian Institute of Technology-Bombay, and independent experts.

"The committee was constituted to make recommendations specifically on reducing vehicular pollution in the MMR region. We have suggested a range of proposals including revamping the existing pollution under control (PUC) system and setting up vehicle inspection centres along the lines of those proposed in Nashik, improving scrappage policy for legacy vehicles, remote sensing of vehicular pollutants at key junctions, and introducing a reward-based carpooling system which reduces the number of private vehicles on city streets while allowing owners to cover their cost of travel," said committee chairman Satish Sahasrabuddhe.

“We also deliberated on e-mobility. Some of the recommendations adopted in the Electric Vehicles Policy 2021 were first suggested by us, including electrifying all state government vehicles. Converting last-mile delivery vehicles for food and logistics companies to electric two-wheelers was also something which we had initially suggested,” he said.

The committee has recommended that such companies pro-actively buyback two-wheelers from their delivery partners using corporate social responsibility (CSR) funds, and replace them with electric two-wheelers, availing incentives under Central and state schemes, which stand to significantly reduce the total cost of operation for such vehicles. The companies can further reduce the cost by availing scrappage policies,” Sahasrabuddhe said.

However, one of the most ambitious proposals in the short-term remains the ban on BS-III vehicles which, officials said, is in line with the already existing Bombay High Court instruction barring vehicles older than 16 years from plying in the city. These are mainly BS-II vehicles. “We are making this rule stricter. BS-III vehicles plying in Mumbai will now be around 10 years old. The same rule should apply to them, given that we have stricter BS-VI norms now. We have proposed that the vehicles be converted to CNG fuel in order to keep plying,” said Sahasrabuddhe.

Madhav Pai, urban policy researcher and executive director of the World Resources Institute India Ross Center, said the move to ban the operation of BS-III vehicles in MMR is a positive step. “But there will be livelihoods at stake. People who operate older goods carriers and other commercial vehicles will require some support so that they can affordably make the switch to newer BS-VI vehicles,” he said.

## **Inequity in the Air of India**

*Date:-26-July-2021, Source: newswise.com*

Newswise — Air pollution in India is generated more by the wealthy, while the poor suffer most of the health impact, according to a study by five IIASA researchers published in Nature Sustainability.

The researchers focus on PM<sub>2.5</sub> pollution, which is airborne fine particles smaller than 2.5 micrometers across. These fine particles increase the risk of heart and lung diseases, and are the main cause of early mortality from air pollution around the world. It comes from many sources, including power

generation, burning waste, and cooking on stoves that burn wood and other solid fuels.

To find the PM<sub>2.5</sub> contributions from different income groups in India, the team took 2010 statistics on income-group expenditure (on fuel, electricity, and consumer goods), as well as production of waste; and then used the IIASA integrated assessment model, GAINS, to calculate the pollution generated. They also used GAINS to track that pollution and provide a map of exposure to PM<sub>2.5</sub>. Finally, the team calculated health impacts, based on this map and on another study into the effect of income on mortality from cardiovascular diseases.

The results show that higher income groups contribute more to ambient air pollution, and lower income groups have higher mortality.

“The poor suffer much more relative to what they contribute,” says study author and senior researcher in the IIASA Pollution Management Research Group, Fabian Wagner. “To quantify this, we defined a new pollution inequity index, the ratio of premature deaths to the amount of ambient air pollution contributed. For India’s highest-income decile the index is 6.3, while for the poorest it is 54.7, which means the poorest decile is disadvantaged relative to the richest decile by a factor of almost 9.”

To test how policy might affect this, the team looked at two scenarios. In one, the cleanest available technologies are applied to all pollution sources other than cook stoves. Mortality is reduced somewhat, and inequity as measured by the new index is also reduced, by cutting down the contribution to pollution from higher income groups.

In the second scenario, solid-fuel cook stoves are replaced by clean electric stoves. Mortality is reduced much more than in the first scenario, especially for poorer groups, who gain from lower indoor pollution as well as lower ambient pollution.

“This stark inequity is already present in consumption patterns, masked by the impact of dirty cook stoves used by the poor for lack of viable alternatives,” explains Narasimha Rao, a researcher in the IIASA Transformative Institutional and Social Solutions Research Group, who is also on the faculty of the Yale University School of Forestry and Environmental Studies.

The message for policymakers is still to pursue clean cooking.



“It is a good policy because it would save many lives, especially in low-income households. Air pollution risks would be distributed more fairly as a result, but our study shows that clean cooking does not solve the underlying inequity in the relationship between who pollutes the air and who suffers from it,” concludes Shonali Pachauri, another study coauthor affiliated with the Transformative Institutional and Social Solutions Research Group.

The next step will be to look at policies targeting specific emission sources, to see what options might spread the load more fairly – ideally with higher income households taking on more of the financial burden of cleaning up the air.

### **High level of metals, PM 2.5 found in Chennai's air**

*Date:-27-July-2021, Source: timesofindia.indiatimes.com*



CHENNAI: Air quality across the city is consistently poor with high levels of particulate matter, a study released by a Chennai based environment and health advocacy group on Monday said. More worrying is the detection of high levels of silica, manganese and nickel, which can cause neurological disorders, cancer and

respiratory disorders.

The samples were taken by Healthy Energy Initiative India, a team of public health experts, and Coastal Resource Centre, which works on environmental issues, in February and March from across the city, mostly from near industrial areas in north Chennai, and sent for testing to Chester Labnet in Oregon, US. The group has released similar studies once a year since 2016.

The study shows 17 of the 20 samples had levels of Particulate matter 2.5 (PM 2.5) higher than the 24-hour National Ambient Air Quality Standard (NAAQS) of 60 micro gram per cubic metre by 1.1 to 3.8 times. The highest values of

PM2.5 were reported in samples taken from Tirusulam, Vyasarpadi and Parry's.

As far as other pollutants were concerned, a benchmark for their acceptable levels in air has not yet been set by India, necessitating comparison with international standards.

Similarly, 19 of the 20 samples reported silica levels higher than the limit set by California Office of Environmental Health Hazard Assessment (OEHHA), a US government body. The OEHHA recommends annual average exposure of 3 micro gram per cubic metre. Tirusulam reported the highest value. Silica is present in coal ash and construction sand and acute exposure causes silicosis, a lung disease.

Twelve of 20 samples reported manganese levels exceeding the US's Environmental Protection Agency (EPA) reference concentration of 0.05 micro gm/ cubic metre. Two samples even had higher values of manganese, a neurotoxin, than recommended by the WHO's annual health based guidelines of 0.15 micro gm per cubic metre.

Levels of nickel, a carcinogen which affects respiratory and immune response in the body, in 19 of 20 samples exceeded the WHO annual health guideline value of 0.0025 micro gm per cubic metre, the report said.

The samples were taken from rooftops of residential homes, a child care centre's roof, a temple roof and from commercial buildings.

Vishvaja Sambath, one of the three researchers who worked on the project, said they were collating data to document the presence of these metals in Chennai's ambient air. "Studies have shown those with respiratory ailments are more vulnerable to Covid-19. Greater Chennai Corporation should take action to ensure cleaner air," she said.

G Sundarrajan of Poovulagin Nanbargal, an environmental organisation, said lung diseases caused by such pollutants affects economic activity of people. "TNPCB should improve its air monitoring systems," he said.

The corporation is chalking out plans to work on the air pollution issues in industrialised north Chennai, an official said.

## Jaipur: Study Among 10 most polluted places in the Rajasthan, 3 are in

Date:-28-July-2021, Source: [timesofindia.indiatimes.com](https://timesofindia.indiatimes.com)

**LOCATIONS WITH POOR AIR QUALITY**



|                                  |                         |
|----------------------------------|-------------------------|
| ➤ RIICO Ind. Area III, Bhiwadi   | ➤ Shastri Nagar, Jaipur |
| ➤ Collectorate, Jodhpur          | ➤ Ashok Nagar, Udaipur  |
| ➤ Police commissionerate, Jaipur | ➤ Civil Lines, Ajmer    |
| ➤ Indira Colony Extension, Pali  | ➤ Moti Doongri, Alwar   |
| ➤ Shrinath Puram, Kota           | ➤ Adarsh Nagar, Jaipur  |

### Out of the 10 most-polluted locations, three are in Jaipur

JAIPUR: In an indication that people of the state breathe polluted air for most part of the year, the cities in Rajasthan have recorded a particulate matter (PM) 2.5 concentration more than the Central Pollution Control Board's (CPCB) safe limits of 40 ug/ m<sup>3</sup> with only a few exceptions.

For the first four months (January-April) of this year too, all the monitored cities of -Ajmer, Alwar, Bhiwadi, Jaipur, Jodhpur, Kota, Udaipur and Pali have seen a PM 2.5 concentration of more than safe limits of 40 ug/m<sup>3</sup> and more than triple the WHO limits of 10 ug/m<sup>3</sup>, according to National Clean Air Programme (NCAP), the country's flagship programme for better air quality in 122 cities, launched in 2019.

Out of the 10 most-polluted locations, three are in Jaipur - police commissionerate, Shastri Nagar and Adarsh Nagar.

Sahil Singal, a naturopathy doctor and environmentalist, said, “The burning of garbage and diesel vehicles without pollution checks are a major contributor of air pollution in cities. There should be strict regulation and implementation to stem air pollution. Besides, non-motorised vehicles should be promoted to reduce carbon footprint.”

“In 2020, while the country was in a complete lockdown from March-June, the cities of Jodhpur and Bhiwadi did not see pollution levels within permissible limits even once,” said the report.

The city of Bhiwadi, which is part of Delhi-NCR and home to a range of large, medium and small-scale industries, from steel mills and furnaces to automobile and electronics manufacturing, is among the most polluted in the state with high PM 2.5, PM 10 and NO2 concentration throughout the three years (2019- June 2021).

Among the operational Continuous Ambient Air Quality Monitoring Stations (CAAQMS) in the state, the highest monthly average PM 2.5 concentration of 103 ug/ m3 was reported at Rajasthan State Industrial Development and Investment Corporation in Bhiwadi.

According to an assessment by Centre for Science and Environment (CSE) and the Rajasthan Pollution Control Board in December 2020, the Bhiwadi Industrial Area contributes around 65% to the industrial pollution load of the region (Jaipur-Alwar-Bhiwadi air shed). Bhiwadi has a total of 328 air polluting industries.

A source apportionment study done by IIT-Kanpur in Jaipur in January 2020 showed that while 47% of the PM 2.5 consists of road dust, vehicular emissions and industries contribute 20% and 19% respectively. According to Global Burden of Disease 2017, Rajasthan recorded the maximum number of child mortality which is 126 per lakh due to air pollution.

### **Delhi weather: Moderate rain expected today, says IMD**

*Date:-29-July-2021, Source: livemint.com*

Delhi is likely to see a cloudy sky with moderate rain today as per the India Meteorological Department (IMD) forecast. The national capital today recorded a minimum temperature of 24 degrees Celsius, three notches below normal.





**People hold umbrellas to protect themselves during rainfall, in New Delhi on Tuesday**

According to Met department officials, the maximum temperature will settle around 34 degrees Celsius.

Delhi's air quality was in the "satisfactory" category Thursday morning. Data from the Central Pollution Control Board (CPCB) showed that the hourly air quality index (AQI) at 8 am stood at 59.

An AQI between zero and 50 is considered 'good', between 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

Delhi's air quality was in the satisfactory category on Wednesday morning. Data from the Central Pollution Control Board showed that the hourly air quality index (AQI) at 8 am stood at 63. On Tuesday, the average 24-hour AQI was 98.

## **Pune ring road to curtail pollution by nearly 25%, says Maharashtra minister**

*Date:-30-July-2021, Source: hindustantimes.com*



**A recent National Emissions Inventory (NEI) report had revealed that automobile emissions contribute to 91 per cent of Pune's air pollution**

The proposed ring road in Pune will aid in the reduction of pollution by nearly 25 per cent, and also augment the socio-economic development of the region, Maharashtra urban development minister Eknath Shinde said on Friday. He added that the proposed project will also enhance the road connectivity to the state's second largest city.

The circular road that will be toll-free and is estimated to be used by at least 70,000 vehicles daily, will service 29 villages and connect all the highways skirting past Pune, Shinde further said.

“As a result of significant expansion and urbanisation, millions of vehicles arrive in Pune every day, causing air and noise pollution,” he said, adding that the ring road will mitigate the traffic issue.

The minister pointed out that vehicles travelling to Saswad, Nashik, Ahmednagar, Konkan and Mumbai pass through Pune thereby causing traffic

snarls, and air and noise pollution. "The ring road will also considerably reduce travel time and distance...It will entail the acquisition of roughly 1554.64 hectares of land," he added.

A recent National Emissions Inventory (NEI) report had revealed that automobile emissions contribute to 91 per cent of Pune's air pollution.

The Pune ring road will have 14 multilevel interchanges and eight major bridges to aid in smooth traffic management. Stretching 173.7km, the road will also have 18 viaducts, 17 tunnels and four roadways over bridges, officials from the Maharashtra State Road Development Corporation (MSRDC) earlier said.

Officials further stated that the project will be executed in two phases – east and west, at a cost of ₹26,831 crore.

The MSRDC has, however so far, managed to complete the land measurement of over 51 per cent of the total area to be acquired for the western side of the ring road. As far as land acquisition of the eastern part is concerned, the process has begun and officials have also commenced to hold meetings in the affected villages.

## **Air Pollution in Delhi-NCR Shows Decreasing Trend Over Last 4 Years: CPCB**

*Date:-31-July-2021, Source: thequint.com*



An early estimate from the Central Pollution Control Board (CPCB) and the Indian Institute of Technology, Delhi (IIT-D), has shown a decreasing trend in the PM2.5 concentration over Delhi-NCR over the last four years.

"Our data shows that pollution levels have gone down. In 2020, it had gone down because of the lockdown (-related restrictions) etc. But data from 2017 to



2018 and 2018 to 2019 has shown a decreasing trend (in pollution) as well," said Sagnik Dey, associate professor at the Centre for Atmospheric Sciences, IIT-Delhi.

A number of policy measures – such as switching to cleaner BS-VI fuel, installing CEMS monitoring systems across industries, cleaner zig zag technology in brick kilns, use of Eastern and Western Peripheral Highways (to bypass heavy traffic away from Delhi), and deployment of happy seeders (to reduce crop-residue burning) – have been taken in the National Capital Region (NCR) to curb air pollution.

But Tripathy also put an immediate caveat: "The time series is very short, and yet, the data is showing some decreasing trend."

Because of this, both Dey and Tripathy declined to hazard a guess to put a quantum on the levels of pollution, which may be in the range of 10-15 percent or 15-20 percent.

Tripathy is part of the National Knowledge Network, which has been set up to provide scientific guidance to achieve National Clean Air Programme (NCAP) goals and has been pushing for adopting an airshed approach for provincial management, expanding to the states.

"Domestic policies – such as the Pradhan Mantri Ujjwala Yojna, which has provided a successful solution in the form of 14 crore LPG connections in India – too, have been making a huge difference. Household cooking contributes to one-fourth of the mortality burden due to air pollution in the region. Street vendors shifting to LPG, too, may have helped," said Tripathi.

Lead is a carcinogen generated from solid fuels used in household cooking while nitrogen dioxide emissions (NO<sub>2</sub>) are mostly attributed to transport.

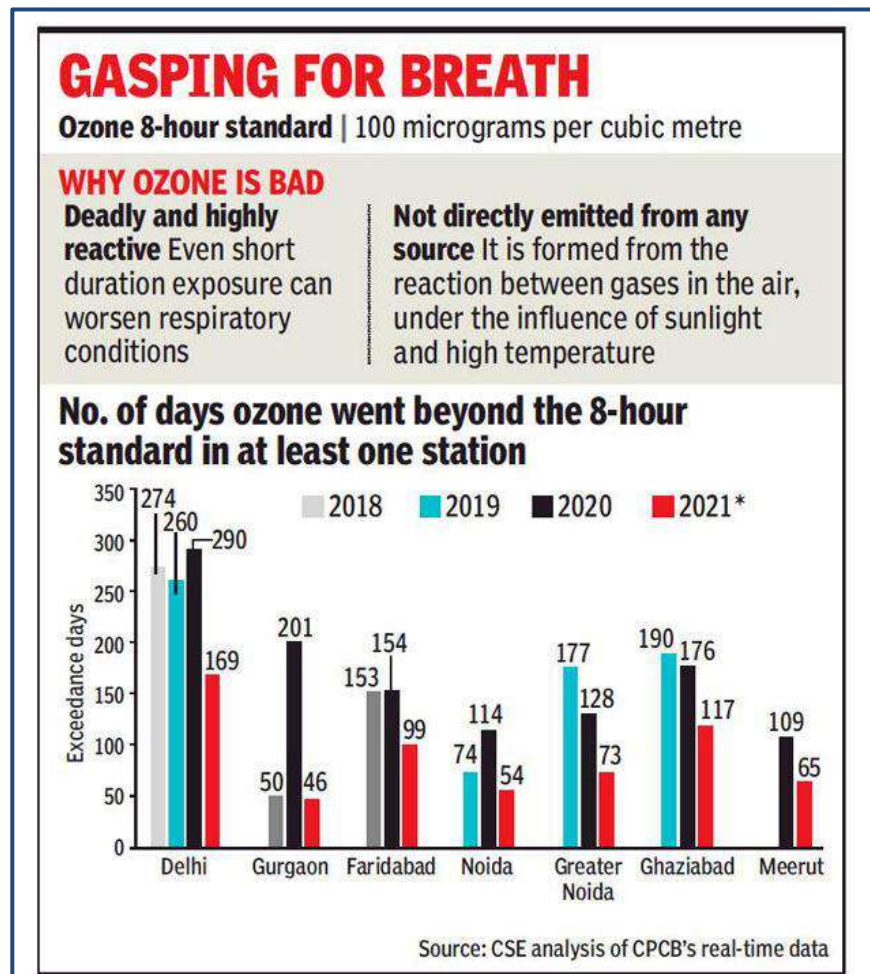
## August 2021

### Delhi-NCR breaching ozone limits more often, says study

Date:-1-August-2021, Source: [timesofindia.indiatimes.com](https://timesofindia.indiatimes.com)

NEW DELHI: Ground-level ozone — a highly reactive gas that is particularly dangerous for those with respiratory conditions and asthma — is becoming more widespread in Delhi and the rest of National Capital Region.

The number of days when ozone limits were beyond the permissible standards through the year has also increased, found a new analysis by the Centre for Science and Environment (CSE).



The CSE report found that the eight-hourly standard for ground-level ozone exceeded limits in at least one station in Delhi on 290 days in 2020. This is up by 30 days compared with 2019 and 26 days more than 2018. This year, the report shows that the city has already recorded 169 days of exceedance, an increase of 21 days for the same period last year.

While earlier it was believed the gas was generally predominant during the summers,

forming out of an interaction between gases in the presence of sunlight, the study found high ozone levels even during the monsoon and winter.

“Ozone is now a round-the-year problem requiring urgent attention of clean air programmes,” said CSE executive director Anumita Roychowdhury, who led the

study. “The risk from it is often not well understood, as the current regulatory practice of spatially averaging the data from all monitoring stations blunts the curve, and underestimates the magnitude of threat from the worst affected locations and also during different seasons,” she adds.

Not only are some parts of the city breaching the standard daily, but several locations have now also begun showing increasingly high readings, indicating wider distribution of the risk. Last year, there were 30% more days when six or more stations exceeded the standard as compared to 2019.

The study says in the first half of 2021, 108 days have been registered where six or more stations have exceeded the standard — higher than in the same period in previous years.

Unlike PM2.5, PM10 or NO2, which have 24-hour standards, ozone instead has eight-hour standards and one-hour standards, owing to how dangerous the gas can be in a short span of time. The eight hour-standards of ozone are 100 micrograms per cubic metre, while the hourly standard is 180 micrograms per cubic metre.

The study also found in terms of ozone hotspots, south Delhi and Lutyens’ Delhi and north Delhi recorded a high number of days where ozone was breaching the daily standards.

In south Delhi, Dr K S Shooting Range (233 days), Siri Fort (150 days), Nehru Nagar (174 days), and Sri Aurobindo Marg (126 days) have more than 120 days where standards were exceeded in 2020. They made up four of the top five most polluted spots within Delhi. In central Delhi, J L N Stadium (116 days) and National Stadium (82 days) had relatively high numbers of exceedance days, while Sonia Vihar in north Delhi recorded 142 days where the standards were exceeded.

### **World Lung Cancer Day: ‘Exposure to air pollution, particularly of biomass fuel, kerosene, can damage lungs’**

*Date:-2-August-2021, Source: indianexpress.com*

In observance of World Lung Cancer Day, doctors at Fortis Hospital Mohali, led by Dr Digambar Behera, Director, Pulmonary Medicine, sensitised the public around the causes of lung cancer, the possible symptoms and importance of early detection and treatment, Sunday.



**It primarily comprises surgery, radiotherapy, chemotherapy, targeted therapy, and immunotherapy**

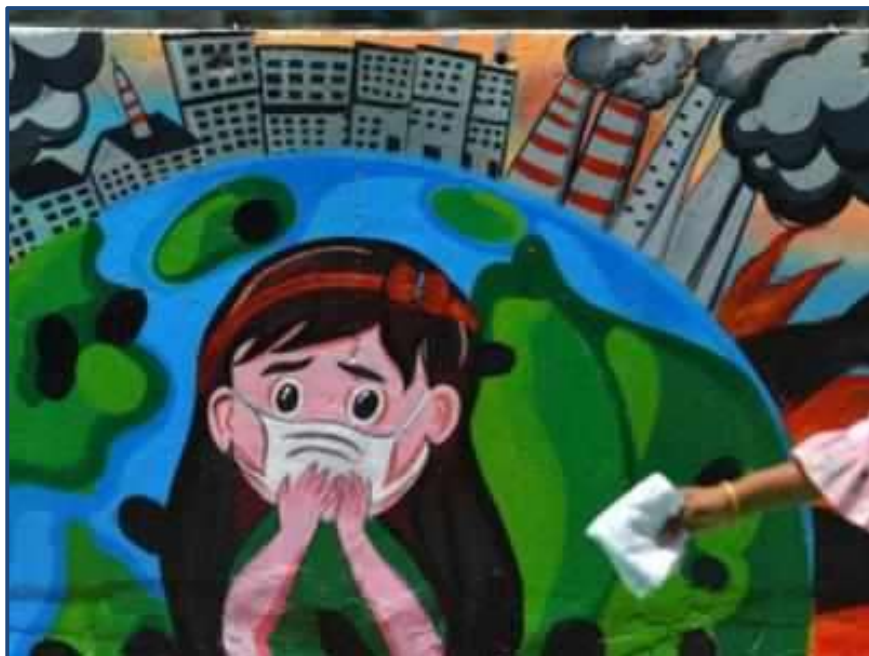
Dr Behera said, “One of the main causes of lung cancer is tobacco use which can harm the lung tissue and affect the person’s ability to inhale oxygen. Tobacco smoke contains carbon monoxide which can limit oxygen in blood, thereby reducing its delivery to organs. People of over 50 years age who regularly smoke must get a chest X-ray done every year. Passive smokers are also at risk. People who are exposed to high levels of radiation, arsenic, chromium, nickel, copper, asbestos also have high chances of developing lung cancer. Exposure to indoor and outdoor air pollution, particularly biomass fuel and kerosene, can damage the lungs.”

**SYMPTOMS:** The symptoms for lung cancer include cough, blood in sputum, chest pain, fever, weakness, fatigue, malaise, loss of appetite and weight loss.

**DIAGNOSIS:** It can be diagnosed through a lab test, PET/CT scan and EBUS. A bronchoscopy is conducted biopsy is done, fine needle aspiration cytology and examination of lung fluid also confirm primary site of cancer. Pathological tests help diagnose the type of cancer and the line of treatment.

## Hyderabad air quality improved during lockdown

Date:-3-August-2021, Source: timesofindia.indiatimes.com



HYDERABAD: An assessment of the quarterly air quality index since January 2020 for major cities in India by the Central Pollution Control Board (CPCB) show a marked improvement in air quality in Hyderabad from January 2020 to June 2021.

The improvement ranged from zero

areas with good air quality in January-March 2020 to 30 areas having good air quality in April- June 2021. A total of 91 locations were tested for air quality ranging from good, satisfactory, moderate, poor, very poor and severe within the city.

| <b>AIR QUALITY IN HYD</b> |             |                     |                 |
|---------------------------|-------------|---------------------|-----------------|
|                           | <b>Good</b> | <b>Satisfactory</b> | <b>Moderate</b> |
| Jan-Mar 2020              | 0           | 63                  | 28              |
| April-June                | 27          | 58                  | 6               |
| July- Sept                | 81          | 11                  | 0               |
| Oct-Dec                   | 5           | 26                  | 61              |
| Apr-June '21              | 30          | 43                  | 18              |

**None of the areas fell in poor, very poor and severe category during the entire period**



Interestingly, this also hints at how the human mobility has resulted in newer Covid-19 strains say experts. “Human mobility from October 2020 to March 2021 is highest in Hyderabad since the beginning of pandemic,” said Dr Kiran Madala, incharge head of department of critical care at Nizamabad Medical College.

“This trend is almost same in most cities of India. High mobility between October 2020 to March 2021 in India responsible for the birth of Delta variant in India. We should not repeat this at any cost to prevent future waves.” Meanwhile, even as an overall improvement was seen in air quality, the sharpest improvement was seen during the lockdown and also an immediate decline was seen in the quarter following the lockdown period.

While the national lockdown was imposed in March 2020, Hyderabad had no areas having good air quality (0-50 air quality index value), 63 areas fell within the satisfactory range (51-100) and 28 areas fell in the moderate range (101-200).

During April to June 2020 this improved to 27 areas reporting good quality, 58 satisfactory and six moderate, which further improved in July-September (period of gradual lifting of lockdown) to 81 good quality areas, 11 satisfactory and zero with moderate air quality. Cut to the latest quarter, and the number of areas having good air quality have gone down from 81 to 30 now and 18 areas are now in the moderate category.

This information was revealed in a reply given by minister of state for ministry of environment, forest and climate change, Ashwini Kumar Choubey in Rajya Sabha. “In the year 2020, Central Pollution Control Board (CPCB) carried out assessment of impact of nationwide lockdown on air quality in various metropolitan cities, and water quality at major river stretches of the country. It has been reported that Covid-19 related lockdown resulted in temporary improvement of air and water quality in many cities and rivers due to closure of industries, reduction in number of vehicles plying, lack of construction activities and absence of human activities such as throwing of garbage, bathing, and washing of clothes,” read the reply.



## **Delhi: New rules to curb dust pollution at construction site**

*Date:-4-August-2021, Source: newindianexpress.com*



NEW DELHI: The Delhi government has proposed installation of three real-time monitors and CCTV cameras at every construction site larger than 20,000 square metres. This is part of the new rules framed to control dust pollution in the capital.

The data from the real-time particulate monitor will be directly sent to the Delhi Pollution Control Committee (DPCC), which will in turn alert the project proponent if the pollutant concentration is above the defined threshold.

A fine will be imposed if the project proponent doesn't take corrective steps. The penalty will be increased if no action is taken within a stipulated time. The draft guidelines say the DPCC will order work at the site to be stopped if no remedial action is taken within 24 hours of the first warning. It will also revoke the environmental clearance granted to the project if "any tampering of equipment or data is identified".

The draft rules also require project proponents to submit a bank guarantee to the DPCC, which will be equal to one per cent of the project cost. A seven-member committee — set up by the government to explore the feasibility of a proposal to monitor dust emissions at construction sites and assess its impact on nearby areas — had suggested that reference-grade analysers be used to initiate the monitoring process.

The project proponent will have to install three real-time monitors at a height of five to seven metres to avoid local impact. To know the source of pollution, a certain number of video cameras should be installed at the site by the project proponent. The air quality data generated by on-site analysers will be compared with data from Continuous Ambient Air Quality Monitoring Stations. The DPCC will use software with standardised rules to determine the difference in the pollutant concentration.

If the hourly-average value of PM<sub>2.5</sub> and PM<sub>10</sub> at the construction site is greater than the level at the nearest CAAQMS, an automated warning will be sent out to the project proponent to identify the source and take remedial measures within three hours.

### **Chennai's air quality improves from 'satisfactory' to 'good'**

*Date:-5-August-2021, Source: timesofindia.indiatimes.com*



CHENNAI: The city's ambient air quality was 'satisfactory' in March this year and turned 'good' in April and May.


The intense lockdown, forced by the second wave of the Covid-19 pandemic, led to a reduction in vehicular movement and a slight improvement in the air quality in Kathivakkam near

Ennore, Kodungaiyur, Royapuram, Koyambedu and Perungudi, say Tamil Nadu Pollution Control Board (TNPCB) authorities. In Manali, the quality was 'moderate'.

Of the six locations, TNPCB chairman A V Venkatachalam said, the 'moderate' air quality in Manali indicated breathing discomfort to people with conditions like asthma. In the remaining five places, the 'satisfactory' level indicated minor breathing discomfort to sensitive people.

## BREATHING EASY

|  |   |
|--|---|
| <ul style="list-style-type: none"> <li>➤ City's air quality improved from 'satisfactory' in March to <b>'good' in May and June</b></li> <li>➤ PCB sources said the improvement could be due to <b>reduced vehicular movement</b> and reduced dispersal of re-suspended dust particles</li> <li>➤ <b>Air quality monitors</b> were set up in Kathivakkam near Ennore, Kodungaiyur, Royapuram, Koyambedu,</li> </ul> | <p>Perungudi and Manali</p> <ul style="list-style-type: none"> <li>➤ Except Manali, the other stations recorded <b>'satisfactory' air quality in March</b></li> <li>➤ The stations recorded <b>only PM 10 levels</b> and not PM 2.5 levels</li> <li>➤ Hourly data on both PM 2.5 and PM 10 levels is required for a clear picture on air quality, experts said</li> </ul> |
|--|---|



Another official said that even during June, when there was a partial lockdown, the ambient air quality never crossed the 'good' and 'satisfactory' stages. But, since the lockdown was lifted in phases, the air quality went back to being 'poor' in many areas.

A check of the Central Pollution Control Board's live air quality monitors in Alandur found PM2.5 levels at 83 and 82, considered 'moderate', at 6pm.

In Chennai, the major contributor of pollution is the emission from vehicles. When pressure from exhausts touches the soil, re-suspended dust particles, (PM2.5) from the road get into the atmosphere and increase pollution levels.

Researchers from IIT-M said re-suspended dust from roads, emission from vehicles, construction activities and generator sets are responsible for the poor air quality.

Vishvaja Sambath, an environmental health researcher with Healthy Energy Initiative, said the air quality in May was good, because of the lockdown, though not like in May 2020. But, in March, April and June this year, it was 'satisfactory'.

The TNPCB, which collects data to arrive at an average before declaring the air quality, should collect samples of PM2.5 and PM10 levels from a residential locality, a commercial, a mixed area and an industrial area and analyse it separately to get a real picture, she said.

## **Rain in excess, but Delhi yet to get any good air day this year**

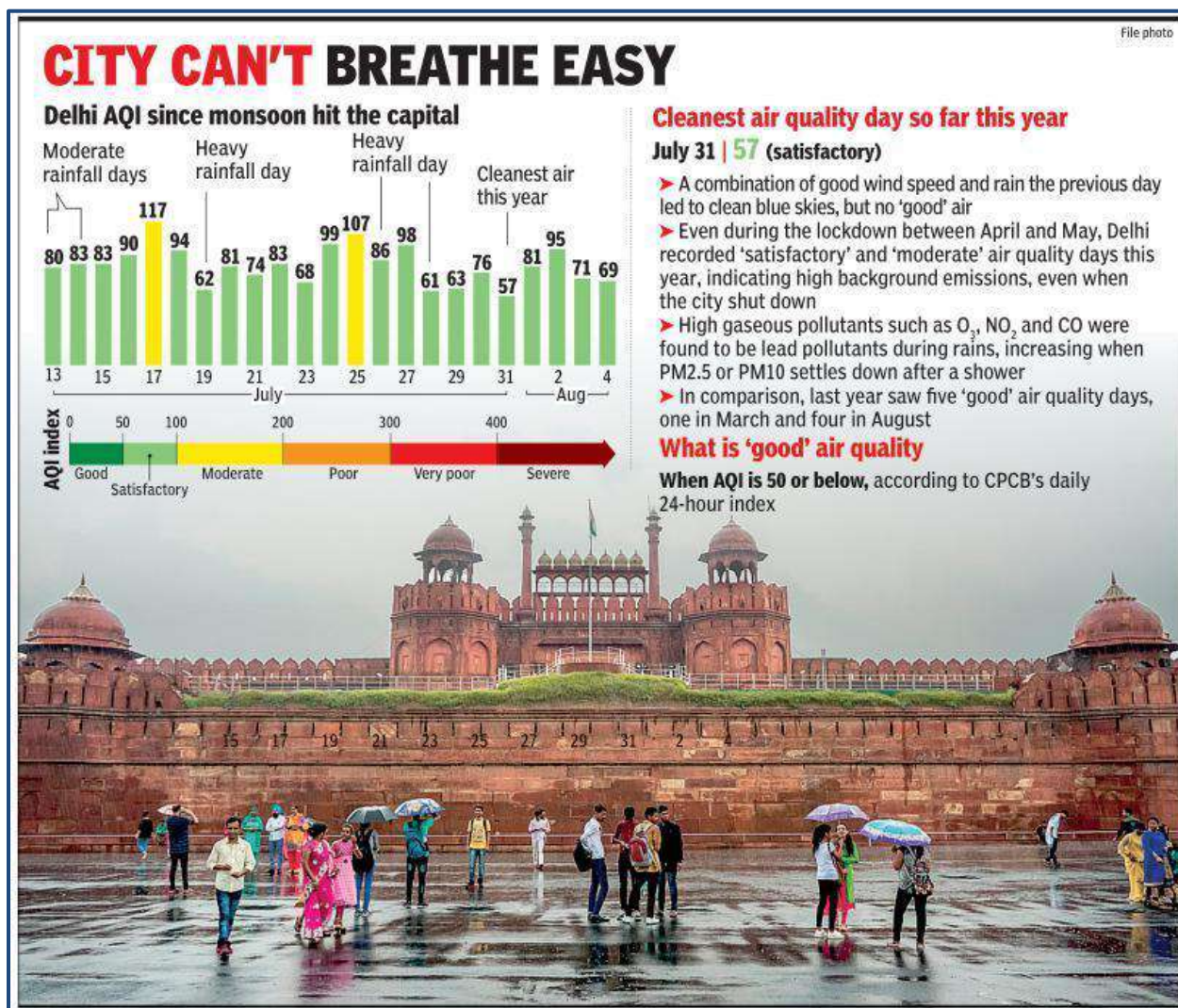
*Date:-6-August-2021, Source: timesofindia.indiatimes.com*

NEW DELHI: While Delhi may have recorded five days that were categorised as 'good' according to the Air Quality Index in 2020, this year, despite the lockdown and regular showers, the city is yet to record such a day. Delhi may



have received more than 500mm of rainfall in July, 2.4 times the normal for the month, but that didn't clean the air enough for it to be 'good'.

A 'good' air AQI is 50 or below. The lowest rating recorded so far in the current monsoon season is 57, which is classified as 'satisfactory'. Experts said that other sources of local emissions, as well as gaseous pollutants such as CO, O<sub>3</sub> and NO<sub>2</sub> could be playing a key role even when the rain settled down the PM<sub>2.5</sub> and PM<sub>10</sub> pollutants.



Last year, Delhi recorded five 'good' air quality days: one in March during the Covid lockdown, and four in August during the monsoon period.

The monsoons blew into Delhi on July 13 and on July 19, the capital saw its first 'heavy' rainfall for nearly 7-8 hours. The average 24-hour AQI on the day, however, was 62 in the 'satisfactory' category. Heavy rainfall was also recorded

on July 27 and July 29, but Delhi still did not log 'good' air levels. In May too, cyclone Tauktae brought 119.3mm of rain to Delhi in a single day, but the daily average AQI was 58.

A recent study by IIT-Kanpur analysing the pollution sources in the summer said power plants were the biggest contributor to PM<sub>2.5</sub> pollutants, with the study also finding an increase in the concentration of sulfates and organic aerosols in summer compared with high chlorine and nitrate composition in winter. Of the organic aerosols found in the air in summer, the study listed solid fuel combustion as the biggest contributor (16.2%), followed by traffic (12.3%) and cooking (7.3%).

Sachchida N Tripathi, head of civil engineering department at IIT Kanpur, who carried out the study in June-July 2019, said that while dust was an obvious factor during the summers, combustion sources, such as power plants, were identified as the other major factor. Delhi government recently filed a petition in the Supreme Court seeking closure of the 10 thermal power plants in the National Capital Region that had not switched to cleaner technology.

Anumita Roy Chowdhury, executive director (research and advocacy), Centre for Science and Environment, pointed that in contrast to the common belief that rain washes away pollution, it only washes away particulate matter. "Gases still remain a problem and in fact can increase because waterlogged roads cause idling and traffic snarls," said Chowdhury, adding that why there was a need to reduce fuel combustion of all types.

After the 'heavy' rainfall on July 19, the AQI was an acceptable 62, but the waterlogging and consequent traffic snarls caused the primary pollutant to be NO<sub>2</sub>, followed by PM<sub>10</sub> in the CPCB data. On July 27, NO<sub>2</sub> was again the lead pollutant, while O<sub>3</sub> and CO were dominating pollutants on July 29.

Dipankar Saha, former head of CPCB's air laboratory, said background emissions were higher than normal across the Indo-Gangetic Plains, with dust and localised sources sometimes pushing AQI to 'poor' in the summer. "Dust can be settled through a spell of rain, but it is not easy to control other sources of pollution, which can make a significant impact over a 24-hour period," said Saha.

## Delhi: After rain delay, Connaught Place smog tower ready to help in pollution fight

*Date:-7-August-2021, Source: timesofindia.indiatimes.com*



**Smog Tower**

NEW DELHI: The anti-smog tower in Connaught Place is complete and expected to be inaugurated by August 15.

However, a two-year pilot study to check its effectiveness will commence from August 12 with both IIT Delhi and Bombay testing its efficacy in bringing down PM 2.5 and PM 10, an official

said.

Delhi Pollution Control Committee (DPCC), which is overseeing the work, said the structure was ready, however, delays to begin testing occurred due to rains in the past two weeks, leading to waterlogging around the smog tower and its access road. Testing is now set to commence around August 12, with initial data to be analysed by DPCC before a monthly report is released.

DPCC said the project duration was set at two years and 10 months, with 10 months fixed to set up the tower. Following this, a pilot study was to begin, which would analyse the effectiveness of the tower.

“IIT Bombay carried out a preliminary testing, but this was all done in the lab. The actual on-ground testing and data will only be produced from next week. All components have been assembled and the smog tower is ready to function,” said a DPCC official.

The pilot study aims to determine how the tower will perform under different atmospheric conditions and times of the year, DPCC said. “We will be able to determine how big its radius is and how much reduction is occurring every hour in terms of PM 2.5 and PM 10. There will be a concrete data, which will be analysed monthly,” said an official.



The tower, which is slated to be over 20-metres in height, was approved at a cost of Rs 20 crore by Delhi Cabinet in October last year to improve the air quality in a radius of around 1km, the official said. It is being built in collaboration with IIT Bombay and University of Minnesota.

Last month, a second smog tower – funded by the Centre and built by Tata Projects in collaboration with the University of Minnesota — was also inaugurated and is expected to become operational around the same time. The Anand Vihar smog tower stands at a height of 25 metres and has been built using Adaptive Clean Air Network (ACAN) technology, which can influence an area of 1 sqkm, the official said. Tata Projects said the total air flow through ACAN was estimated to be 960 m<sup>3</sup>/s, with a system filtration efficiency of 90%.

### **‘Orange’ alert in Gurugram today; mercury to rise next week**

*Date:-8-August-2021, Source: timesofindia.indiatimes.com*



**According to IMD, intermittent rain is likely in the next two to three days**

GURUGRAM: Several parts of the city received moderate rain on Saturday. The India Meteorological Department (IMD) has issued an ‘orange’ alert for Sunday, when moderate rain and thunderstorms are expected.

According to IMD, intermittent rain is likely in the next two

to three days. “The monsoon trough is likely to shift north, leading to more rainfall activities in northern states,” an official said.

While rain started early on Saturday morning in some areas, a short but intense spell of rain was reported around 11.30am, which lasted for about half an hour. Many low-lying areas such as sectors 9, 9A and 37 and Basai Road were inundated following the showers, but traffic largely remained unaffected.

“It rained for only around 20 minutes, but the streets and vacant plots were flooded with rainwater. Cleaning of sewer lines has only done on paper. It is

very disappointing to witness waterlogging after slight rain,” said Manbeer Singh, a resident of Sector 9A.

The city’s air quality index (AQI) deteriorated slightly to ‘moderate’ on Saturday. The overall AQI reading was 111, against 93 (‘satisfactory’) on Friday.

While IMD’s observatory in the city could not record Saturday’s rainfall, data from the district administration showed Gurugram recorded 14mm rain till 5pm on Saturday.

According to IMD, between August 1 and 7, the city received only 30.8mm of rainfall, a deficit of 42% compared to the normal of 53.5mm. Between June 1 and August 7, however, Gurugram received 427.2 mm of rainfall as against the season’s normal of 275mm, an excess of 55%.

The rain and cloudy skies throughout the day led to a fall in the daytime temperature by two notches to 32.4 degrees Celsius. The minimum temperature was recorded at 23.4 degrees. According to IMD, the maximum temperature during the next six days is likely to hover between 34 and 37 degrees Celsius, while the minimum temperature will settle between 25 and 26 degrees.

Meanwhile, Delhi too received light to moderate rain on Saturday. The brief spells of rain led to waterlogging in several parts of the capital. Traffic jams were reported near Vikas Minar at ITO.

### **Concentration of air pollutants significantly increasing over India: IPCC**

*Date:-9-August-2021, Source: [downtoearth.org.in](http://downtoearth.org.in)*

India, and especially its capital, Delhi, have been annual witnesses to apocalyptic-looking winters in the past half-decade. Delhi’s residents have especially gasped for air as smoke from paddy straw fires, Diwali firecrackers, industrial and vehicular emissions have besieged their city every year.

Now, the latest report by the Intergovernmental Panel on Climate Change (IPCC)’s latest report released August 9, 2021 has certified what we all feared: Air pollutants continue their meteoric rise across India and other parts of south Asia.



### **Smog over Delhi**

The concentrations of lethal air pollutants such as sulphur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), ammonia (NH<sub>3</sub>), ozone (O<sub>3</sub>) and Particulate Matter<sub>2.5</sub> are at their highest in south Asia, when compared to other parts of the world.

The revelation came in Chapter 6 of the Sixth Assessment Report of the IPCC. The chapter is titled Short-lived climate forcers (SLCF).

SLFCs are different from greenhouse gases like carbon dioxide, the effect of which on the climate endures till centuries. But the effects of these compounds are short-term.

They have a warming or cooling effect on the climate. Gases such as methane (CH<sub>4</sub>), O<sub>3</sub> and NH<sub>3</sub> have a warming effect. Other SLCFs that warm climate include soot, also known as black carbon. These do so by absorbing energy.

On the other hand, aerosols are tiny particles that include sulphates and nitrates (like SO<sub>2</sub> and NO<sub>2</sub>) that cool the climate by reflecting sunlight.

The report by the IPCC noted that a major geographical shift had taken place in SLCFs from the 1950s to the 1980s. During this period, North America and Europe had dominated SLFC emissions.

However, starting from the 1990s, Asia became the leading emitter due to strong economic growth in many of its countries.

On the other hand, SLCF emissions declined in the West due to air quality legislation and declining capacity of energy intensive industry.

Take SO<sub>2</sub> for instance. SO<sub>2</sub> concentrations in North America and Europe declined over 1980 to 2015 with slightly stronger reductions in North America than over Europe over 2000-2015, the report noted. This, even as Europe had larger reductions than the United States in the prior decade (1990-2000).

Meanwhile, in Asia, SO<sub>2</sub> emissions increased in China till 2005 but declined after that. India and south Asia, on the other hand, have been seeing a continuous rise in SO<sub>2</sub>.

NO<sub>2</sub> concentrations have grown 50 per cent over south Asia due to the rapid expansion of the power sector in India, the report said.

At the same time, it noted that NO<sub>2</sub> concentrations had started decreasing since 2011 due to a slowing economy and implementation of cleaner technologies.

Northern India or specifically the Indo-Gangetic Plain was one among three large agricultural regions along with the US Midwest and Central Valley, where high ammonia concentrations were seen due to large-scale burning of biomass.

Similarly, south Asia, east Asia and west Asia experienced the highest surface ozone levels of all regions. The same three regions had high concentrations of PM<sub>2.5</sub>. The major sources of PM<sub>2.5</sub> in India were biomass and coal fuel-based cooking and heating, with secondary contributions from energy and industry.

The only SLCF that India showed a decrease in was black carbon. Studies based on observations from rural and background sites had reported decreasing black carbon aerosol trends in the Arctic, Europe, the US, Japan and India, the report said.

The document noted that climate change and air quality were intricately linked. Effective decarbonisation strategies could improve air quality but could not bring it to the levels advocated by the World Health Organization, especially in Asia.

For reducing SLCFs, additional policies such as access to clean energy and waste management would be needed, the report said.

## **Mumbai: BMC to set up five air quality monitoring stations**

*Date:-10-August-2021, Source: indianexpress.com*

As per the proposal, the project includes supply, installation of these five stations and three years warranty with contractor. The contractor will also be responsible for maintenance of these stations for the next five years.

The BMC will spend Rs 10.91 crore on a project of installing five air quality monitoring stations across the city. The civic body's decision was taken as per the National Clean Air Program.

A proposal of installing five continuous ambient air quality monitoring stations (CAAQMS) at Shivaji Nagar in Govandi, Pantnagar in Ghatkopar east, Mahul Village in Chembur, Charkop Maternity Home in Kandivali and Byculla Zoo will be tabled before the Standing Committee on Wednesday. As per the proposal, the project includes supply, installation of these five stations and three years warranty with contractor. The contractor will also be responsible for maintenance of these stations for the next five years.

The five stations will have display boards with air quality index (AQI) with its impact and weather information for 24 hours. The stations will record levels of PM 2.5 and PM 10, sulphur oxides, nitrogen oxides, hydrocarbons, carbon monoxide, ozone and ammonia.

There are 25 CAAQMS in Mumbai set up by SAFAR (System of Air Quality Weather Forecasting and Research) and Maharashtra Pollution Control Board (MPCB) that display air quality data for 24 hours. The BMC will set up more stations in the second phase.

## **China's Hotan most polluted city in 2020, Ghaziabad at 2nd place: Report**

*Date:-11-August-2021, Source: hindustantimes.com*

Bangladesh was the most polluted country across the world in 2020, followed by Pakistan, India and Mongolia, according to a report prepared by British company HouseFresh. While the Chinese city of Hotan in Xinjiang province has been named the most polluted city, Ghaziabad in Uttar Pradesh took the second spot on the list with an average PM2.5 concentration of 106.6µg/m3.

PM2.5 refers to fine particulate matter suspended in the air that is two and a half microns or less in width.



**Ghaziabad in Uttar Pradesh took the second spot on the list with an average PM2.5 concentration of 106.6 $\mu$ g/m<sup>3</sup>**

The air pollution in China's Hotan, with a PM2.5 of 110.2 $\mu$ g/m<sup>3</sup>, was largely attributed to local sandstorms given its proximity to the Taklimakan Desert, the world's largest shifting sand desert. In the case of Ghaziabad, the report says massive traffic volumes in the "gateway" to Uttar Pradesh were likely the cause of the high levels of air pollution.

Bangladesh's Manikganj is in the third position on the list of the world's most polluted cities with a PM2.5 of 80.2 $\mu$ g/m<sup>3</sup>. "As one of the fastest developing countries around the world, with its industrial sector growing at a rate of 13% per year, vehicles and industrial emissions are the major contributors to air pollution in this country of 165 million people," the author said.

Of the 50 most polluted cities worldwide, 49 are in Bangladesh, China, Pakistan, and India. The report on the world's best and worst places for clean air in 2020 was prepared based on the average value of PM2.5 concentration in  $\mu$ g/m<sup>3</sup> by collecting data from Swiss air quality expert IQAir. Countries with less than five cities were not included in the list.

The Tasmanian city of Judbury in Australia topped the list of cities with the cleanest air with a PM2.5 level of 2.4 $\mu$ g/m<sup>3</sup>. Kailua Kona in Hawaii, US, and Muonio in Finland were the next best places in 2020 for clean air, with PM2.5 concentrations of 2.6 $\mu$ g/m<sup>3</sup> and 2.8 $\mu$ g/m<sup>3</sup> respectively.



## **Delhi to see partly cloudy sky today, mercury to remain high: IMD**

*Date:-13-August-2021, Source: hindustantimes.com*



**The minimum temperature on Friday is likely to be 27 degrees Celsius (°C) while the maximum temperature is predicted to hover around 36°C. The minimum temperature on Thursday was 26.4°C and the maximum was 36.2°C, two degrees above normal**

Delhi is likely to see a partly cloudy sky on Friday, as per the India Meteorological Department (IMD). No significant rainfall is likely till at least August 15, said IMD officials. In the absence of rain, temperatures are expected to remain high.

The minimum temperature on Friday is likely to be 27 degrees Celsius (°C) while the maximum temperature is predicted to hover around 36°C. The minimum temperature on Thursday was 26.4°C and the maximum was 36.2°C, two degrees above normal.

Delhi's air quality was in the moderate category on Friday morning. Data from Central Pollution Control Board (CPCB) showed that the hourly air quality index (AQI) at 7am stood at 118. On Thursday, the average 24-hour AQI stood at 114, in the moderate category. An AQI between zero and 50 is considered

good, 51 and 100 satisfactory, 101 and 200 moderate, 201 and 300 poor, 301 and 400 very poor, and 401 and 500 severe.

On Thursday, the Union ministry of earth science's air quality monitoring centre, System of Air Quality and Weather Forecasting and Research (Safar) said, " With continued dryness and inflow of dust from the western part of India have put the overall air quality is in the moderate category. Under little or no-rain conditions, dust from unpaved roads will increase and the contribution of coarser particles will increase significantly in PM10. With moderate ventilation, AQI will remain in moderate category for the next three days and the lead pollutant will remain as PM10 having coarser particle contribution of about 70% or more."

### **2021 vs 2020: August gasps for one 'good' air day in Gurugram this year**

*Date:-16-August-2021, Source: timesofindia.indiatimes.com*

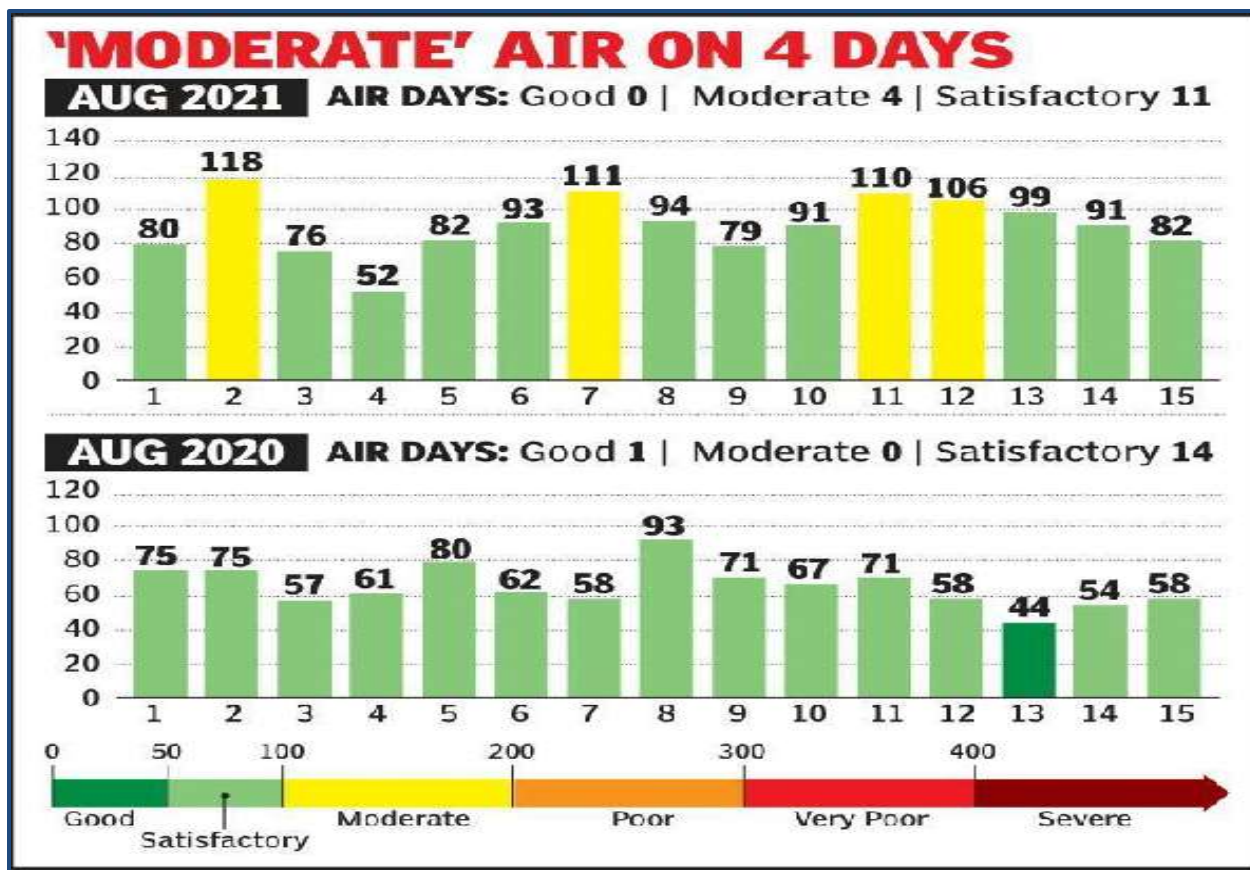


**According to HSPCB, low wind speed and local factors such as garbage burning and dust from construction sites have contributed to the deterioration of air quality in August this year.**

GURUGRAM: The air quality index (AQI) recorded in Gurugram in the 15 days of August is worse than the same period last year. This month, the city has not recorded a single 'good' air day.

Gurugram, however, saw 11 'satisfactory' AQI days this August. In comparison, 14 'satisfactory' air days and one 'good' air day was recorded in August 2020. Moreover, last year during the same

period, no 'moderate' days were recorded. A total of four 'moderate' days have been reported this August so far.



According to the Haryana State Pollution Control Board (HSPCB), low wind speed and local factors such as garbage burning and dust from construction sites have contributed to the deterioration of air quality in August this year.

An AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

"We have witnessed less 'satisfactory' days this August in the region, which is a big concern. The main reason is that there is no lockdown. While the city received rainfall this month, which cleared pollutants from the air, local factors played an important role in trapping pollutants. This deteriorated the air quality index," HSPCB member secretary S Narayan told TOI.

"This August, the poisonous gases from waste burning and dust from construction sites have also contributed to air pollution in Gurugram. We cannot deny the role of these factors while analysing the city's AQI," he added.

Meanwhile, the air quality is likely to improve in the coming days as the temperature in the region is expected to rise. "We are following suggestions

made by the Commission for Air Quality Management (CMAQ) regarding monitoring of crop residue burning. We are hopeful that things will improve in the coming winter,” he added.

On Sunday, the city’s overall AQI stood at 82. The Sector 51 monitoring station recorded ‘satisfactory’ AQI at 84), Vikas Sadan at 67, and Teri Gram at 96.

Independent experts pointed out that ozone is also an emerging problem in Gurugram. Sachin Panwar, a city-based independent air quality scientist, said, “Ozone is only a summer problem and is not a concern during monsoon months. It is now well-understood that sunshine plays a critical role in triggering photochemical reactions between gases to form ozone and it is typically expected that ozone is a bigger problem in summer. But the problem seems to be quite uniformly spread across seasons. Thus, this has deteriorated the AQI in the city.”

## **India to recalibrate air quality standards next year**

*Date:-17-August-2021, Source: timesofindia.indiatimes.com*



NEW DELHI: India is likely to have new national ambient air quality standards (NAAQS) in 2022, factoring in more pollutants, including ultra-fine particulate matter of less than PM2.5. The existing national standard was formulated 12 years ago.

The Central Pollution Control Board (CPCB) has already awarded the work of updating NAAQS to the IIT Kanpur-led team of experts, including scientists from IIT Delhi, National Physical Laboratory (NPL), NEERI and AIIMS. The team will recommend the revised standards by fine-tuning and broadening the pollutants’ base.

“A Memorandum of Understanding (MoU) will soon be signed between CPCB and IIT-Kanpur. The team will be given 12 months to finalise its report,” said an official in the environment ministry.

India’s first NAAQS was adopted in 1982 and subsequently revised in 1994 and 2009, factoring in eight pollutants— particulate matters (PM2.5 and PM10), sulphur dioxide, nitrogen dioxide, carbon monoxide, benzene, ammonia and ozone.

The expert group will examine the criteria adopted by different countries and WHO's guidelines before arriving at its final suggestions. The scientists will also factor in India’s geographical position and meteorological conditions while recommending updates for the NAAQS.

“The group will submit its recommendations to CPCB which, in turn, will give its final go-ahead to it after considering views of stakeholders through public consultations,” said the official.

Besides expanding the scope of measurements for different pollutants by redefining areas, time period for long and short-term values and frequency of measurements, the group will also analyse effects of air pollutants on human health and vegetation.

The ‘scope of work’ for the group, accessed by TOI, shows that the team will conduct primary health surveys at multiple locations, where high concentrations of various pollutants are reported, for establishing the “health effects of various pollutants”. The locations for this survey will be decided in consultation with CPCB.

Suggestions on guidelines for designing of monitoring network, setting up of monitoring locations, data validation protocol, review of ‘air quality index’ (AQI) and use of various technologies for monitoring are also part of the ‘scope of work’ for the expert group.

### **Ahmedabad gets bronze for dust pollution**

*Date:-18-August-2021, Source: timesofindia.indiatimes.com*

AHMEDABAD: The rapidly changing demographic profile of Ahmedabad is also turning the city into a major pollution centre among the urban areas of the state. When it comes to pollution due to dust and pollen, Ahmedabad ranks third after Dhanbad and Ghaziabad in India, according to a study published in Elsevier’s journal ‘Current Research in Environmental Sustainability’.

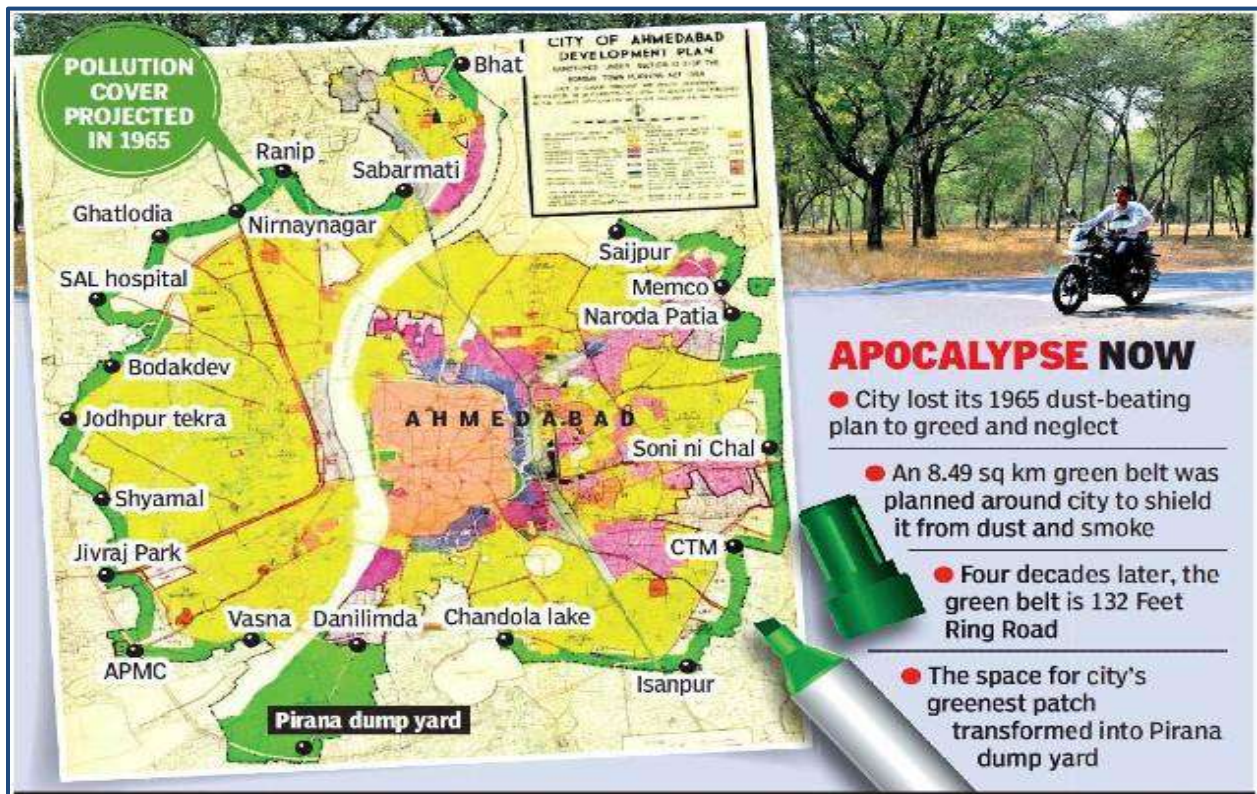




**The city usually suffers the most during a dust storm**

The study says that daily, on average, 19 lakh Amdavadis travel to work in their private vehicles. A Gujarat Pollution Control Board report cited in the research paper suggests that the major contributors to the dust pollution in Ahmedabad are industrial smoke,

dust, pollen and to a certain extent, vehicles.



Since 1965 all of Ahmedabad's development plans had emphasized greening and creating more open spaces. Over the past four decades, the Ahmedabad Municipal Corporation and the Ahmedabad Urban Development Authority have done precious little on this front. A number of town planning schemes are devoid of adequate trees and open spaces as mandated by the Gujarat Town



Planning Act. The AMC should henceforth ensure participation of citizen bodies while earmarking open spaces within town planning schemes to help develop a sense of ownership and participation.

But where did the city go wrong? Back in 1965, the AMC planners had foreseen this surging dust and pollution problem. They had insisted on the development of an 8.49 sq km green belt that includes today's Pirana dump yard, which should have been the city's densest green spot by 2021. But unfortunately, that space was converted into vacant land and now is part of 132 Feet Ring Road. "It is this massive neglect that has cost the city dear," said a senior retired town planning AMC official. "After 1980s, the city's only chance of developing a green shield was lost when Pirana was converted into the city's most toxic dump yard."

A study by Indian Institute of Science, Bengaluru, in 2018-19 said that over two decades Ahmedabad's tree cover plummeted to 24% from 46% and that it was likely to touch 3% by 2030.

The AMC's building byelaws also suggest a minimum of 10% open space irrespective of any population density. "Ahmedabad lacks tree cover to tackle dust pollution. Till 2019, there was no concept of green infrastructure in the city's urban planning," said a senior AMC official. The city usually suffers the most during a dust storm.

A dust event, on April 27 this year, was studied for the first time by a team of scientists. They were from Physical Research Laboratory (PRL). The study was led by Dr Sourita Saha and included five of her colleagues from Space Applications Centre and National Centre for Medium Range Weather Forecasting. The researchers found that the dust particulate levels rose by 118% during the storm.

"An effective tree cover could have been a big protector for the city had the 1965 plan been adhered to," added the AMC official.

## **Delhi Will Breathe Fresh Air Soon, First Smog Tower to be Inaugurated on August 23 | All You Need to Know**

*Date:-19-August-2021, Source: india.com*

New Delhi: People of Delhi, here comes a piece of good news for you all. Very soon, you all will be able to breathe fresh air. You don't have to suffer from air pollution anymore. The national capital's first smog tower will be inaugurated

on August 23 by Chief Minister Arvind Kejriwal. This was informed by Delhi Environment Minister Gopal Rai said on Thursday. Also Read - Trucks Banned From Entering Delhi Till November 21. Details Here



**The 20-metre-tall structure, being set up to improve air quality in a radius of around 1 km, will operate at full capacity after the monsoon season**

As per updates from the minister, the 20-metre-tall structure, being set up to improve air quality in a radius of around 1 km, will operate at full capacity after the monsoon season. Also Read - 69 pc Pollution in Delhi From Outside, Impossible to Curb Without Joint Action Plan By Centre: Govt

“Chief Minister Arvid Kejriwal will inaugurate the smog tower on August 23. Thereafter, experts will ascertain its impact on pollution. Based on the results, we will take a decision on installing more equipment,” he said. Also Read - Haryana School Reopening: Physical Classes in Haryana To Begin With 100% Capacity From Dec 1.

**Delhi's first smog tower: All you need to know**

1. The Delhi cabinet had approved the pilot project in October last year.

2. The smog tower will be able to purify 1,000 cubic metres of air per second.
3. A two-year pilot study will be undertaken to ascertain the effectiveness of the smog tower after it becomes operational.
4. A control room has been set up at the site to monitor the operations of the smog tower.
5. Another 25-metre-tall smog tower, built by the central government at Anand Vihar, is expected to become operational by August 31, the Central Pollution Control Board (CPCB) said.
6. Tata Projects Limited (TPL) is building the two smog towers with technical support from IIT-Bombay, which, in collaboration with IIT-Delhi, will validate their performance.
7. The NBCC India Ltd. has been appointed as project management consultant.
8. The CPCB is the nodal agency for the tower at Anand Vihar, while the Delhi Pollution Control Committee is the nodal agency for the one coming up at Cannaught Place.
9. The two towers will have 1,200 air filters each developed by experts at the University of Minnesota in the United States which also helped design a 100-metre-high smog tower in Xian, China.
10. The smog towers, being built at a cost of Rs 22 crore each, are estimated to reduce concentration of PM2.5 up to 70 per cent in a 1-km radius around them.

### **CM Arvind Kejriwal To Inaugurate Delhi's First Smog Tower On August 23 To Curb Pollution**

*Date:-20-August-2021, Source: republicworld.com*

The Delhi Environment Minister said that the tower, which cost around Rs 20 crores, will surely reduce pollution and its performance will be assessed by a committee that will present a monthly report.

"I am certain that the smog-tower built at the cost of Rs 20 crores will contribute immensely towards this cause. The smog tower will work with full force after the monsoon season. The scientists of the Delhi Pollution Control

Committee will accordingly assess the performance of the tower and present a monthly report." The Environment Minister further added, "If the performance of the smog tower is found to be satisfactory, then we will replicate similar smog towers throughout Delhi."



**On August 23, 2021, Chief Minister Arvind Kejriwal will inaugurate Delhi's first smog tower. The ceremony will take place at Connaught Place's Baba Kharak Singh Marg, informed Delhi Environment Minister Gopal Rai on Thursday. The pollution tower will clean 1,000 cubic metres of air per second and lower PM 2.5 and PM 10 levels in the national capital**

He expressed confident that the smog-tower will yield positive results for the national capital. It must be noted that Central Government is also constructing one such tower at Anand Vihar. "This is being done after Supreme Court ordered both Delhi and Central Government to immediately install smog towers in the national capital," stated the Environment Minister who assessed the project's progress on the ground in detail on Thursday.

#### **Will smog towers be enough to fight Delhi air pollution?**

The smog tower is about 82 feet high. The tower has 40 wings that will emit purified air in around a 1 sq km area. Smog towers have filters containing electrostatically charged filter media that can capture particles as 0.3 – 10 microns in size. Similar smog towers are to be installed across the national



capital for the purification of the city. This is an initiative by the AAP government in Delhi. While smog towers may be effective, there are talks that the towers are only a tiny blip compared to the fight against automobile and truck fumes, construction debris, industrial pollution, and agricultural stubble burning that surround the city of more than 20 million people.

## Madhya Pradesh: Air pollution doubles in August, thanks to dry spell, road dust

Date:-21-August-2021, Source: [timesofindia.indiatimes.com](https://timesofindia.indiatimes.com)



**Air quality index of Bhopal on August 1 was 47 that rose to 94 on August 16. In Indore AQI was also 47 on August 1 that went up to 83 on August 16**

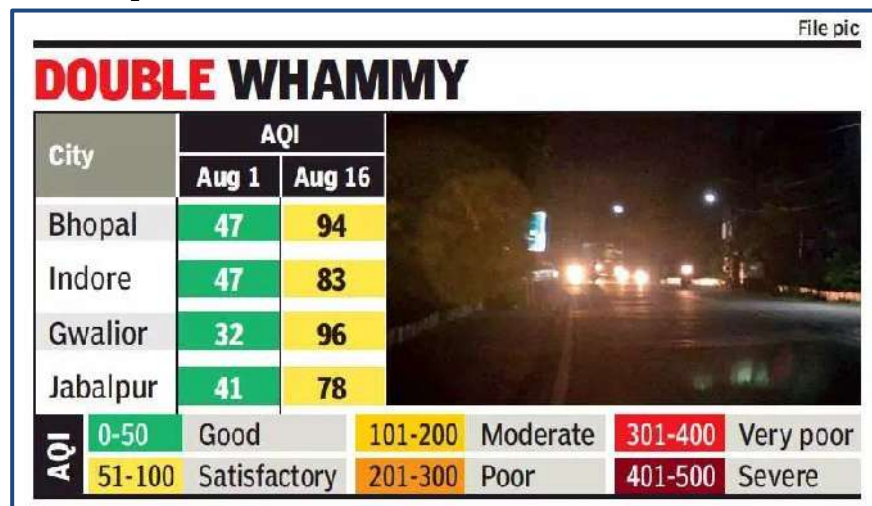
BHOPAL: Absence of showers and flying of dust due to damaged roads increased air pollution to more than double in a fortnight in major cities of Madhya Pradesh.

Air quality index of Bhopal on August 1

was 47 that rose to 94 on August 16. In Indore AQI was also

47 on August 1 that went up to 83 on August 16.

In Gwalior the AQI was 32 on August 1 that went up to 96 on August 16 while in Jabalpur AQI was 41 on August 1 that rose to 78 on August 16, as per the central pollution control board.



Air quality index between 0 and 50 is termed as good with minimal possible health impacts while air quality between 51 and 100 is satisfactory but may lead to minor breathing discomfort to sensitive people. Air

quality above 100 is moderate and leads to breathing discomfort to the people with lungs, asthma and heart diseases. AQI above 200 leads to breathing discomfort to most people on prolonged exposure. Officials said the air quality remained best during the showers.

Officials said, dust gets heavy in showers and does not fly in the air. The vehicular pollution also gets down as tyres could not lead to flying of pollutants and dust in air, as it settles down on ground. It is the reason why pollution levels come down during rains.

Air quality is measured taking into account the levels of sulphur dioxide (SO<sub>2</sub>), nitrogen oxide (Nox), RSPM10 and fine particulate matter (PM<sub>2.5</sub>) in the air. While the rise in sulphur dioxide is due to vehicle emissions, the increase in nitrogen oxide is due to human activity, including vehicles and sewage, among others.

Officials said PM 10 is due to dust, construction, including building of roads while PM<sub>2.5</sub> is due to dust, human activity and climatic conditions. Of the four, officials said, PM<sub>2.5</sub> is the most harmful to health since it causes severe lung diseases.

### **Stubble burning: Air quality commission asks states to follow protocol developed by ISRO**

*Date:-22-August-2021, Source: hindustantimes.com*



The Commission for Air Quality Management (CAQM) asked Delhi and its neighbouring states to adopt a protocol developed by the Indian Space Research Organisation (ISRO) for estimation of crop residue burning fire events.

The protocol developed by the ISRO estimates these events using satellite data.

The CAQM asked the governments of Delhi, Punjab, Haryana, Uttar Pradesh and Rajasthan to develop a time-bound comprehensive action plan in



collaboration with stakeholder agencies responsible for monitoring and reporting of events related to agriculture residue burning. The CAQM is responsible for executing plans to prevent and control air pollution in the Delhi-NCR region and adjoining areas.

“In view of the compelling need to monitor and control air pollution from stubble burning, the commission hereby directs the government of NCT of Delhi to ensure adoption and application of the standard protocol for estimation of crop residue burning fire events using satellite data,” the directions read.

The CAQM had in December last stressed the need to develop and implement a standard set of methods across NCR and adjoining areas for monitoring fire events. The protocol was then prepared taking into account suggestions from stakeholder agencies like State Remote Sensing Centres (SRSC) and Indian Agricultural Research Institute (ICAR).

The panel on air quality asked Punjab, Haryana, Uttar Pradesh, Rajasthan, and Delhi to send a compliance report on the adoption of the protocol by August 30. It also said that the protocol should be adopted uniformly across all states mentioned and not restricted to Punjab and Haryana.

The issue of stubble burning in these states became a major issue during the paddy harvesting season between October 15 and November 15 over the past years due to spikes in air pollution levels in Delhi-NCR. Farmers set their fields on fire to clear them of crop residue left behind after harvesting paddy and before cultivating wheat and potato.

Farmers continue stubble burning in Punjab and Haryana as there is a short time window between paddy harvesting and sowing of wheat. Farmers also cite the high cost of manual or mechanical management of straw as a reason behind their preference to burn stubble.

Despite measures taken by state governments, such as providing 50% to 80% subsidy to farmers and cooperatives to buy modern farm equipment for in-situ management of paddy straw and installing paddy straw-based power plants, farmers still continue to burn stubble, indicating that the measures have failed to make an impact.

A study by the Council on Energy, Environment and Water (CEEW), highlighted that a relatively ‘longer stubble-burning period and unfavourable meteorological conditions’ were factors behind Delhi’s poor air quality last

winter. It also showed that the contribution of stubble burning to the PM<sub>2.5</sub> levels in Delhi exceeded 30% between October 10 and November 25 last year compared to three days in 2019.

## **IIT Delhi researchers develop modified cotton fabric which adsorbs air pollutants**

*Date:-23-August-2021, Source: newindianexpress.com*



### **IIT Delhi**

NEW DELHI: Researchers at the Indian Institute of Technology (IIT) Delhi have developed a modified cotton fabric capable of adsorbing harmful air pollutants.

ZIF-8@CM Cotton and ZIF-67@CM Cotton, as they are called, are Zeolite Imidazolate Framework (ZIF)-modified functionalised fabrics which adsorb high levels of organic air pollutants like benzene, aniline, and styrene from the ambient air.

According to the research team, air pollution resulting from the rising levels of particulate matter, nitrous oxides, sulphur oxides, carbon oxides, and other toxic volatile organic compounds (VOCs) is a major concern.

A long-term exposure to even a few parts per million of these chemicals takes a toll on health and can cause asthma, and eye and throat irritations etc.

"In this study, we have shown the functionalisation of cotton fabric by ZIF MOFs (ZIF-8 and ZIF-67) using a rapid, facile, eco-friendly, and scalable approach.

The ZIF functionalised textiles possess a huge potential for applications as protective garments and in controlling indoor air pollution.

These fabrics may be used as upholstery for controlling gaseous pollutants that cannot be filtered out using a filter media.

"In particular, these can be used within closed spaces such as homes, offices, theatres, aeroplanes and other transport vehicles," said Ashwini Agrawal of the Textile and Fibre Engineering Department, IIT Delhi.

The ZIF-8 functionalised fabric was found to adsorb a maximum of 19.89 mg/g of aniline, 24.88 mg/g of benzene, and 11.16 mg/g of styrene on the weight of the fabric.

These fabrics could be easily regenerated by heating the fabrics at 120 degrees Celsius and reused without any decrease in their adsorption capacity for several cycles, the team said.

Using a technique known as in-situ growth of ZIF-8 and ZIF-67 nanocrystals on the carboxymethylated cotton fabric using a rapid water-based textile finishing approach, the researchers at IIT Delhi have successfully developed a low-cost cotton fabric capable of adsorbing 400-600 per cent more VOCs than ordinary cotton fabrics.

Further, these fabrics are robust and can withstand even the harsh conditions of washing.

They can be used repeatedly and in designing functional filters and pollution controlling upholstery fabrics among others.

IIT Delhi research scholar Hardeep Singh, who carried out detailed experiments to develop these fabrics, said the porous materials such as activated carbon, zeolites, and Metal Organic Frameworks (MOFs) are capable of adsorbing VOCs from air.

"The MOFs can be tweaked to create textiles that have antimicrobial, biomedical, particulate matter filtering, fuel filtering, chemical warfare protecting and UV radiation absorbing properties. The ZIFs specifically are more suitable under Indian conditions," he said.

## Air pollution could hit monsoon rains by as much as 15%

Date:-24-August-2021, Source: [timesofindia.indiatimes.com](https://timesofindia.indiatimes.com)



Nagpur: While monsoon is considered the cleanest season, with relatively low air pollution, experts say air pollution is likely to reduce the southwest monsoon rainfall by 10%-15% for the entire country.

A latest analysis by Climate Trends highlights the adverse

impact of air pollution on performance of monsoon in India. The analysis states that as the pollution peaks in the coming years, monsoon rains may reduce by at least 10% or even more, say scientists. "Some places might even see rains reduced by as much as 50%. While there has been consensus across the scientific community that the rising air pollution levels would decrease rainfall substantially in the coming years, it might also result in unstable monsoon patterns. For instance, we might see extreme weather events like severe hailstorms, torrential rains along with an increase in the number of dry days, especially over places which are more polluted," the analysis states.

As per the experts, air pollution is the result of suspended particles or aerosols in the atmosphere from anthropogenic emitting sources along with natural dust. "It would also impact the dynamics of monsoon, for instance delay in onset. Air pollution does not allow the landmass to warm up to the required levels. Due to the presence of pollutants, heating of land takes place at a slower rate," says Dilip Ganguly, associate professor at the Centre for Atmospheric Sciences, Indian Institute of Technology (IIT) Delhi.

Stating that strong latitudinal and vertical gradient in aerosols would lead to gradual reduction in southwest monsoon mean rainfall, SN Tripathi, head of the department of civil engineering at IIT Kanpur says, "The most affected places would be areas with more pollution levels. It is very non-linear, as it is

the result of an interplay between meteorology and aerosols. The southwest monsoon is driven by the difference between land temperatures and ocean temperatures. Presence of large scale aerosols over the Indian landmass would lead to dimming of the land surface. The entire process would lead to weakening of the dynamics of monsoon, which might even include delay in onset of monsoon.”

The analysis further adds that though air pollution is impacting rainfall in the country, the Indo-Gangetic plains seem to be in a tight spot. “From March to May, the land surface gets heated, due to which the strength of the inversion layer reduces, bringing down the pollution levels. However, during that time, dust from western Rajasthan and the adjoining desert region of Pakistan starts transporting over the Indo-Gangetic plains. This, along with local emissions, leads to an increase in summertime pollution. Also, the geography of the north-western plains including Delhi-NCR is also not supportive. The entire Himalayan region guards the Indo-Gangetic plains, which does not allow pollutants to escape and acts as a barrier,” says Krishnan Raghavan, scientist at the Indian Institute of Tropical Meteorology, and lead author on Intergovernmental Panel on Climate Change (IPCC) Working Group 1 report.

### **RAIN, RAIN GOES AWAY**

- Air pollution likely to decrease southwest monsoon rainfall by 10%-15% for the country
- Some places might see rains reduced by as much as 50%
- Might witness extreme weather events like severe hailstorms, torrential rains along with increase in number of dry days
- Most affected places would be areas with more pollution levels
- Pollutants remain trapped in Indo-Gangetic plains

### **Delhi transport department to focus on procuring electric buses**

*Date:-25-August-2021, Source: business-standard.com*

In a bid to boost public transport without raising the city's air pollution, the Transport Department of Delhi government has now decided to focus on procurement of electric buses, officials said on Wednesday.



The government has given the go-ahead for procurement of 465 e-buses under the cluster scheme and tenders for it are expected to be floated soon, a senior Transport department officer said.

Also, 300 electric buses being engaged by Delhi Transport Corporation (DTC) are expected to roll out from November, he said.

The induction of 300 electric buses by the DTC in one go will be the largest engagement of its type by any state transporter, he said, adding the entire fleet of e-buses is likely to be inducted by February 2022.

Sources claimed that it has been decided at the level of Transport Department to induct e-buses only in the public transport fleet in coming days to curb the air pollution in the city.

The Transport Department is also planning to ready Burari and Saray Kale Khan depots for these electric buses that will roll out in coming months, officials said.

Chief Minister Arvind Kejriwal had earlier said the Delhi government is committed to switching public transport to electric mode to fight the high level of air pollution in Delhi.



The parking space is also being readied for DTC e-buses at its Subhash Place Depot, Mayapuri Depot, Rohini-II Depot, Rajghat-II Depot and Mundela Kalan Depot.

The engagement of electric buses in the DTC fleet is based on the OPEX (operating expense) model. It has been operating buses owned by it so far.

Bus operators JBM and Tata Motors will operate 200 and 100 buses respectively, officials said.

Under the scheme, the buses will operate a minimum 140 km in a single charge. The operator will provide the driver and the DTC will depute its own conductor in the buses.

The operator will be responsible for maintaining buses or batteries throughout the concession period of 10 years.

The cost of electricity consumption for charging batteries will be borne by the DTC, they added.

### **Soon: 'Mission' to improve air quality**

*Date:-26-August-2021, Source: thehansindia.com*



**Soon: 'Mission' to improve air quality**

With the aim at tackling the pan-India problem of air pollution, India is set to announce a 'Mission' for air quality management soon. In all likelihood, the announcement would be made by Prime Minister Narendra Modi. This will replace the existing National

Clean Air Programme (NCAP).

A top government official told IANS: "The countours are being worked out, modalities are year. The Centre had launched the NCAP in January 2019 as a long-term, time-bound, national level strategy to tackle the air pollution

problem across the country in a comprehensive manner. It had targeted to achieve 20 to 30 per cent reduction in Particulate Matter concentrations by 2024, keeping 2017 as the base year for the comparison of concentration. There are 132 non-attainment cities under NCAP programme.

India is considered as the second most polluted country in the world with regard to air pollution. Some of the most polluted cities are in India. Domestic firewood burning, construction dust and that from roads, open fields, agri-waste burning, industrial burning of coal and other fossil fuels, thermal power plants, brick kilns, vehicular emissions and diesel-powered generator sets are some of the prominent sources of air pollution.

### **Not much action, Delhi-NCR may choke again on farm fires**

*Date:-27-August-2021, Source: timesofindia.indiatimes.com*



**While the poll-bound states are unlikely to come down hard on farmers for stubble-burning, the Centre too has watered down an ordinance it promulgated last year that had penal provisions against farmers burning their fields**

NEW DELHI: North India, including Delhi-NCR, may yet again be staring at extreme air pollution and smog in less than two months' time, with no major change apparent in efforts to deal with stubble-burning in the affected states of the

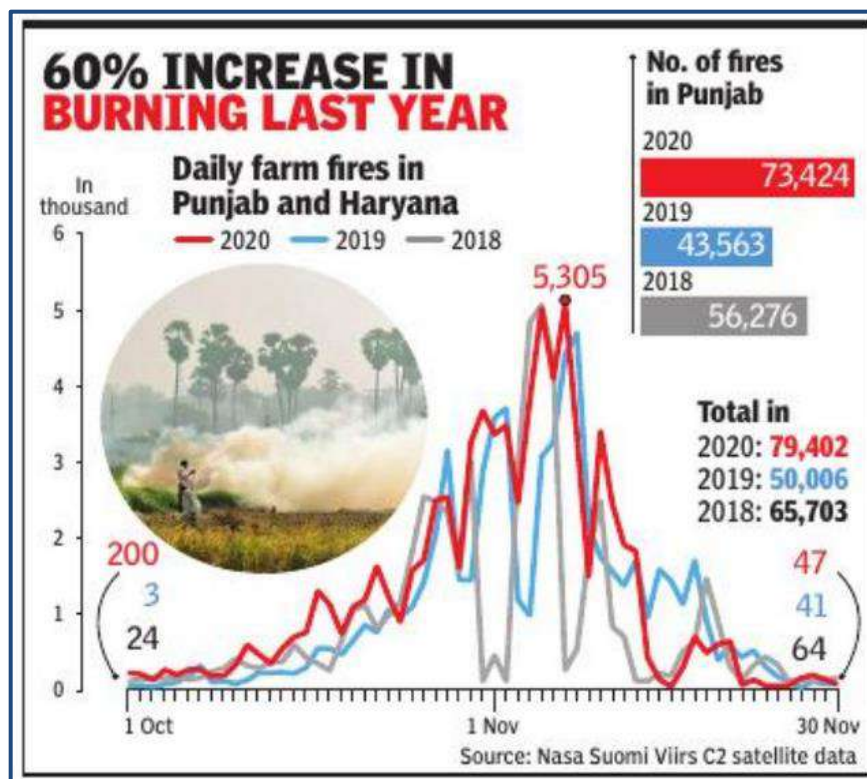
region. Upcoming elections in Punjab and Uttar Pradesh, and the continuing

farmer agitation, also make it unlikely that punitive action will be taken against violators.

On Wednesday, the Yogi government in UP announced that cases slapped against farmers for burning paddy stubbles would be withdrawn and the fine imposed on them waived. The state goes to polls early next year, along with Punjab, where the practice of burning is rampant.

Agriculture fires are a major contributor to air pollution in north India in October-November. Under certain meteorological conditions, pollutants from

these fires spread across the region, triggering smog and extreme air quality situations.



While the poll-bound states are unlikely to come down hard on farmers for stubble-burning, the Centre too has watered down an ordinance it promulgated last year that had penal provisions against farmers burning their fields. This was one of the concessions made by the Centre during its talks with farm organisations agitating against the three new farm Acts.

Not that efforts haven't been made to end the menace. Over the last three years, the Centre has been heavily subsidising various agricultural machines to help farmers to stop the practice, and even profit from the leftover paddy biomass. The state governments and other agencies have also been sensitising farmers on healthier practices.

These efforts appeared to be bearing fruit when instances of stubble-burning dipped in 2019. However, with widespread anger among farmers in Punjab and Haryana over Centre's new farm laws last year, these efforts suffered a setback. Farm fires surged substantially last October-November, by as much as 60% over the previous year, as per Nasa satellite data, with many seeing this as acts of defiance by farmers.

Some experts are optimistic that stubble-burning would not be as high this year. "There are two main reasons why the biomass burning is likely to be less this year. One, there has been an increase of 10% in the acreage of short-duration paddy varieties in Punjab. These will be harvested early, giving farmers ample time to prepare their fields for the rabi crop," said M L Jat, principal scientist at the international non-profit organisation, CIMMYT.

The second reason, Jat said, was the increase in the number of implements to help farmers manage crops sustainably. "There are 18,500 happy seeders with the farmers of Punjab and Haryana, and as many super seeders. These machines will be put to some use," the agro expert said.

Other experts, however, said the low cost of burning the fields will be incentive enough for farmers, particularly with input costs of farming going up.

### **‘Vehicles, construction works and brick kilns causing high particle air pollution in Patna’: Study**

*Date:-28-August-2021, Source: hindustantimes.com*



For the residents of Patna, especially the fitness freaks, it's time to get alert as the air in Bihar's capital is showing signs of high pollution. A study on Ambient Particulate Matter in Patna City (Bihar) 2021, jointly conducted by the TERI (Tata Energy

Research Institute) and the Centre for Environment, Energy and Climate Change (CEECC), a wing of the ADRI (Asian Development Research Institute), under the direction of the Bihar State Pollution Control Board, has revealed some startling facts.

According to the study, the concentration of ambient particulate matter (PM), or particle pollution in state capital's air is much higher than the prescribed standards in summer and winter and that dust composed of either soil or road or construction materials is the major contributor of this particle pollution in both the seasons.

The report also stated that during summer, the concentration of PM (Particulate Matter) 10 in state capital air was found to be 1.73 to 2.71 micrograms per cubic metre higher than the average standards while during winters PM 10 concentration here was 1.98 to 2.77 micrograms per cubic metre higher than the average standards.

Even the concentration of PM 2.5, which is much tinier than the PM 10 and is far more dangerous and hazardous for health, was found to be 1.37 to 3.28 higher micrograms per cubic metre higher than the average standards during the winter in the state capital.

The biggest sources of this PM 2.5 in the city air were found to be brick kilns located around the state capital, as well as vehicular emissions, biomass burning, and dust coming from the shores of the Ganga River, roads and from the construction activities going on in the city.

The study discussed the sources of air pollution in the city and also suggested some solutions. It recommended the creation of a green belt with local dense canopy tree species on the banks of river Ganga to stop windblown dust segments from entering the city.

Use of cleaner fuels like gas, electricity instead of biomass, coal in brick kilns and other factories located in and around the city, improvement of vehicular inspection and maintenance programme in and around the city, enhancement of public transport system, preferably on electric modes and installation of electric charging infrastructure and the need to encourage people for non-motorized transportation within 5 to 6 km in the city and development of non-motorized lanes wherever possible within the city, were among other suggestions.

The report, Receptor Modelling Based Source Apportionment Study of Ambient Particulate Matter in Patna City (Bihar) 2021, was released by the state minister of forests, environment and climate change, Niraj Singh, at a function in the state capital on Friday.

“Global warming has been a global issue. The state government has been working tirelessly to mitigate its impacts and save the environment. Poor women have been given gas cylinders under the Ujjawala Yojna to stop pollution during cooking. We also have a target of the plantation of five crore saplings and we are about to achieve the target,” the minister said.

Considering the need for regular monitoring of the air quality, testing centres are being set up in 24 districts, he added. The minister said people too needed to be made aware of the causes of air pollution and its impacts on life. Every individual has to make efforts in this direction, he added.



Dr Ashok Kumar Ghosh, chairman, Bihar State Pollution Control Board, said that single-use carry bag has been banned in state as part of the effort to save the environment. But it needs to be implemented effectively, he added.

S Chandrashekhar, member secretary, Bihar State Pollution Control Board, said that the study of the air quality in the state capital was conducted to see the exact situation. “Before making any development plans, we need to know the problems and their sources,” he said. This is why the study focused on the sources of air pollution and then the solutions were discussed, he added.

### **Air pollution in 13 Andhra Pradesh cities to be cut**

*Date:-29-August-2021, Source: deccanchronicle.com*



#### **Andhra Pradesh Pollution Control Board (APPCB) has prepared an Action Plan to reduce air pollution within 13 municipal towns of the state.**

VIJAYAWADA: Andhra Pradesh Pollution Control Board (APPCB) has prepared an Action Plan to reduce air pollution within 13 municipal towns of the state. Under it, average annual level of PM10 will be brought down from 70–80 microgram per cubic metre to less than 60 microgram per cubic metre in next five years concluding 2025–26. These towns are district headquarters and part of 132 non-attainment cities in the country.



APPCB chairman Aswini Kumar Parida said Andhra University will assist towns of Srikakulam, Vizianagaram, Rajamahendravaram, Kakinada and Eluru in this regard, while IIT-Tirupati will help out Vijayawada, Guntur, Ongole, Nellore and Tirupati. National Atmospheric Research Laboratory (NARL), Tirupati, will deal with municipal towns of Chittoor, Anantapur, Kadapa and Kurnool. The three organisations will undertake studies to identify hotspots and carrying capacity of towns concerned.

The board has prepared city-level action plans involving municipalities / municipal corporations and transport, industry and agriculture departments for implementing all micro-level interventions. There will be close monitoring by implementation committees headed by respective district collectors. Funds available under different government schemes in urban sectors will be dovetailed with resources of municipalities and corporations to execute pollution-control plans.

Parida said CSR funds available with local industries will also be utilised, while the state government will provide Rs. 639 crore as gap funding during the next five years till 2025–26. Rs 274 crore is being earmarked for Visakhapatnam and Rs232 crore for Vijayawada. Of Rs 639 crore, Rs 506 crore are XVth Finance Commission grants for Vizag and Vijayawada. Rs133 crore will be provided out of National Clean Air Programme (NCAP) for the remaining 11 municipal towns. Massive environment awareness campaigns will be undertaken involving youth, communities and civil society organisations.

APPCB has appealed to all industries within the state to make available their CSR funds for the Clean Air Andhra Pradesh (CAAP) programme. This way they can become part of Ecosystem Restoration process for providing clean air to people in municipal towns close to their industries.

### **Report on source of Vasco pollution after Chaturthi: GSPCB**

*Date:-30-August-2021, Source: timesofindia.indiatimes.com*

Panaji: The source appropriation study report pinpointing the cause of air pollution in Vasco, which was expected to be finalised next month, will be submitted after Ganesh Chaturthi.

Goa state pollution control board (GSPCB) chairman Ganesh Shetgaonkar said on Sunday that the preparation of the report is in the final stage. The study is being conducted by Indian Institute of Technology (IIT), Bombay.

Due to health issues, the IIT director who was in charge of the study was unable to submit it, he said.

IIT-Bombay had asked GSPCB for the continuous ambient air quality monitoring system (CAAQMS) and the national ambient air quality monitoring programme (NAMP) data of six locations from the port town to assess the air pollution at Vasco during the lockdown.

The IIT had been tasked with conducting a source appropriation study following allegations of coal pollution in the town. The institute has completed data collection for the second phase of the study, and chemical analysis is in progress. The first phase report stated that coal is not the only mineral behind air pollution in the town.

A senior GSPCB officer said that the interim report didn't pinpoint the reason for pollution in Vasco, but the second phase study will give details about the source of pollution.

The first phase began in April 2017 and was completed in May 2018. Mormugao Port Trust (MPT) will bear the cost of the entire study, which has been pegged at over Rs 94 lakh, a senior GSPCB officer had said.

Identification of sampling locations, monitoring ambient air quality, and locating pollution sources are part of the study's scope, and will be carried out as per guidelines of the central pollution control board. There have been allegations from the people of Vasco and NGOs that the port town is suffering because of coal handling at the port.

### **Sigh of relief for residents as Patna's AQI turns 'good'**

*Date:-31-August-2021, Source: timesofindia.indiatimes.com*

PATNA: In what could be a major relief, Patna's air quality index (AQI) improved from "satisfactory" to "good" level in the last 24 hours. For the first time in August, the city's AQI was recorded at 38, which falls in "good" category, on Monday. On Sunday, the AQI in city was recorded at 84 as per the data available on Central Pollution Control Board (CPCB) website.

In August, there were 27 "satisfactory" AQI days, two "moderate" days and a "good" day in the city. The AQI in all areas having continuous ambient air quality monitoring station was 'good' on Monday – DRM office-Khagaul (30), Eco Park (32), S K Memorial Hall (34), Patna City (45) and BIT-Mesra (49).



**Patna's AQI was recorded at 38 on Monday**

An AQI between 0-50 is considered “good”, 51-100 “satisfactory”, 101-200 “moderate”, 201-300 “poor”, 301-400 “very poor” and 401-500 “severe”. Above 500 is the “severe-plus or emergency” category. The “very poor” situation can cause respiratory illness on prolonged exposure.

Naveen Kumar, an environmental scientist and analyst

at Bihar State Pollution Control Board (BSPCB), said the city witnessed good air day because of a smaller number of vehicles on the roads owing to Janmashtami and climatic conditions. “These are the two main reasons behind the fall in the AQI level of Patna. As far as the wind speed is concerned, it was same as yesterday. The air quality is expected to remain satisfactory for another few days due to favourable meteorological conditions,” he said.

Kumar added, “Between October and January, the air quality would deteriorate to poor, very poor and even severe categories. Geographical location of Bihar is the main factor for poor air quality during winters. Other climatic factors like thermal inversion can lead to poor air quality.”

The Air Quality Early Warning System of the ministry of earth sciences has predicted that the overall AQI of Patna would witness a slight rise on Wednesday due to climatic conditions. However, it will again see a drastic improvement on September 1 owing to change in direction of wind.

**September 2021**

**People in Maharashtra can lose 2.5-2.9 years of life expectancy due to air quality: Report**

*Date:-1-September-2021, Source: timesofindia.indiatimes.com*



MUMBAI: Since 1998, the average annual particulate pollution in India has increased 15 per cent, cutting 5.9 years off the life of the average resident over those years.

Now, nearly 40 per cent of India's population is exposed to pollution levels not seen in any other country, with 510 million residents of

northern India on track to lose 8.5 years of life expectancy on an average, if pollution levels persist, reveals an air quality life index (AQLI) report released by Energy Policy Institute, University of Chicago (EPIC) this morning.

India is listed as the most polluted country in the world with 480 million living in the indo-gangetic plain (IGP) as the most impacted as air pollution levels "exceed those found anywhere else in the world by an order of magnitude". As per the report, 40 per cent of the country's population is expected to lose more than 9 years of their life if pollution levels persist as they were in 2019, including residents of megacities like Delhi and Mumbai. Pollution has now expanded beyond the IGP to states like MP, Maharashtra where average people are losing additional 2.5-2.9 years of life expectancy relative to early 2000, said the report.

The AQLI is a pollution index that translates particulate air pollution into perhaps the most important metric that exists: its impact on life expectancy. Developed by the University of Chicago's Milton Friedman Distinguished Service Professor in Economics Michael Greenstone and his team at the Energy

Policy Institute at the University of Chicago (EPIC), the AQLI quantifies the causal relationship between long-term human exposure to air pollution and life expectancy. The Index also illustrates how air pollution policies can increase life expectancy when they meet the WHO or national AQ standards.

It may be recalled that a recent study by Utkal University, Bhubaneswar, IITM-Pune, National Technology Institute Rourkela and IIT Bhubaneswar published in the Elsevier Journal had stated that cities such as Mumbai, Pune, Delhi, and Ahmedabad experienced the highest number of Covid-19 cases and casualties between March and November 2020 owing to higher pollution levels involving PM 2.5 emission loads.

According to the report, an average life expectancy would be higher by 5.6 years in the four South Asian countries -- India, Pakistan, Bangladesh and Nepal -- if they complied with WHO standards, the report pointed out. In comparison, threats from other health risks like smoking, for instance, reduces life expectancy in these countries by as much as 1.8 years; unsafe water and sanitation by as much as 1.2 years; and alcohol and drug use by about a year of lost life years in the South Asian countries.

In 2019, India's average particulate matter concentration was  $70.3 \mu\text{g}/\text{m}^3$  -the highest in the world and seven times the WHO's guideline of  $10 \mu\text{g}/\text{m}^3$ . Air pollution shortens average Indian life expectancy by 5.9 years, relative to what it would be if the World Health Organization (WHO) guideline was met; and 3.0 years relative to what it would be if pollution were reduced to meet the country's own national standard of  $40 \mu\text{g}/\text{m}^3$ . Some areas of India fare much worse than average, with air pollution shortening lives by 9.7 years in Delhi and 9.5 years in Uttar Pradesh, the most polluted state. All of India's 1.3 billion people live in areas where the annual average particulate pollution level exceeds the WHO guideline.

### **What is particulate pollution?**

Air has suspended particulate matter (PM) of different sizes. Many of these are a complex mixture of dust, pollen, soot and smoke and they are hazardous. Of this, PM 2.5 is the smaller kind, with a diameter not more than 2.5 micrometers (fine particles). The carcinogenic PM2.5 is considered to have a very significant health impact as it can stay in the air for days or weeks, and is small enough to invade the lung airways.

## **U'khand among top 3 'most polluted' Himalayan states, Tripura first: Report**

*Date:-2-September-2021, Source: timesofindia.indiatimes.com*



Dehradun: Data from the Air Quality Life Index (AQLI) report, released by the Energy Policy Institute, University of Chicago (EPIC) on Wednesday has revealed that Uttarakhand has one of the highest concentrations of PM (particulate matter) 2.5 among the Himalayan states. In fact, among Himalayan states,

only Assam and Tripura have higher levels of air pollutants than Uttarakhand.

AQLI is based on research that quantifies the causal relationship between long-term human exposure to air pollution and life expectancy.

The report found that in 2019, PM 2.5 in Uttarakhand was at 48 ug/m<sup>3</sup>, cutting short life expectancy of its residents by 3.7 years. In Assam — which recorded a PM 2.5 of 50 ug/m<sup>3</sup> — and Tripura, where PM 2.5 levels were 53 ug/m<sup>3</sup>, life expectancy is declining by 3.9 years and 4.2 years respectively.

The report also found that India's high levels of air pollution have expanded geographically over time. Compared to a couple of decades ago, particulate pollution is no longer a feature of the Indo-Gangetic plains alone, it said.

The report listed PM 2.5 concentrations in various other Himalayan states like Himachal Pradesh (40 ug/m<sup>3</sup>), Arunachal Pradesh (27 ug/m<sup>3</sup>), Meghalaya (47 ug/m<sup>3</sup>), Manipur (32 ug/m<sup>3</sup>), Mizoram (33 ug/m<sup>3</sup>), Sikkim (42 ug/m<sup>3</sup>) and Nagaland (32 ug/m<sup>3</sup>). The air pollutant levels in Jammu & Kashmir and Ladakh (which are now Union Territories) were at 36 ug/m<sup>3</sup> and 12 ug/m<sup>3</sup> respectively, the report said.



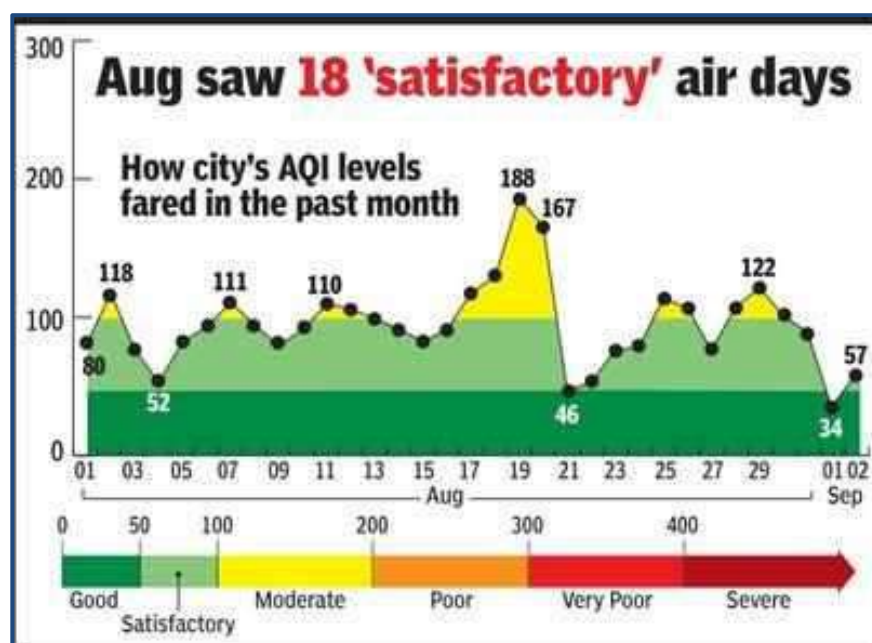
In Uttarakhand, Udham Singh Nagar — which houses the industrial hub of Rudrapur — was found to have the highest concentration of PM 2.5 at 64 ug/m<sup>3</sup> followed by Haridwar at 63 ug/m<sup>3</sup>. The lowest PM 2.5 levels were recorded in Chamoli at 27.2 ug/m<sup>3</sup> followed by Rudraprayag (27.7 ug/m<sup>3</sup>).

The state capital of Dehradun recorded PM 2.5 concentration at 44 ug/m<sup>3</sup>. The average life expectancy in Dehradun is getting shortened by 3.3 years due to the air pollution levels as per the report.

According to the report, if WHO standards are met, US Nagar can improve the average life expectancy of its residents by 5.3 years while Haridwar can improve it by 5.2 years.

### After heavy showers, Gurgaon sees 'good' air day

Date:-3-September-2021, Source: [timesofindia.indiatimes.com](https://timesofindia.indiatimes.com)



Gurgaon: The city's air quality index (AQI) turned 'good' on Wednesday after a gap of 11 days. Gurgaon had witnessed its last 'good' air day on August 21. Last month, the city recorded only a single 'good' air day, 17 'satisfactory' days and 13 'moderate' days, as compared to eight 'good' days and 23

'satisfactory' days in the corresponding period last year. According to the Haryana State Pollution Control Board (HSPCB), factors like garbage burning and dust from construction sites have contributed to the deterioration of air quality.

The city's overall AQI was again in 'satisfactory' mark at 57 on Thursday. Good wind speed and Wednesday's showers had dispersed pollutants, improving air quality. Out of the four air monitoring stations in the city, two recorded 'satisfactory' AQI — Sector 51 (73) and Teri Gram (53) — while Vikas Sadan reported 'good' AQI at 48. Data was not available at Gwalpahari station.

An AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'. HSPCB officials said the AQI is likely to remain in the 'satisfactory' and 'moderate' range because of a reduction in industrial and vehicular activities. "Because of rain and good wind speed in the city, the AQI has been in satisfactory range in the past few days," an official said.

Speaking about why the city reported fewer 'good' air days this August compared to last year, the officer said the contribution of internal factors like garbage burning, violation of construction norms and lifting of lockdown can't be ruled out completely. "Poisonous gases from waste burning and dust from construction sites have been contributing to the pollution levels in Gurgaon. We can't deny the role of these factors while analysing the city's AQI," he added.

### **Karnataka pollution board to set up 11 air quality monitoring stations in industrial clusters**

*Date:-4-September-2021, Source: indianexpress.com*



**The continuous Ambient Air Quality Monitoring Stations(CAAQMS) will be set up in industrial area across the state**

Eleven new ambient air quality monitoring stations will be set up in industrial areas by the Karnataka State Pollution Control Board under the central government's National Clean Air Programme (NCAP).

The Continuous Ambient Air Quality Monitoring Stations (CAAQMS) will be set up in industrial areas across the state.

The Karnataka State Pollution Control Board (KSPCB) has confirmed that they are in talks with the Karnataka Industrial Areas Development Board (KIADB) to install CAAQMS in industrial areas.

Out of 11 stations, the board has planned to install three stations by the end of 2021.

It is learnt from sources that four stations will be set up in Bengaluru, out of which two will be installed in Jigani and Yeshwantpur.

Industrial areas in Davangere, Tumkuru, Belgaum and Dharwad are the other places where the stations will be set up.

"The plan is very much in progress. Once Ganesha Chaturthi will be over, we will move ahead with the plan. Under the NCAP programme, Bruhat Bengaluru Mahanagara Palike (BBMP) has received funds. The plan is to set up air monitoring stations in industrial areas since industrial emissions are a major source of pollution," the member secretary of the KSPCB, K Srinivasulu, told The Indian Express.

The KSPCB has installed seven CAAQM in Bengaluru and the monitoring is done on a 24-hour basis for PM10, PM2.5, SO2, NO2, Ammonia, O3, CO and Benzene and the compiled statistical data is sent to the CPCB.

According to the Central Pollution Control Board (CPCB) an Air Quality Index (AQI) between 0-50 is considered 'good', 51-100 is 'satisfactory', 101-200 'moderate', 201-300 'poor', 301-400 'very poor' and 401-500 'severe'.

## **As cities choke**

*Date:-5-September-2021, Source: thestatesman.com*

'If there is a paradise on the face of the earth,

It is this, it is this, it is this'



The Mughal emperors had made Persian their court language. Engraved and filled with gold on the walls of Diwani Khas in Delhi, the above lines were written with pride. Its Persian version is: Agar firdaus bar roo-e zamin ast, hamin ast, hamin ast, hamin ast, hamin ast”. Tagore translated

it in Bengali: “Swargo jadi kothao thake ei dharanir majkhane, ei khane ta eikhane go, eikhane ta eikhane.”

Now, the fragrance of paradise is lost totally. India’s environment is no more beautiful, but horrendous. The recent report of the University of Chicago on Air Quality Life Index (AQLI) of India has assumed alarming proportions, particularly as far as its northern part is concerned, costing an additional 2.5 to 2.9 years of life expectancy of an average individual. The research by the varsity’s Energy Policy Institute emphasised India’s extremely high level of air pollution cutting 480 million lives short by nine years in its northern region and called it the most polluted country in the world.

Amidst nationwide concern over the Covid-19 crisis, followed by several lockdowns, the air quality of Delhi and all major cities of India led to a significant reduction in pollution as reported by the Central Pollution Control Board (CPCB). The travel restrictions on vehicles and closure of industries may have contributed. According to the report, 54 cities in the country registered “good” and “satisfactory” air quality in March last year before imposition of the lockdown; one week later, 91 cities recorded minimal levels of air pollution.

India’s capital which battles throughout the year to curb pollution also showed significant improvement of Air Quality Index (AQI). Air quality index between 0 to 50 is considered as good, 51 to 100 satisfactory, 101 to 200 moderate, 201 to 300 poor, 301 to 400 very poor and 401 to 500 severe. The ‘Janata Curfew’ may be regarded as a blessing in disguise so far as air pollution of the country is concerned.

On 12 October last year, a layer of haze lingered over several parts of Delhi and plunged the city in the 'very poor' category, days before some stringent measures to combat air pollution come into force under the Graded Response Action Plan (GRAP). The Air Quality Index (AQI) data according to the Central Pollution Control Board reveals values exceeding 300 in many parts of the capital and adjoining areas.

The action initiated by authorities to curb the menace is too little and too late and exposes gross negligence. The Indian Medical Association sounded an alert but the Delhi government locked horns with the Centre over its obligations and the matter reached the apex court. Despite the National Green Tribunal's stringent stricture, no respite for common people seemed evident and the situation deteriorated considerably. The closure of primary schools, entry of trucks, implementation of odd-even vehicular movement in the NCR and creation of artificial clouds for rain are nothing but short-term measures.

Concerned with the deadly smog that engulfed the capital, the NGT some time back banned construction and industrial activities in Delhi-NCR and ordered taking of adequate steps to minimise dust contamination by sprinkling water on the roads. The maintenance of air quality standards is the duty of the Union and state governments. It transpires now that it has been the collective failure of elected governments, technocrats and bureaucrats. The Union Environment Ministry has given cognizance to the problem and constituted a seven-member committee to monitor measures to curb air pollution. The Central Pollution Control Board (CPCB) and Environment Pollution (Prevention and Control) Authority (EPCA) should initiate action after assessing the current situation.

The air that Indians breathe is turning more toxic by the day and an average of two deaths take place due to air pollution, according to noted medical journal The Lancet. It also substantiates that over a million Indians die or are at the point of death due to air pollution and some of the worst polluted cities of the world are in India including its capital.

The smog, fog and smoke contamination in the northern parts of India is also extracting a heavy toll; every day two lives are lost in India due to air pollution. Air quality in all major cities of India ~ New Delhi, Patna, Kolkata. Mumbai, Chennai ~ is far from satisfactory.

The Lancet however contradicted some Indian reports and pointed out that coal-fired power plants contribute to 50 per cent of pollution. The emissions from automobiles also cause mischief, including its incredibly dangerous contaminated polynuclear aromatic hydrocarbons (PAH) which are extremely



carcinogenic. The Lancet report pointed out potential catastrophic risks to human health and need for immediate, effective and meaningful environment management. The air pollution of Delhi and Kolkata as reported by World Health Organization and United Nations environment program has assumed alarming proportions during the last several decades.

The air we breathe is poisoned with anthropogenic and natural emissions all the time. However, air pollution is not a new problem. As long as man has lived in cities, he has had a propensity to pollute the air. It is a problem of the ever-expanding technological society. The situation has been accentuated by the monstrous climatic change. Most artificial impurities are injected into the atmosphere at or near the earth's surface. Therefore, what is critical about air pollution is its scope and severity. It is well known that for most pollutants the troposphere cleanses itself within a very short period of time because of the so called "vertical mixing ability". Rainfall also helps in removing the impurities to a certain extent, but acid rain damages the environment, now a matter of grave concern. Therefore, any substance that is not part of air's gaseous make-up is regarded as a pollutant. Air-borne suspended particulate matter (SPM), respiratory particulate matter (RPM) and contaminant gases exist in the atmosphere in various degrees. Air pollution is not confined to a particular territory but is a trans-boundary phenomenon.

The problem is particularly acute in major Indian cities and its suburbs where the air is unclean according to standards fixed by WHO. The ever-increasing urban population is also posing a serious problem. Emission from vehicles has been identified as a major source of pollution in the Delhi metropolitan region. The situation is appalling owing to the increasing number of vehicles and the limited space for their movement. Domestic consumption of fossil fuels, sometimes out in the open, and pollutants from small industries, building and road construction, ever-increasing number of vehicles, whimsical burning of agricultural waste and emission of SPM from thermal power stations are accentuating the problem.

The pollutants vary from one place to another. Their intensity is most in the heart of the city. The common air pollutants in Delhi are sulphur dioxide, oxides of nitrogen, carbon monoxide, hydrocarbons, peroxy acetyl nitrate (PAN), which causes irritation of eyes, heavy metals and traces of incredibly dangerous polynuclear aromatic hydrocarbons (PAH) which are carcinogenic in character. The poor and weaker sections of society are acutely affected by pollution. The pavement dwellers, underprivileged and vulnerable groups are



exposed to direct health hazards. In addition, heavy air pollution leads to higher rates of mortality and morbidity.

Leaded petrol has been banned in most developed countries. But unleaded petrol has other disadvantages which need special attention. Lead-free petrol releases a higher level of aromatic organic compounds and a high concentration of benzene which is known to be potentially carcinogenic. According to WHO, the risk of cancer is substantial. Suitable measures need to be taken immediately to eliminate the emission of toxic benzene into the air.

Given the horrifying level of air pollution in major cities of India, how is it that millions manage to survive? One probable explanation is that the pollutants are shared by millions of people, and they act as biological filters. The body doesn't immediately suffer any dangerous symptoms, but they arise after a prolonged period. As the pollutants are chiefly the outcome of auto-emissions, the entire auto-emission regulatory process needs to be revamped immediately. Reduction of vehicular emissions through continuous checks, strict enforcement of the law and periodical survey of emission control equipment are vital. The air quality monitoring process should be strengthened.

The use of catalytic converters in a car exhaust system has its benefits. The use of lead-free petrol in cars without converters is a great risk to public health. Exposure to benzene at service stations should be minimized. All service stations must display warnings about the risk of such exposure. Vehicles that run on outdated technology should be immediately discarded. Developing suitable technology for manufacture of electrical cars, gradually replacing diesel and petrol vehicles, would be beneficial.

Planting more trees in the city can cleanse the air. The infrastructure must be suitably developed and on a priority basis. Equipment for continuous auto-emission control, including mobile laboratories, need to be utilized properly. Finally, the success of mitigating air pollution depends largely on the participation of people and awareness of environmental health hazards.

### **Hidden air pollutants on the rise in cities in India and the UK – study**

*Date:-6-September-2021, Source: birmingham.ac.uk*

Levels of air pollutants in cities in India are on the rise, according to scientists using observations from instruments on satellites that scan the global skies every day.



### **Satellite data helped researchers discover rising levels of air pollutants**

Researchers used a long record of data gathered by space-based instruments to estimate trends in a range of air pollutants for 2005 to 2018, timed to coincide with well-established air quality policies in the UK and rapid development in India.

The study was led by the University of Birmingham and UCL and included an international team of contributors from Belgium, India, Jamaica and the UK. The researchers published their findings in the journal *Atmospheric Chemistry and Physics*, noting that fine particles (PM<sub>2.5</sub>) and nitrogen dioxide (NO<sub>2</sub>), both hazardous to health, are increasing in Kanpur and Delhi.

Delhi is a fast-growing megacity and Kanpur was ranked by the WHO in 2018 as the most polluted city in the world. The researchers speculated that increases in PM<sub>2.5</sub> and NO<sub>2</sub> in India reflect increasing vehicle ownership, industrialisation and the limited effect of air pollution policies to date.

This contrasts with trends in the UK cities London and Birmingham, which show modest but ongoing declines in PM<sub>2.5</sub> and NO<sub>x</sub>, reflecting the success of policies targeting sources that emit these pollutants.

They also found increases in the air pollutant formaldehyde in Delhi, Kanpur and London. Formaldehyde is a marker for emissions of volatile organic

compounds that include a large contribution from vehicle emissions in India, and, in the UK, an increasing contribution from personal care and cleaning products and a range of other household sources.

Karn Vohra, study lead author and PhD student at the University of Birmingham, commented: "We wanted to demonstrate the utility of satellite observations to monitor city-wide air pollution in the UK where ground-based measurements are in abundance and in India where they are not. Our approach will be able to provide useful information about air quality trends in cities with limited surface monitoring capabilities. This is critical as the WHO estimates that outdoor air pollution causes 4.2 million deaths a year."

Study co-author Professor William Bloss, also from the University of Birmingham, commented "We were surprised to see the increase in formaldehyde above Delhi, Kanpur and London – a clue that emissions of other volatile organic compounds may be changing, potentially driven by economic development and changes in domestic behaviour. Our results emphasise the need to monitor our air for the unexpected, and the importance of ongoing enforcement of measures for cleaner air."

"There is more than a decade of freely available observations from instruments in space to monitor and assess air quality in cities throughout the world. Greater use of these in the UK, India, and beyond is paramount to successful air quality policies", stated Dr Eloise Marais, Earth observation expert at UCL and conceptual lead of the study.

### **Air pollution levels in central, south Mumbai higher than western parts of city: Report**

*Date:-7-September-2021, Source: timesnownews.com*

Mumbai: According to a recent report, central and south Mumbai had a higher level of pollution than western areas of the city from June 2019 to May 2020. The report, which has been shared by the World Resource Institute (WRI) in a public consultation webinar held on Monday on air pollution as part of the Mumbai Climate Action Plan (MCAP), suggests that the concentration of PM2.5 pollutants was higher in central and south Mumbai.

The WRI has joined hands with the Bruhanmumbai Municipal Corporation (BMC) for the preparation of an action plan ahead of the United Nations climate change conference. The webinar, where the said findings were revealed, was a part of a public consultation.



**According to the data, PM2.5 and PM10 pollutant levels have reduced since 2015 but have remained above standard limits**

#### **Pollutant levels above standard limits**

According to the data, PM2.5 and PM10 pollutant levels have reduced since 2015 but have remained above standard limits. PM10 levels have dipped from 18  $\mu\text{g}/\text{m}^3$  to 101  $\mu\text{g}/\text{m}^3$  in 2018-19 and 91  $\mu\text{g}/\text{m}^3$  in 2020-21 - while the lockdown was imposed, The Indian Express reported.

While the levels did reduce, they were still 1.5 times above the standard limit. It must be noted that the standard annual limit for the Respirable Suspended Particulate Matter (RSPM) or PM10 concentration is 60  $\mu\text{g}/\text{m}^3$ .

During the webinar, the WRI suggested that local air quality issues must be identified and health risk assessment of critical wards must be conducted. A ward-level planning map, based on these factors, must be prepared and experts working in the field of air pollution must be roped in to curb pollution levels.

#### **Air quality a serious concern in Haryana, says GJUST study**

*Date:-8-September-2021, Source: tribuneindia.com*

The whole year round, a study conducted by the Environment Science Department of the Guru Jambheshwar University of Science and Technology

has revealed that the increasing air pollution in Haryana has become a serious concern and the seasonal practice of crop residue burning is adding to pollution.



**The whole year round, a study conducted by the Environment Science Department of the Guru Jambheshwar University of Science and Technology has revealed that the increasing air pollution in Haryana has become a serious concern and the seasonal practice of crop residue burning is adding to pollution.**

The results of the study showed a considerable seasonal variation in the concentration of all pollutants in Haryana.

The pollutant peaks in the post-monsoon season — October-December, followed by winters. PM<sub>10</sub> and PM<sub>2.5</sub> increased by around 65–112% and 131–147% in the post-monsoon season compared to monsoons, which are usually considered clean seasons in terms of air quality as atmospheric pollutants are washed out by the rain in the season, revealed the study.

The satellite-based fire counts and source apportionment shows a significant influence of crop residue burning in the post-monsoon season and solid biomass burning (cow-dung cake, woods, etc.) during winters on Haryana's air quality. The particulate matter, which is usually considered as a proxy of air pollution, have annual mean PM<sub>10</sub> concentration in Zones-1, 2, and 3 as 156, 174, and 143  $\mu\text{g}/\text{m}^3$ , whereas for PM<sub>2.5</sub> as 71, 85,



and 78 $\mu\text{g m}^{-3}$ , informed Prof Narsi Ram Bishnoi, one of the leading authors of the research paper from the GJUST said.

Prof Bishnoi said seasonal variation in ambient air quality for 14 parameters, i.e., particulate matter (PM), trace gases, and volatile organic compounds (VOCs), along with meteorological parameters, was studied. To understand spatial variation of pollutants, ambient air quality data of 23 continuous ambient air quality monitoring stations of the Central Pollution Control Board (CPCB) and Haryana State Pollution Control Board (HSPCB) in 21 districts of the Haryana was studied for 2019 where districts were divided into three zones based on ecology and cropping pattern. In all districts of Haryana, the annual mean of particulate matter, i.e., PM<sub>10</sub> and PM<sub>2.5</sub> concentrations, was much higher than the national ambient air quality standards.

### **Chandigarh gets country's tallest air purifier**

*Date:-9-September-2021, Source: [tribuneindia.com](http://tribuneindia.com)*

To mark the International Day of Clean Air for Blue Skies, the tallest air purification tower of the country was inaugurated by UT Adviser Dharam Pal here today.

The Chandigarh Pollution Control Committee (CPCC) had taken an initiative to install the tower at Transport Chowk, Sector 26.

This is the highest air purifier of India, which will cover around a 500-metre radius around Transport Chowk. Polluted air enters the inner casing of the mist chamber, wherein a number of mist nozzles spray water in the form of mist on the polluted air. Heavy polluted air particles are drained into a drain tube, which collect in a water tank. Fitted with a system to suck polluted air through inlets, particulate matter (PM) 2.5 and PM 10, along with various oxides of sulphur and nitrogen, are filtered by the purifier and the purified air exhausted in the environment.

This purifier has been installed by Pious Air Pvt Limited without any cost to the UT Administration. It will also operate and maintain it for five years without any cost.

According to the company, with the commissioning of the tower, the air quality around Transport Chowk will improve substantially. It is estimated that about 1.5 lakh vehicles ply on this chowk every day. The trial found that air pollution in and around Transport Chowk has come down by 70 to 80 per cent. The



temperature around the chowk is also expected to drop by 10-12 degrees below the rest of the city.

According to the manufacturer, the air purifier is a 24-metre-high tower-like structure, which will clean 3.88 crore cubic ft of air from the surrounding environment.

The tower will pull in polluted air from the surrounding environment and release clean air into the atmosphere. A board installed at the tower will display how much polluted air is being sucked by the tower and also how much clean air has been released into the atmosphere.

Among those present on the occasion were Debendra Dalai, Secretary, Environment, Anindita Mitra, Commissioner, Municipal Corporation, Mandip Singh Brar, Deputy Commissioner, and other senior officers of the Administration.

Followed by the inauguration, a water sprinkler machine was also flagged off by UT Adviser Dharam Pal. The sprinkler will be used to wash roadside plants and also to suppress dust along the roads. A bicycle rally of around 100 students from prominent schools of the city was also flagged off by the Adviser to raise awareness among the public to curb air pollution and sensitise them to use bicycle as their local mode of conveyance.

A prize distribution ceremony was held at Paryavaran Bhawan, Sector 19-B, Chandigarh, to distribute prizes among the winners of a poster-making competition on the theme of the International Day of Clean Air for Blue Skies this year i.e. healthy air, healthy planet.

### **How it works**

Polluted air enters the inner casing of the mist chamber, wherein a number of mist nozzles spray water in the form of mist on the polluted air. Heavy polluted air particles are drained into a drain tube, which collect in a water tank. Fitted with a system to suck polluted air through inlets, particulate matter (PM) 2.5 and PM 10, along with various oxides of sulphur and nitrogen, are filtered by the purifier and the purified air exhausted in the environment.

## Winter coming, action plan to fight bad air by next week

Date:-10-September-2021, Source: [timesofindia.indiatimes.com](https://timesofindia.indiatimes.com)



Gurgaon: The Haryana State Pollution Control Board (HSPCB) on Thursday said it has prepared a draft winter action plan and is likely to issue a set of directions on steps to be taken for prevention of crop residue burning and mitigation of air

pollution ahead of winter to all districts by next week.

Every year, the air pollution level in and around Delhi and its adjoining areas rises in October, November and December leaving residents in the national capital region choking. On Thursday, S Narayana, secretary, HSPCB, said, “We are keenly planning for prevention of crop residue burning and conducting frequent meetings with the stakeholder departments at the state level.”

The pollution control board, officials said, has already prepared a draft of the winter action plan, which will be discussed with the chairman of the Commission on Air Quality Management in NCR and adjoining areas on September 14. The HSPCB has also issued general instructions to all deputy commissioners for necessary action during the forthcoming harvest season.

“The state agriculture department is coordinating most of the issues. However, we are holding a meeting on September 14 with the chairman of the Commission of Air Quality Management in NCR and adjoining areas, the chief secretary of Haryana and other senior officers of the state. At the meeting, we have proposed to discuss the steps to be taken for the prevention of crop residue burning as well as for the prevention of air pollution in the forthcoming winter. Further steps on the winter action plan will be taken thereafter,” Narayana said.

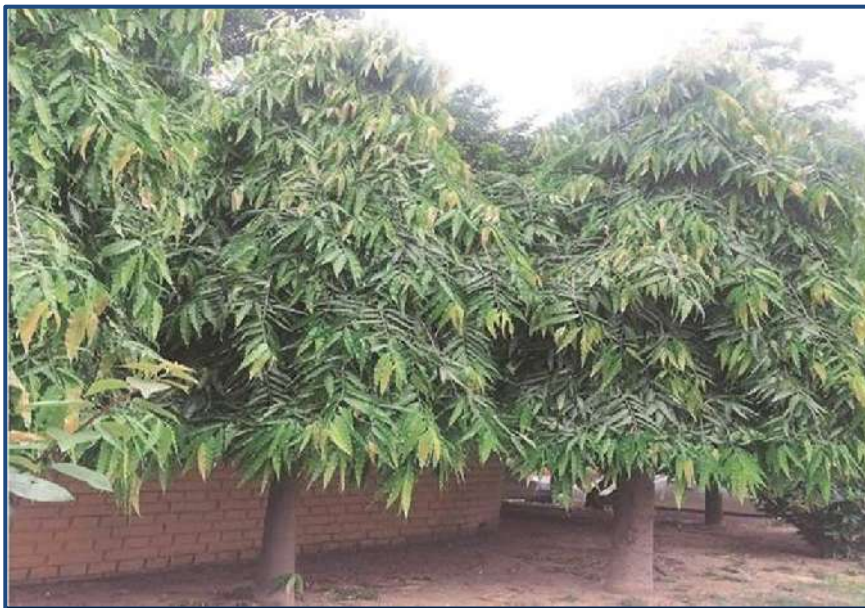
The September 14 meeting will also see a discussion on the status of implementation of measures related to prevention and control of biomass

burning, including crop residue and garbage, besides measures to prevent and control dust/re-suspension of dust and other emissions. Measures to prevent and control air pollution from construction and demolition activities, prevention, control and mitigation of vehicular emissions in the region will also be discussed, officials said.

Haryana will also state its strategy on remediation of landfill sites, prevention of dumping construction and demolition (C&D) waste on government lands, lifting of end products of C&D waste processing plants, preparation of repository of C&D waste for effective handling. Also, a roadmap to ensure zero municipal waste burning and 100% diversion of non-destined traffic to Eastern Peripheral Expressway (EPE) and Western Peripheral Expressway (WPE), reduction of dust and its safe disposal, maintenance of roads to reduce traffic congestion and dust will also be discussed.

### **Study recommends planting of Ashoka and cluster fig trees in Shivajinagar and Pashan to combat air pollution**

*Date:-11-September-2021, Source: indianexpress.com*



**At the sites with high pollution levels, the chlorophyll levels were found to be lower compared to cleaner sites**

A study by a group of Pune-based researchers has recommended planting Ashoka and cluster fig trees (Umbar) in the Shivajinagar and Pashan areas of the city, as they were most resistant to air pollution.

These trees can act as pollution barriers and as a sink to control air pollution and should

be planted more to mitigate air pollution menace, experts said. The city generally witnesses moderate air quality during the summer and winter seasons and improved air quality in the monsoon season.

Any increase in the concentrations of either oxides of sulphur or nitrogen in addition to particulate matter (PM) 2.5 or PM 10 contributed by vehicular emissions, construction works, burning of farmlands and similar activities can lead to deterioration in air quality.

Both these localities see heavy vehicular population, which is the main source of pollution apart, from other sources.

In the joint study — conducted by the Indian Institute of Tropical Meteorology, Abeda Inamdar Senior College, Savitribai Phule Pune University, New Arts, Commerce and Science College in Ahmednagar, and Solapur University — leaf samples from trees were collected during pre-monsoon and post-monsoon seasons of 2018.

The samples were tested for the total chlorophyll, relative water content, pH and the concentration of ascorbic acid after which the air pollution tolerance index was calculated.

Results confirmed acidic pH in both the tree species, which was mainly due to rising sulphur-dioxide and nitrous oxide levels in the ambient air at these study areas. At the sites with high pollution levels, the chlorophyll levels were found to be lower compared to cleaner sites.

“Loss of chlorophyll could be due to particulate matter and other pollutants,” the researchers stated. Positively, the concentration of ascorbic acid was found to be high in both the plant species at the study sites.

“The higher concentration of ascorbic acid is an indication of the plant’s tolerance to air pollution. This also means that the plant is being highly exposed to sulphur-dioxide,” the study noted.

The PM10 levels recorded at Shivajinagar was far higher than Pashan, which is relatively a greener and less-crowded area.

Overall, the study published in the journal *ES Food and Agroforestry*, said that the PM levels were beyond permissible limits at both these sites, particularly during the winter months.

Whereas, sulphur-dioxide and NO<sub>x</sub> were high but within permissible standards, internationally, the study concluded.

## Pollution season: DPCC to focus on 'bad fuel'

*Date:-12-September-2021, Source: timesofindia.indiatimes.com*



NEW DELHI: As Delhi's air quality is expected to deteriorate from next month, Delhi Pollution Control Committee will be cracking down on use of non-cleaner fuels in the industries, burning of tyres, DG sets with no emission control device and flouting guidelines of C&D waste. DPCC will focus on these four areas in addition to

their winter plan to minimise air pollution.

According to DPCC officials, a special drive will begin from mid-October to act against industries using non-cleaner fuels and causing emissions. Over 1,600 industrial units switched to PNG after pipelines were placed in their industrial area. "However, industrial areas that do not have pipelines are required to use other forms of cleaner fuels. We will act against those units that are found using non-cleaner fuels," said an official.

Some people in unorganised sectors burn tyres to extract oil, which causes air pollution. DPCC will be cracking down against people indulging in such illegal activities.

Similarly, DPCC in July this year directed all users of diesel generator sets with a capacity of 125 kVA and above to install an emission control device to control the pollution level. If the users could not install emission control devices, they were directed to shift to gas-based generators. "Any user of such a DG set with a capacity of 125 kVA is found without an emission control device would attract action as per the provisions of Air (Prevention and Control of pollution) Act 1981," said an official.



To abate dust and related air pollution from the construction and demolition activities, Delhi government had issued guidelines last year. Among the dust mitigation measures set by the government are using 10 metres thick metal sheets and nets at the site to prevent dust from blowing out, covering debris and construction material with tarpaulin, sprinkling of water to keep the area dust free during operational conditions and using anti-smog guns at over 20,000 sqm sites and covering vehicles carrying construction material and washing their wheels regularly.

### **Battling air pollution**

*Date:-13-September-2021, Source: thehindubusinessline.com*



### **Solving this is crucial for economic growth**

Indian cities are some of the most polluted in the world. Almost two million people die prematurely due to air pollution in India.

Even as the country recovers from the second wave of Covid, it continues to face a serious air pollution crisis. While the government has taken positive steps to address the issue, with the launch of the National Clean Air Programme (NCAP) in 2020 and the allocation of ₹2,217 crore towards tackling air pollution in 2021, air pollution is still rising.

A new report from Dalberg Advisors estimates that the Indian economy lost about 3 per cent of its GDP due to air pollution in 2019.

Looking beyond the increase in healthcare expenses from pollution-related diseases, this number encompasses the multiple adverse effects of pollution on



both the demand and supply sides of the economy. The costs of air pollution are too high to ignore.

India has achieved some commendable milestones under the Paris Agreement goals of 2015. Businesses can use the wealth of evidence available to build an emission-free developmental environment. Climate change and air pollution are intimately linked because many of the underlying drivers are the same. Controlling fossil fuel combustion within the industrial processes will significantly contribute to both clean air action as well as climate change mitigation.

IT firms' initiatives to combat pollution through investments in hiring talent and developing better infrastructure may drive down cost competitiveness without solving for air pollution.

For example, India's 33 per cent cost advantage over the Philippines — another emerging Asian IT hub — could quickly be diminished as expenditure on air purifiers and other measures drive up the cost per worker.

Air pollution is, therefore, eroding the circuitry in IT hardware at a faster rate. Still, it is also threatening to corrode Digital India's competitive advantage.

There are several steps that Indian businesses can take to curtail air pollution. While so far, the focus of most CSR has been on improving livelihoods, education, healthcare and women empowerment, adding air quality to the interventions can help bring a holistic approach.

Furthermore, measuring the level of air pollution across the company's supply chain and manufacturing operations can help keep a check on emissions. Collating data on key major pollutants emitting out of a company's in-house processes will be crucial to monitor its carbon footprint. Promoting this practice also among vendors and suppliers can help spread a wider net to the priority of controlling air pollution. Lastly, communicating the importance of controlling the emission levels can help bring clarity on what the company is doing and ensure transparency.

### **For a pollution-free future**

A pathway that tackles air pollution and climate change is crucial considering November's COP26, where countries will turn the focus on securing Net Zero by 2050.

Covid lockdowns demonstrated that with action blue skies is possible for our cities and can have an almost immediate impact on air quality. We now have a unique opportunity to promote a green economy. We must find innovative ways to decouple economic growth from air pollution to create a healthier society and a more productive private sector.

It is time to make clean air a reality through a coordinated effort by the government, the private sector, and civil society to achieve the ambitions of the NCAP to ensure a healthier, greener and more prosperous India.

Prasad is Country Chairman, Shell Companies in India, and Chopra is CEO and Founder, Clean Air Fund.

### **MoEFCC launches PRANA portal for regulation of air pollution**

*Date:-14-September-2021, Source: hindustantimes.com*

Hon'ble Minister of Ministry of Environment, Forest and Climate Change (MoEFCC), Shri Bhupendar Yadav launched a portal named "PRANA" (Portal for Regulation of Air-pollution in Non-Attainment cities) under the National Clean Air Programme (NCAP) on the occasion of the second International Day of Clean Air For Blue Skies, last week.

Knowledge Lens (a B2B product company that builds innovative solutions in niche technologies including Big Data, AI, IoT) is honored to have been chosen by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) to develop this portal. Knowledge Lens collaborated with the Central Pollution Control Board (CPCB), GIZ and MoEFCC to develop PRANA. The portal aims to provide real-time information on city-wise pollution levels. It is a single platform that also provides information on how specific cities are curbing their air pollution levels, as well as historical data on air pollution mitigation milestones achieved since 2018 till date.

Hon'ble Minister, Shri Bhupendar Yadav commented at the event, "Central Government has launched several initiatives to improve air quality in the entire country, with the Prime Minister himself setting a goal for holistic improvement in air quality in more than 100 cities. "86 cities showed better air quality in 2019 in comparison to 2018, which increased to 104 cities in 2020."

"Government under the leadership of the Prime Minister is now actively linking all policy approaches to give paramount importance to conserve public goods like water, air and Earth," he added.

Sudheesh Narayanan, Founder & CEO of Knowledge Lens, said, “Adoption of IT systems in combating pollution is becoming essential and we are honored to be part of this digital initiative for facilitating a National level air quality portal for visibility to clean air actions. PRANA will enable comprehensive mitigation actions for prevention, control, and reduction of air pollution besides strengthening pollution awareness and capacity building activities.”

The PRANA approach is multi-disciplinary, spanning across multiple ministries and regional institutes including IITs, NITs, and laboratories across India, as well as international organizations. In this manner, PRANA aims to augment public awareness and capacity-building measures.

NCAP is a comprehensive initiative in partnership with various Ministries and States to improve air quality at a city, regional, and national level. It was initiated in 2019 to implement various sectoral policies, strengthen monitoring, and enhance public participation in 132 cities for effective Air Quality Management. The tentative national level target is to reduce Particulate Matter (PM10 and PM2.5) concentration by 20–30% by 2024.

### **About Knowledge Lens**

Knowledge Lens is a B2B product company that builds innovative solutions on niche technology areas such as Big Data Analytics, Data Science, Artificial Intelligence, Internet of Things, Augmented Reality, and Blockchain. Knowledge Lens has successfully transformed companies into Smart Enterprises by implementing Next Generation Enterprise Data Lakes, AI Powered Intelligent Apps and Industry 4.0 solutions both on premise and cloud. With over 7 years of domain expertise in the IIoT space, their solutions are trusted by Fortune 500 companies and 3000+ customers and industry leaders in various sectors such as Manufacturing, Automation, Pharmaceutical, Retail, among others across India, United States, and Middle East regions. Headquartered in Bangalore, Knowledge Lens was founded in 2013 with a mission to discover intelligent insights from enterprise data and deliver business value to customers. For more information, visit <https://www.knowledgelens.com/>.

### **Delhi must cut PM2.5 by 58% to meet annual standards**

*Date:-15-September-2021, Source: timesofindia.indiatimes.com*

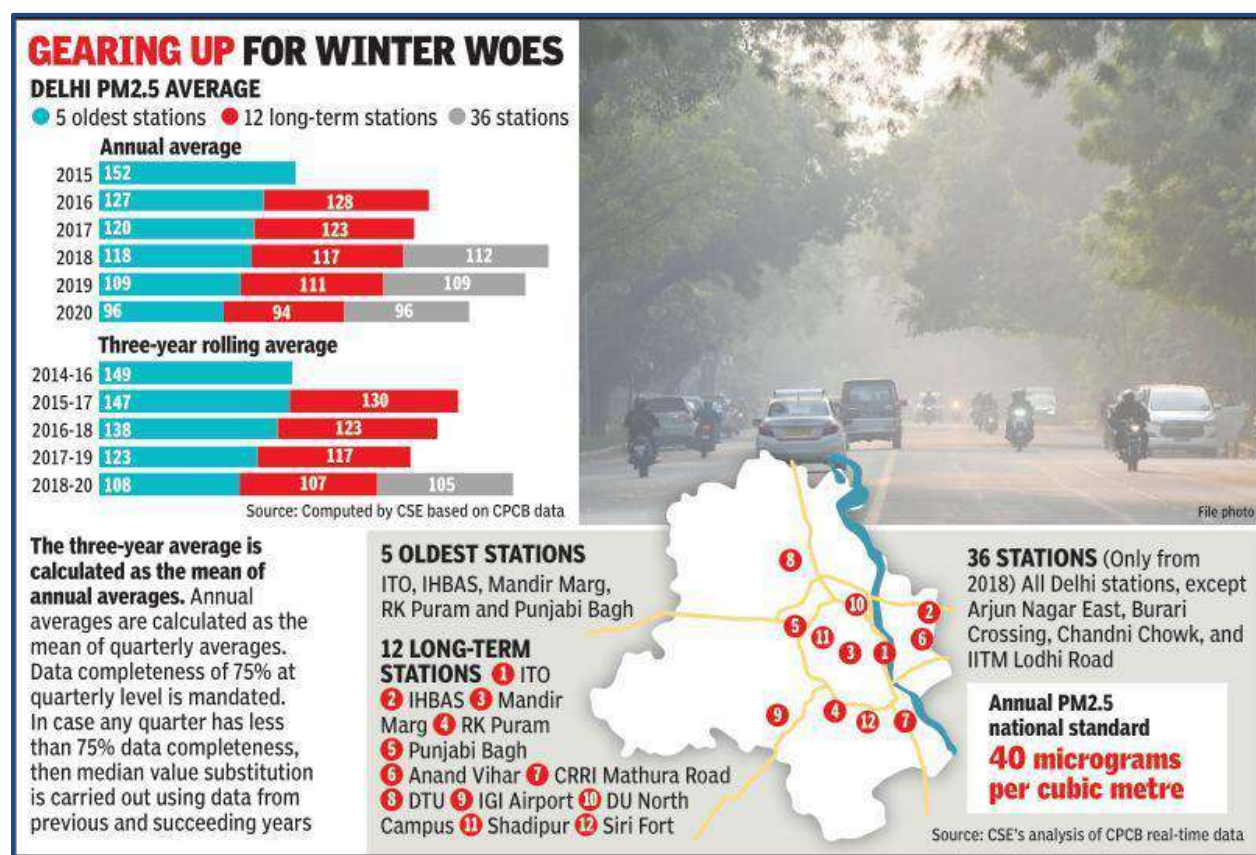
NEW DELHI: With the rainy season nearing its end, Delhi is readying for winter, a time when air pollution hits a peak. A change in wind direction as the monsoon begins to withdraw from the region leads to a drop in wind speed and

temperature, both of which trap local and wind-borne pollutants from neighbouring states.



The winter action plan to combat pollution is expected to be released by the end of September. While data since 2015 does show the annual average PM2.5 level reducing each year, anti-pollution plans have to take into consideration that Delhi still needs to reduce its annual PM2.5 load by another

58% to meet national air quality standards.



An analysis by the Centre for Science and Environment on behalf of Central Pollution Control Board's data from Delhi's five oldest air quality monitoring stations — ITO, IHBAS, Mandir Marg, RK Puram and Punjabi Bagh — shows the annual average PM2.5 at 152 micrograms per cubic metre in 2015, but dropping to 127 in 2016, 120 in 2017, 118 in 2018 and 109 micrograms per cubic metre in 2019. By 2018, Delhi had 36 air monitoring stations and the average PM2.5 concentration that year based on all the 36 stations was 112 micrograms per cubic metre, still three times the acceptable limit.

“The most recent data relates to 2019 because in 2020, the lockdown affected collection of data,” said Anumita Roy Chowdhury, executive director, research and advocacy, CSE. “It is still clear that Delhi requires considerable improvement across sectors to reach anywhere close to the national standard for PM2.5.”

Based on a three-year, rolling average method, however, when the annual average readings from 2018- 2020 are taken, Delhi's annual average PM2.5 is 105 micrograms per cubic metre, which Chowdhury explains is a more accurate determination of the average pollution level.

“Particulate pollution has begun to stabilise and decline, but the capital still needs to reduce the annual average PM2.5 by around 60%. There are big gaps in action at present. There is a need to scale up public transport, add walking and cycling infrastructure and implement parking restraints to reduce traffic volume. Delhi also needs to achieve 25% electrification of its vehicles, control pollution in small and medium scale industries and look at waste management infrastructure,” said Chowdhury.

Dipankar Saha, former head of CPCB's air laboratory, said alongside local action, there has to be coordination with other states to ensure that stubble burning and dust, two external factors, do not add to the local load. “Until the Aravalis are made green again, dust will be significant with winds blowing from Rajasthan towards Delhi. Stubble burning, meanwhile, constitutes 30-40% of Delhi's PM2.5 load in the peak farm fire period,” said Saha.

## **Delhi Orders Ban on Pollutive Firecrackers Ahead of Diwali to 'Save Lives'**

*Date:-16-September-2021, Source: usnews.com*



**Smoke billows from a firework after it was lit on the rooftop of a residential building during Diwali, the festival of lights, celebrations in New Delhi, India, October 27, 2019.**

NEW DELHI (Reuters) - Delhi authorities ordered a ban on the storage, use and sale of firecrackers in the Indian capital late on Wednesday ahead of the Diwali festival to curb air pollution levels which cause thousands of deaths each year.

India is among the most polluted countries in the world, and air quality in Delhi and neighbouring northern states normally begins to deteriorate at the end of September as farmers set off crop fires to prepare for a new sowing season.

Delhi recorded some of the worst pollution levels globally in its latest peak pollution period between October 2020 and January 2021.



"In view of the dangerous condition of Delhi's pollution during Diwali for the last 3 years, like last year, a complete ban is being imposed...so that people's lives can be saved," said the Delhi Chief Minister Arvind Kejriwal on Twitter.

Authorities imposed a similar ban last year but many revellers still burst crackers causing a toxic haze over the sprawling capital region of 18 million people.

Kejriwal said he was cracking down on crackers much before Diwali so traders didn't stock up supplies.

The comments come amid concerns that air pollution could pose an additional health risk at a time when the country is already grappling with the coronavirus pandemic.

The emissions of the dangerous PM2.5 particles per cubic metre of air in Delhi averaged 30.74 micrograms in the first two weeks of September, marginally above the 25 per cubic metre level deemed safe by the World Health Organisation (WHO).

India's environment monitoring agency SAFAR deems a PM2.5 particle level of 60 as safe.

Some Indian states have stepped up punishments for crop residue burning over the last couple of years to avert an expected spike in air pollution that brings smog every year during the low temperatures of winter as part of a federal drive to clean up Delhi's air.

But local Uttar Pradesh officials said in August India's most populous state will drop legal proceedings against farmers accused of burning crop waste, a major source of pollution.

The state is set to elect a new assembly next year and analysts say the ruling Bharatiya Janata Party is trying to placate farmers.

### **Delhi: 80% commercial vehicles using RFID tags to enter the Capital, say SDMC officials**

*Date:-17-September-2021, Source: hindustantimes.com*

New Delhi: The number of commercial vehicles using the radio frequency identification (RFID) system to enter the city has gone up to 80%, with officials of the South Delhi Municipal Corporation (SDMC) claiming that it will have a

marked effect on reducing pollution in the city, especially during winter, as it has resulted in shorter queues at toll booths.



**The RFID tags, which are pasted on the windshield of vehicles, allows automatic deduction of toll tax and environment compensation charge (ECC), and does away with the need for vehicles to halt at toll plazas.**

“We had been carrying out dedicated drives over the past two months to make vehicles comply with RFID, more so because winter is near. As a result, now vehicles paying toll fee using RFID has touched 80%, up from around 25% over the last year because of the ongoing pandemic. This will go a long way

in reducing pollution in the city. While most drivers had got tags, they were lax in recharging it,” said a senior corporation official, who didn’t wish to be named.

Every winter, air pollution in Delhi rises to hazardous levels owing to a combination of factors, including adverse weather conditions, vehicular and dust emissions, waste burning, and fumes from crop stubble burning in neighbouring states. The RFID tags, which are pasted on the windshield of vehicles, allows automatic deduction of toll tax and environment compensation charge (ECC), and does away with the need for vehicles to halt at toll plazas.

Officials said that 509,938 RFID tags have been sold so far since 2019, when the system was implemented in the national capital.

Officials said they are issuing 100-150 challans to errant vehicles on a daily basis. “Also, we have written to the Delhi transport department to cancel permits of vehicles that are repeatedly defaulting. They are working out a strategy for the same,” the official said.

Civic officials said that an estimated 100,000 commercial vehicles enter the city on a daily basis. “Of this, approximately 12-14% are heavy duty vehicles such as trucks that are liable to pay ECC. Around 50% are taxis including private

cab aggregators. Then there are other vehicles such as tempos, goods carriers etc as well as CNG vehicles,” the official said.

Special teams have been deployed by the civic body at the toll plazas for monitoring and better enforcement.

Since March-end this year, all the 124 toll plazas have been equipped with the RFID system.

RFID system was introduced to decongest city borders and smoothen traffic movement so as to cut down air pollution.

### **Corporation puts in place air quality management plan**

*Date:-18-September-2021, Source: thehindu.com*

As a measure to improve air quality and bring down dust pollution, Tiruchi City Corporation (TCC) has decided to form end-to-end roads on all arterial and interior stretches in the city.

Tiruchi is among the Smart Cities that have been classified as non-attainment cities in the country under the National Clean Air Programme (NCAP). The programme is aimed at evolving a long-term, time-bound national and city-specific strategy to tackle air pollution in a comprehensive manner with a target to achieve 20% to 30% reduction in Particulate Matter concentrations within 2024.

Corporation Commissioner P.M.N. Mujubur Rahuman told The Hindu that an air quality management action plan had been prepared to improve the quality of air. Reducing vehicular and industrial emissions, reducing peak hour traffic, controlling smoke pollution, awareness creation and a team to monitor the implementation of emission control measures were among the action plan.

It had been found that the city had to improve its performance in dust pollution level. Accumulation of sand along the sides of the roads and operation of sand lorries without covering the material had been the main reasons for the dust pollution in the city. It went up during the post-rainy days. While attention would be step up to remove the sand accumulated along the streets, steps would be taken to form end to end roads on all important and street roads.

Standing instructions had been given to officials not to leave space while forming new roads or laying roads. Plan estimate would be prepared for the entire width from right to left. The approach was been followed for the last few

months. If all roads were converted into end-to-end roads, the level of dust pollution could be brought down to a great extent. Smoke pollution caused by emission of vehicles would be checked with the help of stakeholders including police and road transport authorities.

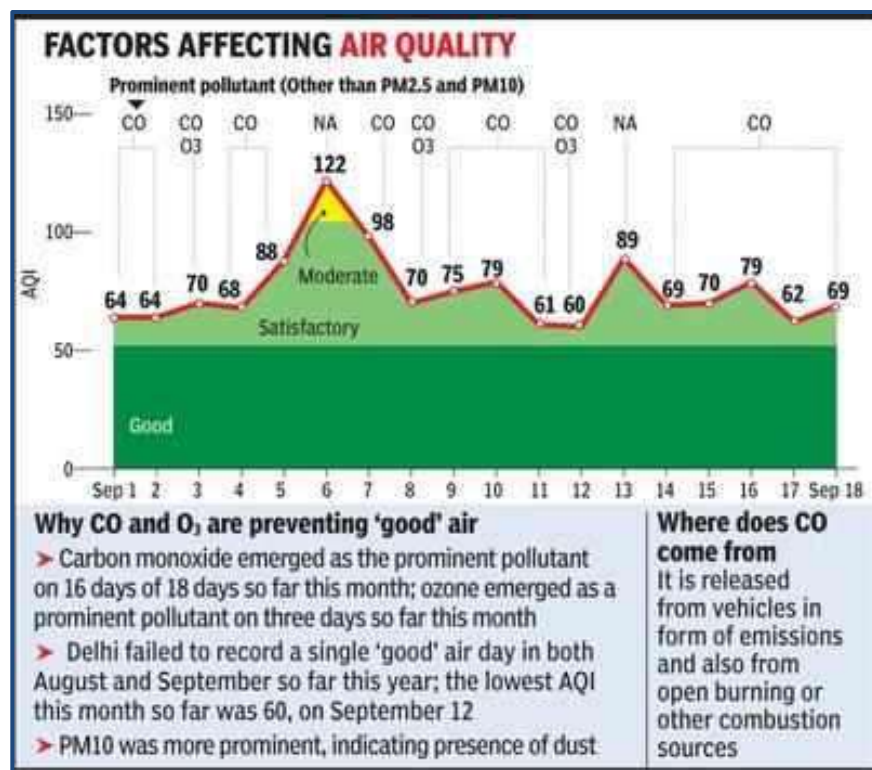
A periodic check up would be conducted to check whether the smoke emitted by two and four-wheelers was up to the permitted level. Reducing peak hours was on the agenda.

An alert system would be in place to check the air pollution level regularly. An outreach programme would be carried out to create awareness among the people of the need to improve air quality.

“Healthy air quality is important to the overall well-being of the residents. It could be improved with the participation of all stakeholders,” Mr. Rahuman said.

## Record rain, clear sky, but no good air day

Date:-19-September-2021, Source: [timesofindia.indiatimes.com](https://timesofindia.indiatimes.com)



New Delhi: For the last couple of days, Delhiites have been seeing an azure sky above their heads. And while people have been taking to social media to highlight the fact, Delhi's air has actually failed to be in the 'good' category in recent days to validate the blue skies. Central Pollution Control Board classifies air as 'good' when the air quality index (AQI) is at the 50 or lower

mark over a 24-hour period. By this reckoning, Delhi has failed to record a single such day this year, despite recording five good air days in 2020, four of which came in rainy August.

CPCB's daily bulletin is an indicator. Carbon monoxide (CO) and ground-level ozone (O<sub>3</sub>) are emerging as the prominent pollutants for the day, other than PM<sub>10</sub>, or coarse pollutants, and PM<sub>2.5</sub>, which are micro, respirable particles. While the former features as the prominent pollutant in 16 of the 18 days of this month so far, ozone was a prominent pollutant on three days.

Despite recording relatively low AQI — hovering between 60 and 70 — high CO readings, which emerged as the prominent pollutant, may have been the reason the capital's air quality was unable to touch the 'good' range. The lowest AQI recorded so far in September is 60, on September 12, a day when both O<sub>3</sub> and CO featured prominently in the readings. Meanwhile, the highest AQI for the month was 122 (moderate), recorded on September 6 when both PM<sub>2.5</sub> and PM<sub>10</sub> featured as the lead pollutants in the absence of CO and O<sub>3</sub>.

Carbon monoxide (CO) is primarily generated from vehicles as exhaust emissions, while it is also an indicator of other sources of combustion.

Anumita Roy Chowdhury, executive director, research and advocacy, Centre for Science and Environment (CSE), pointed out that September has seen intense rains this year and while PM<sub>2.5</sub> and PM<sub>10</sub> have remained low, the emergence of CO indicates the impact of the vehicular sector, which becomes more prominent when rain settles down the pollutants in the air. "Particulate matter settles down, but gases are still prominent in the air," she said. "CO as the lead pollutant means it is generally due to vehicles, because the major chunk of the gas, 80- 90% comes from vehicles. Ozone is also created in a similar way." Chowdhury said good air was difficult to achieve unless multiple sources were acted upon.

Experts said the high Carbon monoxide concentration could affect the amount of oxygen in the body and. It is known as a 'silent killer', especially in closed spaces. Dipankar Saha, former head of CPCB's air laboratory, said CO was generated by poor engine performance and was released due to unburnt fuel. "Unburnt hydrocarbons and carbon monoxide are released into the air and it is a dangerous gas. Therefore, it has 1-hour and 8-hour standards, as opposed to PM<sub>10</sub> and PM<sub>2.5</sub>, which are measured over 24 hours," explained Saha.

Meanwhile, O<sub>3</sub> is formed by primary pollutants and gases reacting in the presence of sunlight. At the ground level, the gas can be particularly dangerous to those with respiratory problems or asthma.

## **Mumbai: Combined impact of climate, agriculture and air pollution leading to heart, lung and nutrition-related diseases: Study**

*Date:-20-September-2021, Source: timesofindia.indiatimes.com*



**The study calls for the attention of policymakers to consider these diverse and dynamic inter-linkages and approach to public health through a comprehensive scientific lens**

MUMBAI: A new research has established interconnections between climate, air quality and agriculture and their combined impact on public health.

The paper titled, 'A systems lens to evaluate the compound human health impacts of anthropogenic activities', published in the journal 'One Earth' on Monday, categorises health

impacts into heat-related illnesses (such as exhaustion, heat strokes, and cardiovascular events), pollution-related illnesses (such as asthma, enhanced risk of lung cancer, chronic pulmonary diseases), and nutrition-related illnesses (such as anaemia in women of reproductive age, iron and zinc deficiency).

This interaction between climate, agriculture, and air quality to specific health impacts creates a composite picture of the effects on public health due to anthropogenic (human-induced) environmental changes.

The study calls for the attention of policymakers to consider these diverse and dynamic inter-linkages and approach to public health through a comprehensive scientific lens.



Using examples from India, the scientists have emphasised the need for better tools and local, high-resolution data on health, weather, emissions, air pollution, and land use to evaluate human and environmental impacts on public health. Prof Ashwini Chhatre, Associate Professor, Public Policy, Indian School of Business, who led the research in South Asia said, "Agricultural practices impact air quality, but air quality also impacts agriculture, all amplified by the human-induced climate effect." Along with ISB, researchers from Columbia University, University of Washington, Boston University, and the University of Delaware have collaborated on this multidisciplinary research.

India, the research says, is one of the most vulnerable regions to environment-related health hazards, owing to its high population density, high poverty rates, severe food insecurity, and over-reliance on agriculture. Dr Deepti Singh, Assistant Professor, University of Washington and lead author of the paper said,

"We are offering a framework to assess the overall health impacts from multiple parts of Earth's natural systems, which are all changing at the same time because of human impacts."

Dr Roxy Mathew Koll, Scientist, Indian Institute of Tropical Meteorology said, "Simultaneous exposure to extreme weather events due to large-scale climate change, poor air quality due to local air pollution, and food-water crises can lead to complex and compound health issues in developing nations. Another example is when seawater intrusion along coastal regions leads to diseases like cholera but also compromises the agriculture (food) and water quality over the region."

Dr Anjali Prakash, Research Director, Bharti Institute of Public Policy and coordinating lead author, IPCC Special Report on Ocean and Cryosphere, 2019. "The IPCC's physical science report which was released recently showed that there has been an unprecedented change in the climate-induced by human intervention. This study takes the issue further and links climate change with public health. The pathways shown in this research can inform policy makers to make some tough decisions to course correct the present pathways"

"Climate and agriculture interactions are critical to understanding health impacts in South Asia due to the region's extensive agriculture-driven land-use change, cropping patterns, and high prevalence of livelihoods based in smallholder farming," explains Kyle Davis, co-author of the paper and Assistant Professor, University of Delaware.

## Steep Rise in Pune's Air Pollution as PM2.5 has Increased by 70% in 6 Years, Finds Study

*Date:-21-September-2021, Source: weather.com*



According to the latest emission inventory, the Pune Metropolitan Region (PMR) has witnessed a steep increase of 70% and 61% in PM2.5 and PM10 levels, respectively, between 2012-13 and 2019-20.

The comparison of the earlier emission inventory (2012-13) with the current inventory (2019-20) suggests that the transport sector—at 91%—contributes the most towards PM2.5, while it is the residential sector—at 107.7%—that contributes most to the PM10 levels.

The latest emission inventory revealed that the transport sector contributed 87.9% to PM10 and 91% to PM2.5; the industrial sector contributed 33.8% to PM10 and 32.9% to PM2.5; the residential sector contributed 107.7% to PM10 and 57.9% to PM2.5, while the wind-blown re-suspended dust contributed 49.5% to PM10 and 38.1% to PM2.5.

The residential sector includes cooking, slums, trash, cow dung, street vendor, wood burning etc. Other sectors such as municipal solid waste (MSW) treatment plants, MSW open burning, crematoriums, aviation, incense sticks and brick kilns were among the many sources which have been newly added. Hence, they were not appropriate for comparison, the inventory said.

The emission inventory has been prepared by the Indian Institute of Tropical Meteorology (IITM), Pune, under the Ministry of Earth Sciences and the Savitribai Phule Pune University (SPPU) Utkal University. Geographical Information System (GIS)-based statistical emission model developed by scientists of IITM under the SAFAR model has been used for this.

The emission inventory work was carried out for the whole of the PMR region that comprises areas under the Pune Municipal Corporation (PMC) and Pimpri

Chinchwad Municipal Corporation (PCMC) for all the eight major pollutants, including PM<sub>2.5</sub>, PM<sub>10</sub>, NO<sub>x</sub>, CO and SO<sub>2</sub>.

The data was revealed at a special seminar organised by the Centre for Environment Education (CEE), Pune, attended virtually by people from all over India.

"There has been an enormous growth in the number of vehicles in PMR during the past decade. Therefore, the transportation sector is found to be the major contributor to PM<sub>2.5</sub> emissions as compared to the other sources," senior IITM scientist and Project Director, SAFAR, Gufran Beig, who led the project, said.

"Though industrial production has increased over the years, emissions show a minimal rise as compared to the other sectors. At present, the magnitude of air pollution is quite low as compared to highly-polluted Delhi, but the overall emission growth during the past 7-8 years of most toxic PM<sub>2.5</sub> in Pune is much higher (at 70%) as compared to Delhi (at 15%)," he said.

In general, the absolute magnitude of emissions in Pune is still quite less compared to Delhi. Pune also has the advantage due to its geography: being a city with hillocks enabling quick outflow and dispersion, whereas Delhi has a huge disadvantage due to its landlocked geography, which traps pollutants.

However, Beig warned, "But beyond a tipping point (once a saturation level in absolute magnitude is reached), PMR is likely to have rapid deterioration in air quality if the present growth rate is not arrested."

The Emission Inventory was made on accounting and quantifying the sources of air pollution at every 400-metre grid. A six-month-long emission inventory campaign was carried out before this involving about 190 students from IITM, SPPU and Utkal University. It was carried out during 2019-20 in PMR with around 2,50,000 hours of work.

This exercise was carried out to collect real-time primary activity data of 26 different local sources of air pollution considering various small sectors/factors. Some factors were the conditions of the road, patterns of transport flow from surrounding regions, fast moving-slow moving-stagnant traffic scenario, uninformed sector, construction activity, aviation, practices by immigrant works, hospital rush and vehicles from outside the state, changing lifestyles/cooking habit etc., along with better-known sectors like transport, industry, biomass burning, power plants and re-suspended dust.

A similar kind of exercise was carried out in 2012-13, when India's first air quality forecasting framework, SAFAR, was commissioned in Pune by the Ministry of Earth Sciences.

"Since then, significant changes have occurred in land use and demography and many new sources, which were earlier ignored, have now been quantified," Beig said.

## **India's air quality forecasting model gets global nod**

*Date:-22-September-2021, Source: indianexpress.com*



**According to experts, the annual Particulate Matter 2.5 (PM 2.5) generated by all sources was the highest in Delhi (77 gigagrams/year) followed by Ahmedabad (57 Gg/year), Mumbai (45 Gg/year) and Pune (30 Gg/year).**

The first official indigenous framework to forecast the quality of air in Delhi, Mumbai, Pune and Ahmedabad, as mandated under the National Clean Air Programme (NCAP) plan by the System of Air Quality and Weather Forecasting and Research (SAFAR), has been

accepted internationally.

Now, India will no longer need to depend on any international air quality forecasting frameworks. "SAFAR's forecasting model is comparable to the framework by the United States Environmental Protection Agency (US-EPA)," Dr Gufran Beig, SAFAR's founder project director, told The Indian Express.

SAFAR chose to demonstrate its forecasting model in four different and contrasting micro-climates of Indian cities — Delhi, Mumbai, Pune and Ahmedabad. Officials confirm that this framework can be easily replicated in 132 cities across the country with a population of over 10 lakh.

"The prototype can be scaled up to the remaining 128 non-attainment cities of India as per the commitment to NCAP," said Beig. Non-attainment cities are those that do not meet the prescribed air quality standards set by the Union environment ministry.

The framework and its findings, developed under the Union Earth Sciences Ministry, meant for citizens, decision makers and researchers, were recently published in the peer-reviewed Environment Modelling and Software of the Elsevier Journal. The research paper, 'India's maiden air quality forecasting framework for megacities of divergent environments: The SAFAR-project', was led by the Indian Institute of Tropical Meteorology (IITM-Pune) in association with the India Meteorological Department and Utkal University, Bhubaneswar.

India has 132 non-attainment/million-plus cities under its NCAP programme, which seeks to achieve a 20 per cent to 30 per cent reduction in Particulate Matter (PM) concentrations by 2024 keeping 2017 as the base year.

Beig said the SAFAR framework is a one-stop solution for air quality management leading up to mitigation, and also helps formulate micro-specific air action plans based on robust science.

"Using this forecasting model, all urban local bodies can also issue timely health advisories publicly to alert citizens on 'bad air' days, which will help save vulnerable groups from severe health impact of air pollution," Beig said.

"The chaotic nature and complexity of air pollution itself makes prediction a challenging task, particularly in a city that is highly influenced by meteorology due to its geographical location, which is considered in this work," Beig added.

According to a recent report — Air Quality Life Index (AQLI) 2019 — released by the Energy Policy Institute at the University of Chicago, air pollution is likely to reduce the life expectancy of 40 per cent of Indian citizens by more than nine years.

### **Air pollution inventory for four cities**

According to the findings, the annual PM 2.5 generated by all sources was the highest in Delhi (77 gigagrams/year) followed by Ahmedabad (57 Gg/year), Mumbai (45 Gg/year) and Pune (30 Gg/year).

"High population density due to urbanisation is the main reason that directly or indirectly drives up PM 2.5 emissions in Delhi, Pune, Mumbai and Ahmedabad," said Beig.

Despite having the least annual PM 2.5 level concentration, Pune stood second after Delhi with respect to emissions contributed by the transport sector — the main PM 2.5 contributor.

This has yet again emphasised the need for robust public transport in Pune and improving the overall transport facilities here. Considering its population — both of people and vehicles, the transport sector of Delhi contributed only 41 per cent towards the national capital's pollution. At least 40 per cent of Pune's pollution came from the transport sector.

In Mumbai, uncontrolled combustion within the highly dense slum population was driving the PM 2.5, SAFAR noted. At 15.5 per cent, the biofuel combustion contribution was the highest in Mumbai and in Pune it was 11.4 per cent, in Ahmedabad 10.2 per cent and Delhi 3 per cent.

Industries contributed the highest towards air pollution in both Mumbai and Pune, which stood at 31.1 per cent and 21.6 per cent respectively in comparison to Ahmedabad (18.8 per cent) and Delhi (18.6 per cent).

### **Mumbai's PM 2.5 levels 8 times higher than new WHO norms**

*Date:-23-September-2021, Source: timesofindia.indiatimes.com*



MUMBAI: Mumbai has a long way to go before it achieves Wednesday's revised World Health Organisation (WHO) standards for better ambient air quality.

The revised WHO standard for particulate matter (PM) 2.5 is now eight times more stringent than the national guideline, indicating a

daunting task ahead for policy makers and pollution monitors.

A recent study found the PM 2.5 level may have acted as a catalyst in intensifying Covid infections in some wards.

Mumbai's average concentration of PM 2.5 in the air during the restricted movement months of March to May this year was 40.3 micrograms per cubic metre ( $\mu\text{g}/\text{m}^3$ ), slightly higher than the national standard of 40  $\mu\text{g}/\text{m}^3$ . The



earlier WHO standard recommended 10 µg/m<sup>3</sup>, which was revised to 5 µg/m<sup>3</sup> on Wednesday.

The national PM 2.5 level set by the Central Pollution Control Board (CPCB) was already four times higher than the previous WHO standards.

That apart, a recent analysis by the System of Air Quality Weather Forecasting and Research (SAFAR), under the Indian Institute of Tropical Meteorology (IITM), Pune, has revealed the share of PM 2.5 emissions from vehicles, mainly trucks and buses, was 30.5% in 2019-20 compared with 16% in 2016-17. Dust from vehicles and construction sites and smoke from vehicles and garbage burning have been large contributors of PM 2.5 in Mumbai's air.

The Economic Survey report 2020-21 for Maharashtra noted Mumbai accounted for 10.3% of the state's vehicle registrations.

Pollution in Mumbai is measured in terms of average PM 2.5 concentration in the air. These particles can enter the lungs easily and are carcinogenic. This concentration of an air pollutant is given in micrograms (one-millionth of a gram) per cubic metre of air or µg/m<sup>3</sup>. It is also measured in terms of PM 10, which is less harmful than PM 2.5 though.

Scientists say Mumbai is lucky to be surrounded by sea which helps in swift dispersal of pollutants.

A former senior Maharashtra Pollution Control Board (MPCB) official said even during the lockdown last year, the city registered PM<sub>2.5</sub> levels close to the CPCB standard. "To achieve the new range suggested by WHO, CPCB needs to amend the rules and bring in stringent legal enforcements," he said, pointing out dust suppression measures such as sprinklers and dust curtains at construction sites and for trucks were a necessity.

## **Northern States Check there Preparedness Ahead of Stubble Burning Season**

*Date:-24-September-2021, Source: krishijagran.com*

A meeting chaired by Union Minister for Environment, Forest & Climate Change, Bhupendra Yadav was held at Indira Paryawaran Bhawan in New Delhi on 23rd September 2021 with Chief Minister of Haryana, Manohar Lal Khattar, Environment Ministers of Delhi, Uttar Pradesh, Rajasthan and senior officials from Punjab and Ministries of Agriculture, Power, Animal Husbandry and all other stakeholders for the improvement of air quality in Delhi-NCR

which tend to aggravate during the winter season. The Chairman of the Air Quality Commission was also present.

### **Objectives of the Meeting:**

The meeting was called to assess the preparedness and readiness of State administration for the implementation of measures to prevent and control air pollution in NCR which is also linked to Stubble burning in ensuing harvesting season.

### **Parali/Stubble Burning**

Management of Agriculture Stubble Burning (Parali) was discussed at length during the meeting. The burning of Parali during the period Sep – Oct has been attributed to poor air quality of the regions, which get aggravated due to local meteorological conditions in NCT. This has been observed in the last few years.

### **Solutions to Stubble Burning**

Measures are at various stages of its implementation, but will definitely help in providing an enabling environment towards abatement of Air Pollution in Delhi NCR. These measures include:

In-situ management of stubble by bio-decomposition on large scale by the UP, Haryana, Delhi and Punjab

Mandatory use of bio-mass with 50% paddy straw as a supplement fuel in Thermal Power Plants in NCR

Setting up of a Taskforce which has been constituted to work out the mode and means for utilizing the non-basmati stubble as fodder in States of Rajasthan and Gujarat

Common manure development facility using rice straw and private participation to encourage in-situ management of Parali (Bio-decomposition).

### **Farmers will get incentives for not burning the stubble**

Various measures taken by the States were also informed during the meeting such as Rs 200 Crores has been allocated by the Government of Haryana to provide an incentive to farmers for containing burning of Parali.

## How WHO's new air quality norms will impact India

*Date:-25-September-2021, Source: [financialexpress.com](https://www.financialexpress.com)*



**Improving air quality of an area is dependent on a host of factors including tackling pollution at source, cleaning cities, mitigating the bad conditions of roads, boosting public transport and taking afforestation drives.**

The World Health Organisation (WHO) has released new air pollution norms, substantially bringing down the permissible air emissions for an area to be considered safe for human health. Even the previous air emission norms prescribed by WHO were considered far more stringent than the norms prescribed by individual countries and with the release of the latest norms the debate about permissible air emissions has reignited. Going by the new norms, most of India's population inhales polluted air. On account of being host of some of the most polluted cities in the world India already found it extremely difficult to match up to the permissible limits prescribed by WHO. With the emission norms getting more stringent, India is expected to take several decades to achieve the latest WHO norms, the Indian Express reported.

## **Significance of WHO new air emission norms**

The WHO's new air emission norms underscore the fact that the insidious impact of air pollution on human health is graver than previously thought. The WHO has relied on a series of latest studies which have conclusively proved that even the permissible air emission levels under the previous norms posed significant health risk. The message for government and local government authorities around the world is to strive even harder to reduce the air emission norms in the shortest possible time frame. The message on the wall is starkly clear for countries including India where a large section is vulnerable to the most severe level of air pollution. Every year in the run up to the festival season and winter months, Delhi, National Capital Region, and many other northern cities in Haryana and Punjab are shrouded by dense content of smog.

## **No easy solution to India's dwindling air quality**

Improving air quality of an area is dependent on a host of factors including tackling pollution at source, cleaning cities, mitigating the bad conditions of roads, boosting public transport and taking afforestation drives. India's challenge further increases as imposition of more stringent norms on industries such as automobiles will leave the economy short-changed and lead to loss of employment. At several levels, a large number of government schemes and projects such as Swachh Bharat, Namami Gange, Smart City Mission, Metro routes in new cities, Ujjwala Yojana are actually working towards mitigating harmful impacts of air pollution and reducing pollution at source. More such projects with greater intensity are needed to tackle the menace of air pollution.

## **India asks coal plants around Delhi to use biomass**

*Date:-27-September-2021, Source: argusmedia.com*

The Indian government has asked thermal power plants located within 300km of capital Delhi to co-fire biomass with coal to reduce pollution.

The commission for air quality improvement for the national capital region (NCR) and adjoining areas has mandated 11 such power plants to co-fire 5pc-10pc biomass with coal to cut pollution and stubble burning at farms, according to the federal environment ministry.

Air pollution in the NCR is a cause for concern and pollution sources are diversified, the ministry said, citing seasonal stubble burning and emissions from vehicles, industries and thermal power plants as major contributors.

State-owned utility NTPC's Dadri coal-fired power plant located 56km from Delhi in Uttar Pradesh state was the first such facility in India to test co-firing with biomass in 2017. The pilot operation at Dadri included mixing up to 10pc biomass with coal.

NTPC co-fired 6,000t of biomass at Dadri in the 2019-20 fiscal year that ended on 31 March. Dadri provides power to Delhi and its surrounding districts and has coal-fired generation capacity of 1,820MW and gas-fired capacity of 817MW.

NTPC plans to buy through a tender 20mn t of biomass to partially replace coal at its power plants. The company expects to secure the biomass during October-November before the onset of the winter crop harvesting season in India. The biomass will be supplied over a four-year period, enabling the firm to co-fire 5mn t/yr of pellets at its 17 power plants.

The tender to buy domestically manufactured residue-based pellets, made of crop stubble and husk, was issued in September 2020. It was initially scheduled to close on 19 October. But the date was extended to late November following requests from potential suppliers, and then pushed back further to early 2021. Further delays were likely caused by the impact of a second wave of Covid-19 infections in the country earlier in the year.

NTPC has also finalised contracts to buy 456,000t of biomass pellets for interim use. Supplies are being made to seven power stations, the company said. It has co-fired a total of 28,500t of biomass pellets at its power plants as of March.

NTPC plans to co-fire biomass at its 17 plants, including Korba and Sipat in central India's Chhattisgarh state, Dadri and Rihand in north India's Uttar Pradesh state, Farakka in east India's West Bengal state and Kudgi in south India's Karnataka state.

India intends to launch a federal plan on expanding co-firing of biomass with coal, as part of a broader aim to curb carbon emissions. The so-called national mission will be aimed at increasing co-firing from 5pc currently, with a goal of having "a larger share of carbon neutral power generation from thermal power plants", India's power ministry said in May, without giving a co-firing target or an upper limit.

## **Delhi orders 'complete ban' on sale, bursting of firecrackers till January 1**

*Date:-28-September-2021, Source: hindustantimes.com*



**Delhi's air quality takes a major dip during the winter season when the particulate matter concentration goes much beyond the prescribed standards**

Citing the directive from the National Green Tribunal, the Delhi Pollution Control Committee said it is planning a comprehensive program for the prevention, control and abatement of air pollution.

In a bid to curb high air pollution, the Delhi Pollution Control Committee (DPCC) on Tuesday banned the sale and bursting of firecrackers in the national capital till January 1, 2022. Citing the directive from the National Green Tribunal, DPCC said it is planning a comprehensive program for the prevention, control and abatement of air pollution.

"There will be a 'Complete Ban' on bursting and sale of all kinds of firecrackers up to 01.01.2022 in the territory of NCT of Delhi," the order reads.

Delhi government had already announced a ban on the sale, use and storage of firecrackers in the national capital this Diwali. In a series of tweets, chief



minister Arvind Kejriwal said that the ban was announced in view of deteriorating air quality over the past three years.

“Last year, the complete ban was imposed late, after looking at the rising pollution levels in the city. Because of this traders had already bought stock and they had to face losses. This time, traders are requested not to stock up on crackers,” he had tweeted.

Delhi’s air quality takes a major dip during the winter season when the particulate matter concentration, PM2.5 and PM10, goes much beyond the prescribed standards. Pollutants from stubble burning in adjoining states, vehicular pollution, particulate matter from construction work majorly contribute to the decline in air quality which is further exacerbated by firecrackers during Diwali and New Year celebrations.

DPCC said that large scale celebrations by the bursting of firecrackers will result in violation of social distancing norms, which could lead to another Covid-19 surge. It further noted that the firecrackers would result in a high level of air pollution leading to serious health issues in Delhi, “which under the prevalent pandemic crisis situation is not favourable for the cause of larger community health.”

### **Mumbai citizens may experience severe health impacts of coal pollution: Study**

*Date:-29-September-2021, Source: hindustantimes.com*

Mumbai residents may be experiencing worse health and economic impacts from pollution caused by coal-fired power plants, as compared to other major metropolitan cities around the world, suggests new research by the C40 Cities Climate Leadership Group. These findings, which were released on Wednesday in tandem with a report titled ‘Coal-free cities: the health and economic case for a clean energy revolution’, also show a significant impact of coal-fired power plants on Chennai, Delhi, Kolkata, Bengaluru.

Under the existing scenario, the C40 group’s analysis shows that Mumbai’s 13 million-odd population will experience 6,200 premature deaths, 3,200 preterm births and 4,400 emergency medical visits among patients suffering from asthma and related ailments by 2031. By extrapolation, residents in the city will take a combined 2.4 million days of sick leave over the next decade, which would directly impact economic productivity. The five metropolitan cities analysed by the C40 group will together suffer 52,700 premature deaths,

31,300 preterm births and 5,700 new cases of asthma in children within the next 10 years.



**Coal-fired power plants within a 500km radius of Mumbai generate a total 9% of the entire country's coal-based power, and air pollution stemming from these plants often travels long distances.**

Coal-fired power plants within a 500km radius of Mumbai generate a total 9% of the entire country's coal-based power, and air pollution stemming from these plants often travels long distances, exposing and making vulnerable a much larger section of the population than residents in their immediate vicinity. Moreover, given the high domestic demand for power in the city, nearly 71% of Mumbai carbon footprint comes from electricity generation, according to a recent emissions inventory prepared as part of the BMC's upcoming Mumbai Climate Action Plan (MCAP).

Commenting on these findings, Dr Rachel Huxley, head of knowledge and research at C40, highlighted the risk posed to citizens due to pollution from PM2.5 pollutants in the air, which stand at more than thrice the World Health Organisation's recommended threshold. She also said that given India's plans to expand its coal fleet to 64GW, the situation threatens to worsen in the near future.

“Current national plans would expand the coal fleet by 28% between 2020 and 2030, and not by 20%, threatening the health and well-being of the urban residents in Mumbai while undermining India’s climate and air quality targets. Current national plans could increase the number of annual premature deaths from coal pollution in Mumbai by 35%,” Huxley said.

Instead, the report advocates for “an energy transition that would supply Mumbai with renewable electricity would also generate 250,000 energy jobs in India between 2020 and 2030, and provide cheaper electricity.” The jobs would stem directly from demand in manufacturing, installation and operations of renewable energy sources.

Suggesting tangible steps in the way forward, the C40 group, along with researchers at the University of Maryland in the United States and the Centre for Research on Energy and Clean Air, modelled a plant-by-plant retirement scenario keeping in mind the age, technology, profitability, operations and pollution (air and water) caused by each individual coal-fired power plant. Around Mumbai, 20 coal units (3 GW) have been identified for retirement in the next two years, since they are the oldest, and most inefficient, emitting high levels of pollution while being the least cost-effective. Another 22 (3.5 GW) coal units could be retired by 2030, en route to a complete shutdown of coal power by 2045, the model suggests.

A rapid phase-out of coal power in the vicinity around Mumbai would “reduce India’s total annual GHG emissions by 11% (274 MtCO<sub>2</sub> of emission savings) per year, which would be the equivalent of taking 60 million vehicles off the road for a year,” the C40 group said in a statement Wednesday.

Responding to these findings, Saurabh Punamiya, research and public policy assistant to the state minister for environment and climate change, Aaditya Thackeray, said that 25% of Mumbai’s electricity demand will be met through renewables by 2025, and that use of coal in the state will be phased out in a “just transition”.

“We intend to identify ways and means to provide more renewables to the grid. From not only the point of view of energy alone but also towards climate resilience on how we design our buildings. The aim is to identify how we can reduce energy consumption in a city which has a hot and humid climate throughout the year,” he said.

## **Delhi pollution: Gopal Rai urges citizens to promote carpooling ahead of winters**

*Date:-30-September-2021, Source: hindustantimes.com*



### **A view of India Gate blanketed in heavy haze in New Delhi**

Delhi environment minister Gopal Rai on Thursday urged the citizens to keep their vehicles off at the red light in traffic and reduce the number of trips to prevent air pollution in the national capital. Every year, Delhi grapples with severe smog around October and November due to stubble burning, vehicular pollution and biomass burning, among other factors. Setting forth the agenda for Delhi's winter action plan this year, Rai said that the contribution of citizens towards pollution control is as important as the steps taken by the government.

Earlier today, the environment minister held a meeting with resident welfare associations (RWA), NGOs and eco clubs in Delhi and took suggestions to improve the pollution control measures being taken by the Delhi government. Senior officials from the Delhi Pollution Control Committee and the environment department also took part in the meeting.

"We wanted to collect the feedback from these organisations on our efforts and seek their suggestions. Most of the people said that the 'Red light on Gaadi off' campaign should be continued," he told reporters.

Rai said that a lot of the suggestions were in favour of promoting carpooling in RWAs. "Residents can plan their work and reduce the number of vehicle trips accordingly, which will help bring down vehicular pollution," he said. The minister highlighted that the Delhi government will also ensure that security guards and workers in night shift are provided heaters to prevent biomass burning.

The environment minister also launched a suggestions forum for the 'Green War Room' launched last year. Any person in Delhi can give suggestions to the government on pollution control measures on the email id -- [greenwarroom@gmail.com](mailto:greenwarroom@gmail.com), he said. The Green War Room monitors and coordinates anti-pollution efforts and updates the "Green Delhi" application to effectively address complaints related to pollution causing activities.

The Delhi government will also set up a team of officers to have talks with neighbouring states to jointly fight pollution.

"The government is working on a two-line plan of action -- one is to prevent causing pollution and the other to control pollution. For the first one, it is important to create awareness at grassroot levels among citizens," he said.

"We are raising sensitivity among people so that they take it (the problem of pollution in Delhi) as their responsibility... as a collective duty," he added.

Notably, the Delhi government has imposed a complete ban on the sale and bursting of firecrackers in the city till January 1, 2022. It has issued detailed guidelines for construction and demolition sites to control dust pollution.

Delhi's 'Winter Action Plan' for 2021 will be ready soon, officials told PTI. It will focus on 10 points, including stubble burning, pollution hotspots, working of smog tower and vehicular and dust pollution.

**October 2021**

**Delhi smog tower: Primary results show 80% reduction in pollution, says Rai**

*Date:-1-October-2021, Source: business-standard.com*



Delhi Environment Minister Gopal Rai on Friday said the smog tower at Connaught Place has started working at full capacity and primary results show an 80 percent reduction in pollution levels.

Rai said the large air purifier reduced PM2.5 level from 151 micrograms per cubic meter to 38 g/m, and PM10 concentration from 165 g/m to 41 g/m on Friday morning.

"Primary results indicate the pollution levels have reduced by 80 percent," he told reporters.

A 16-member team of experts from Delhi Pollution Control Committee, IIT-Bombay, NBCC and Tata Projects has been formed to monitor the functioning of the smog tower.



"It will submit its first report in three months. Based on the results of the two-year study, the government will take a call on installing more such structures," the minister said.

Sensors have been installed at the top and the bottom to measure PM2.5 and PM10 concentration in the air entering the smog tower and after it is cleaned, he said.

The over 24-meter-high structure was inaugurated by Chief Minister Arvind Kejriwal on August 23.

The smog tower has 40 fans and 10,000 filters developed by experts at the University of Minnesota which also helped design a 100-metre-high smog tower in Xian, China.

The smog tower can purify air in a one-km radius around the structure, at a rate of around 1,000 cubic metres per second.

Experts will try to ascertain the area of influence and the optimum fan speed for best results at minimum costs, according to officials.

The study will also focus on reducing the size of the structure, minimizing energy consumption, and developing design parameters and specifications for low-cost indigenous filters and fans.

### **Gurugram takes steps to curb air pollution**

*Date:-2-October-2021, Source: dtnext.in*

Gurgaon: The officers of these departments will keep vigil in their concerned areas on daily basis and ensure action against the violators. Apart from this, all the responsible officers will have to prepare an action taken report every evening and send it to the nodal officer.

Under the plan, all the under-construction projects, red and orange category companies in the district will have to inform the State Pollution Control Board (HPCB) about the measures taken to curb pollution within 15 days.

Apart from this, to reduce air pollution, it has been asked to provide uninterrupted electricity to the industries to reduce use of generators. Similarly, hotspots have also been identified in the district, from where maximum pollution emanates.



The MCG will spray water on the dust flying on the roads with sprinklers. Along with this, the civic body and HSVP have been asked to keep an eye on burning of garbage, plastic and clothes, wood and coal in hotels. Teams of both departments will ensure this by patrolling. The police have been given the responsibility not to allow illegal parking and traffic jam.

Areas like Udyog Vihar, Sector-37, Sector-18, Begumpur Khataula and IMT Manesar have been included in the hotspots.

Apart from this, for the prevention of vehicular pollution, IFFCO Chowk, Ambience Mall, Rajiv Chowk, Subhash Chowk, Vatika Chowk, Hero Honda Chowk, Captain Umang Bhardwaj Chowk, Sector-10, Sohna Chowk, Kherkidaula Toll Plaza, Bandhwari Toll Plaza, Dwarka Expressway, HUDA City Centre, Hamilton Court DLF Phase-4, Bus Stand, Pataudi Road, Dwarka Expressway, Rampura Flyover, Bilaspur Chowk are some of the hotspots which have been identified. Garbage dumping sites have also been included in hotspots, including places like Bandhawari and Manesar.

"As per the plan, the Agriculture Department has been given the responsibility to pay more attention to the farmers, to make them aware not to burn stubble. Along with this, the team of the department will also do daily patrolling," Garg said.

## **As winter nears, Gurgaon issues guidelines to combat air pollution**

*Date:-3-October-2021, Source: indianexpress.com*

Taking a proactive approach for abating air pollution in the city, the Gurgaon district administration has issued directions listing out several key measures to be implemented from October 1. An order issued to 41 agencies, including police, municipal corporation, Haryana Shehri Vikas Pradhikaran (HSVP), department of town and country planning, and SDMs, states that nodal officers should be appointed for implementation of pollution action plan and all agencies should constitute teams for night patrolling.

With winter approaching, the air quality is set to deteriorate in NCR.

As per the action plan, the control board has identified Udyog Vihar phases 1-5, sector 18, sector 37, IMT Manesar, Behrampur, Begumpur Khatola as hotspots for industrial air emissions. For vehicular air emission and traffic congestion, Delhi-Gurgaon border, Iffco chowk, Rajeev Chowk, Sohna road, Subhash Chowk, Vatika Chowk, Hero Honda Chowk, Sohna Chowk, Kherki Daula toll plaza, Gurgaon-Faridabad toll plaza, Dwarka expressway, HUDA city centre, Hamilton court DLF phase 4, Pataudi road, Gurgaon bus stand, Rampura flyover and Bilaspur Chowk have been identified as hotspots.

Thirteen hotspots for road dust have also been identified. “Large construction projects including highways and metro will need to provide an undertaking to state pollution control board within 15 days that they will assure adherence to prescribed norms for dust management. Solid waste dumping issues have to be addressed on priority. Mechanised sweeping machines, where available, have to be used for regular cleaning of roads in shifts (day and night) and sprinkling of water and other necessary measures have to be undertaken by all agencies concerned. Compliance of action plans on the identified pollution hotspots should be ensured,” the order read.

It also stated that all industries will have to provide an undertaking to the state pollution board within a fortnight that they will only use authorised fuel. The order further called for an enhanced vigil at industrial stacks and garbage dumping sources and for extensive use of smog guns to control dust emission.

Kuldeep Singh, regional officer of Haryana State Pollution Control Board (HSPCB), Gurgaon (North), said, “Directions have been issued to the departments and officials concerned. They have been instructed to submit an

action taken report on a daily basis. Violators would be penalised. The state pollution board and administration have taken proactive measures to combat air pollution based on past experience and planned strategy.”

## **Arvind Kejriwal announces 10-point winter action plan to curb pollution**

*Date:-4-October-2021, Source: indianexpress.com*



### **Delhi Chief Minister Arvind Kejriwal**

Delhi Chief Minister Arvind Kejriwal said Monday that only buses and taxis coming to Delhi from other states should be converted into CNG and specific areas in the NCR region should be marked as pollution hotspots so that a plan for mitigation can be created to help fight pollution in the region.

Announcing the winter action plan for pollution, Kejriwal said that Delhi's biggest problem in the coming weeks will be pollution from paddy stubble burning in neighbouring states such as Punjab and Haryana. With assembly elections approaching in Punjab, and the farmer agitation against the three farms laws still on, fining farmers from burning paddy stubble will be an uphill task.

Kejriwal identified ten areas of focus for the season ahead. These include measures to mitigate dust pollution, garbage burning, paddy straw burning

and control through the Pusa Bio Decomposer, ban on firecrackers, installing smog towers, monitoring pollution hotspots, controlling vehicular pollution, effective operations of the green war room and the Green Delhi app.

“We launched the Green Delhi app to enable citizen participation in maintaining vigilance against pollution. We received 23,000 complaints on the app and were able to successfully resolve 93% of them. We started a green war room through which we analyse our fight against pollution in real time... A program management room has been created in collaboration with the University of Chicago and GDI Partners for the green war room. We have recruited 50 new Environment Engineers as well. We have launched the Green Delhi app through which citizens can connect to and let us know wherever they see any instance of pollution. Our team will visit the location and take necessary action,” Kejriwal said.

Strategies to contain pollution take on urgency as winter approaches the city because the accumulation of pollutants in the air becomes easier as it gets colder and the winds get calmer in winter. While Delhi’s baseline pollution is high to begin with – the city did not see a single good air quality day so far in 2021 despite a long and heavy monsoon – paddy stubble burning makes things worse in the end of October and beginning of November as the wind direction carries the pollutants to the city.

Kejriwal said the Delhi government is in touch with the Centre to get states to use the Pusa Bio Decomposer (which helps the paddy stubble decompose quicker, eliminating the need for farmers to set fire to their fields after harvest).

“We appealed to the Centre as well many times, but they too did not do anything. Because of this mess, the farmers outside of Delhi will be compelled to burn their stubble residue. The smoke generated reach and increases the pollution levels here. The Delhi government found a solution to stop stubble burning in the form of the bio-decomposer. We are in touch with the Centre and hope that the solution will be implemented as much as possible,” he said.

The biggest contributor to pollution in the city in winter, meanwhile, is dust as per a source apportionment study done by IIT Kanpur in 2013. Kejriwal said that 75 teams have been constituted to check dust pollution at construction sites. Another 250 teams have been constituted to monitor the incidents of garbage burning, he added.

## Partly overcast weather, light rain likely in Delhi

*Date:-5-October-2021, Source: hindustantimes.com*



**The weather department has predicted light rain in the national capital of Delhi on Tuesday.**

Partly overcast weather with light rain is likely in Delhi on Tuesday, the India Meteorological Department (IMD) said and added the maximum temperature is expected to remain around 35 and minimum 26 degrees C.

The minimum temperature on Monday was 25.7, four notches above normal, and the maximum 36.4 degrees C, or two degrees above normal.

Delhi's air quality remained in the satisfactory category on Tuesday morning. Data from the Central Pollution Control Board showed the hourly air quality index (AQI) at 7 am was 94, which is in the satisfactory category. On Monday, the average 24-hour AQI was 91.

An AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

On Tuesday, the Union earth science ministry's System of Air Quality and Weather Forecasting and Research said, "Delhi's AQI is in the satisfactory category with PM10 as the main pollutant because of dry air coming from the north-west of India along with local pollution under very mild rainfall. With the presence of dry condition AQI will remain satisfactory to moderate for next three days."

On Monday, Delhi chief minister Arvind Kejriwal warned Delhi's air quality will start deteriorating in a few days as he released a 10-point winter action plan to check it. He said the plan will help combat air pollution in Delhi, which deteriorates during winter including due to stubble burning by the farmers.



“I have been posting Delhi’s air quality recordings since September 15, and we have seen that Delhi’s pollution levels are in control. But since the central and neighbouring state governments have not done much to help farmers, Delhi’s air quality will start deteriorating in a few days because of stubble burning,” Kejriwal said.

## **Delhi government to start 'anti-dust campaign' from October 7**

*Date:-6-October-2021, Source: indiatvnews.com*



### **Delhi govt to start 'anti-dust campaign' from Oct 7**

In a joint meeting with Delhi Pollution Control Committee (DPCC) Engineers and Green Marshals on Wednesday, Delhi Environment minister Gopal Rai said the Delhi government's anti-dust campaign will start from October 7 and will continue till October 29.

Earlier on Tuesday, Rai launched the 'Advanced Green War Room' and 'Green Delhi App' app for people to send in their complaints into the problems pertaining to 10 kinds of pollution throughout the winter season.

"Last year the anti-dust campaign showed good results. This time it will be run in a more systematic manner," Rai said.

"We had a meeting with all government construction agencies on September 14 and with private agencies on September 17. In the meeting, we discussed the 14 point agenda," the minister said.

The 31 teams that include 17 DPCC and 14 of Green Marshal will go to the ground from Thursday and will monitor the areas with mobile vans, he said.

The notice will be given on any irregularity, if no explanation comes in two days, then a penalty will be imposed as per the National Green Tribunal (NGT) guidelines of 2016.

"On Thursday we are launching a separate online portal for Construction and Demolition (CD) Waste Management," Rai said.

### **Every year, Delhi breathes its worst air from Nov 1 to 15: DPCC data**

*Date:-7-October-2021, Source: indiatvnews.com*



#### **Delhi breathes its worst air in November**

People in the national capital breathe the "worst" air between November 1 and November 15 every year, an analysis of data collated by the Delhi Pollution Control Committee (DPCC) over the last five years showed.

The capital's average PM2.5 level oscillates between very poor and severe categories from October 16 to February 15. It records an average PM2.5 concentration of 285 micrograms per cubic metre from November 1 to November 15.

PM2.5 level from 61 to 120 is considered moderate to poor, 121 to 250 is very poor, 251 to 350 is severe and more than 350 is severe plus.

A major increase in pollution levels is seen from October 15 to November 1. The average PM2.5 level reach 285 micrograms per cubic meter from 80 micrograms per cubic metre,ö an environment department official said.

"All sources of pollution are active during this period. It is the time when stubble burning peaks. There is smoke from firecrackers and dust pollution," he said.

December 16 to December 31 is the second-most polluted period in Delhi. The average PM2.5 concentration during this period stands at 218 micrograms per cubic metre.

The main reason for the high air pollution level is waste burning because this is the time when Delhi records its lowest temperatures and festivals, the official said.

The third-most polluted fortnight stretches from January 1 to January 15. The average PM2.5 concentration during this period is 197 micrograms per cubic metre. "Based on the data, the government will make interventions as part of the winter action plan to curb pollution," the official said.

### **Ghaziabad municipal corporation readies equipment to tackle air pollution in city**

*Date:-8-October-2021, Source: hindustantimes.com*

Ghaziabad, which is listed among 16 “non-attainment” cities in Uttar Pradesh with high levels of pollutants in the air -- will get several equipment in a fortnight to tackle air pollution in the city, officials said on Friday.

The Ghaziabad municipal corporation (GMC) is set to purchase and fit five road sweeping machines, three static anti-smog guns, and five sprinkler vehicles with mounted anti-smog guns at the hotspots identified in the city, and make those operational around Deepawali in November this year.



**The Ghaziabad municipal corporation will make the equipment operational around Deepawali in November this year**

The civic body has got only one anti-smog gun in its inventory, as the officials target a total of eight such systems to tackle air pollution in the city. “We are in the process of purchasing three static anti-smog guns, and have bought five sprinkler vehicles, which will be mounted with the anti-smog guns... Our tally of anti-smog guns will be nine altogether. These anti-smog guns will be deployed at the hotspots identified in the city. The request for the proposal is getting finalised, and it is likely that the purchases will be made within a fortnight,” said Pramod Kumar, additional municipal commissioner of GMC.

The GMC also has three mechanical road sweeping machines which cover about 197 kilometres of a road distance -- both sides -- at different locations in the city. “We are in the process of purchasing five new road sweeping machines which will help us cover major road stretches in a better manner. These machines will be deployed at 36 different locations, according to the need. We have decided on a roster of water sprinkling at 34 locations where the dust pollution is high,” Kumar added.

A city is declared to be “non-attainment” if it consistently does not meet the National Ambient Air Quality Standards for particulate matter (PM10) or nitrogen dioxide (NO2) over a period of five years. According to the Central

Pollution Control Board (CPCB) data, the air quality index in Ghaziabad was recorded at 194 -- under the 'moderate' category -- on Friday.

An AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe."

Meanwhile, officials of the Uttar Pradesh Pollution Control Board (UPPCB) said that the issue of road dust, mechanised road sweeping, and water sprinkling were also discussed at a meeting held by the Ghaziabad environment committee at the district headquarters on Friday. "With the induction of these new equipment, we hope that the air pollution levels in the city will be in check to an extent... We have also asked different departments concerned to repair roads and make those potholes-free by October 30, 2021, a deadline also given by the state officials... About the under-construction Central Industrial Security Force (CISF) Road for which the work has been pending for about a year now, we have planned to initiate prosecution proceedings against the contractor," said Utsav Sharma, regional officer of UPPCB.

Under its 'winter action plan,' the UPPCB officials have identified 10 hotspots -- Sahibabad, Kaushambi, Raj Nagar Extension, Delhi Meerut Road, Loni, Bhopura-Delhi border, South Side GT Road, Sanjay Nagar, Vasundhara, and Siddharth Vihar -- in the city.

### **An eight-point urban agenda for pollution control in India**

*Date:-9-October-2021, Source: business-standard.com*

Urban areas generate 70 percent of carbon emission leading to pollution (caused by displacement of oxygen in the air) and associated impact on breathing, increase in the air pollutants, preventing earth from night time cooling (greenhouse effects - warming of ocean waters and drop in its ability to absorb carbon emission). Urban pollution has a multiplier effect on quality of life, productivity and human health with overwhelming share of seven million lives lost globally per annum. In the rapidly urbanizing world (4.5 billion currently to 6.25 billion in 2050), the carbon emission, accompanied by pollution from transport, construction, energy and waste management sectors is likely to increase further unless drastic actions are taken by multiple stakeholders in a well-designed manner.

WHO also has recently revised norms for ambient air quality (AAQ) guidelines of PM<sub>2.5</sub> (5 mg per cubic metre from 10 pcm ) and annual mean of PM<sub>2.10</sub> (15

mg pcm from 20) just before 26th session of UN Conference of Parties (COP 26) to be held in November 2021 which will certainly deliberate on new standards and global agenda towards Race to Zero (RTZ) Carbon 2050.



India is also undergoing a transition from semi-urban (25%+) to urban majority society as part of structural transformation with surplus labour from agriculture sector with only 14% GDP for nearly half of workforce and 65 percent population. Pollution and associated impact in urban areas with 60-70 % carbon emission and high levels of PM<sub>2.5</sub> and 10 is already alarming. 14 out of 20 most polluted cities in the world are in India. (Delhi's PM<sub>2.5</sub> is 17 times the safe limit along with Kolkata 9.4, Hyderabad 7 and Chennai 5.4 etc.). A large part of loss of lives due to pollution being 1.7(ICMR etc.2019) to 2.5 (Harward 2021) million per annum in India is occurring in urban areas. Delhi, Mumbai along with a large number of people suffering from respiratory diseases. Chennai, Bengaluru, Hyderabad and Lucknow lost nearly 120000 lives due to air pollution in 2020. Further , Delhi recorded highest per capita economic loss (2019) being 13% of city GDP accompanied by 14% for Lucknow, 9% for Mumbai, 8% for Hyderabad and 6.8% each for Bengaluru and Chennai.



Last couple of years in urban India has witnessed a particular attention towards AAQ with a multipronged strategy on dedicated allocation, focus of national level schemes and state/city level actions.

Dedicated allocation covers Rs 38,196 crore for 2021-26 under XV Finance Commission (FC) given to 44 Urban Agglomerations (covering 1115 towns) for AAQ and water and solid waste management (SWM) in a ratio of 32 and 68 % respectively. These are linked to each other. Further, nearly Rs 50,000 crore (for remaining 3000 + towns) is also dedicated to water and SWM in a ratio of 50% each. In addition a sum of Rs 24,000 crore is also allocated for urban health and wellness centres. Further Rs 8000 crores are allocated for Incubation of eight towns in a competitive manner among states. It will give push to pollution control. Swachh Bharat Mission 02 and Amrut 02 with allocation of Rs 4.3 trillion (two point five time more than phase 1) were launched on October 1, 2021 to give focus on water availability to all and treatment of sewage to create water plus cities.

The specific programmes/scheme include (a) National Clean Air Programme (2019) covering 132 cities ,(b) Climate Smart City Assessment Framework (CSCAF) to award cities on 28 indicators under five areas (i) urban planning, (ii)green cover/biodiversity, (iii)energy efficient green buildings; (iv)mobility and air quality and (v) water and waste management (126 cities were assessed as part of smart cities mission(SCM) under CSCAF out of which Ahmedabad ,Pune, Indore, etc. were adjudged top performers) and (c))Streets for People Challenge under SCM (reimagining clean environment friendly public spaces for economic regeneration, safety and mobility) among 113 cities participating cities States/ city level initiatives cover (i) application of UN led RTZ campaign (2050) in 43 major towns in Maharashtra,(ii) Gujarat and Bihar are also planning RTZ, (iii) Drive to eliminate End of Use Life Vehicles (ELVs) in Delhi (which has four million ELVs) for scrapping (25 September 2021) with identification of seven partners, (iv) Scientific processing of construction and demolition (c&d) waste (Ahmedabad, Delhi ,Bengaluru etc.), (v) Commission for AQM in NCR(National Capital Region) has issued specific guidelines to strictly follow c&d waste management rules and upload the compliance on a portal being created in NCR(October 2021), (vi) Creation of SPV for SWM (Bengaluru) to expedite decentralised waste management (vii) specific sites for parking commercial vehicles to make space on roads(MCD-South), (viii) Innovation officer to adapt lake revival, water harvesting (Chennai) and (ix) Blue green policy for mobility and waste management (Delhi master plan 2041).

These initiatives alone are not enough without a national urban agenda on pollution control to cover (i) Preparation of state urban transport policy to eliminate ELVs, promotion of fuel free transport, walking and cycling space, rationalise and restrict parking, promotion of Bharat stage 6 vehicles/ better energy (as NCTD and Maharashtra) (ii) develop and rejuvenate water bodies, (iii) make environment friendly process for building construction and C&D waste (iv) minimise garbage going to dumping sites through reduce, recycling and reuse with a circular economy, (v) enforce plantation drive and census of trees, (vi) wider application of water harvesting (vi) prepare or revise master Plans for blue -green development (vii) Initiate awards on best practices on RTZ 2050 and (viii) Take up capacity building of ULBs on above actions through training (virtual, Hybrid, face to face), technical assistance and field visits.

### **Air quality starts falling, pollution board cites temperature dip**

*Date:-10-October-2021, Source: hindustantimes.com*



**Dust pollution at the site of the Sohna Road construction.  
Over the past week, air quality fell from satisfactory to  
poor levels**

With the withdrawal of the monsoon season, air quality deteriorated to the 'poor' category of the Central Pollution Control Board's (CPCB) air quality index (AQI) over the weekend. Officials cited lower

temperatures in the morning and evening hours as the main

cause and dismissed concerns that stubble burning was causing pollution.

According to the CPCB's daily bulletin, the city recorded poor AQI on Saturday, following which it improved to the moderate category on Sunday, after weeks of satisfactory air quality.

In the past week, the air quality in the city has dropped from the satisfactory category, with an AQI of 92 recorded on October 3, to the poor category, with an AQI of 201 recorded on Saturday. On Sunday, an AQI of 170 was recorded.

The air quality is likely to deteriorate further over the next five days but remain in the moderate category, according to a weather bulletin issued for Delhi-NCR by Air Quality Early Warning System. The bulletin also mentioned that crop residue burning fire points have been observed over Haryana and Punjab, which is blamed for poor air quality in the National Capital Region (NCR).

However, officials said that the drop in air quality was mainly due to falling temperatures.

Kuldeep Singh, the regional officer of Haryana State Pollution Control Board for Gurugram (north), said, "The dip in air quality is primarily due to drop in temperature during the morning and evening hours, as pollutants accumulate in lower temperatures. We are taking all measures to ensure that air quality does not deteriorate this winter season."

When asked if crop residue burning in other districts of Haryana could be a reason, Singh said, "Stubble burning is quite controlled in Haryana, this (dip in air quality) is mainly due to drop in temperature."

Every winter, the air quality in the NCR plummets due to incoming pollutants from stubble or crop residue burning in neighbouring districts of Haryana. This year, Haryana has put in place a robust strategy, including incentives and punitive steps to stop the practice, ahead of the paddy stubble burning season. Most of the fires are usually reported from Karnal, Kaithal, Kurukshetra, Fatehabad and Ambala districts.

"It is too early to say what the causes are behind poor air quality in the city as monsoon has just started withdrawing. All agencies are also working on implementation of measures to control air pollution. We will see for a few more days and take action accordingly if any external factors are found," S Narayanan, member secretary of HSPCB, said.

A week ago, the state pollution control board released guidelines for different agencies in the city to start working to manage air quality in the city. However, HT found that sufficient measures were not being taken to control dust pollution during a visit to the Sohna Road construction site in the city on Sunday.

Officials also said that discussions are underway for implementing a Graded Response Action Plan (Grap), an emergency set of measures implemented between October 15 and March 15 every year to control air pollution in Delhi-NCR.

Under Grap, a ban on diesel generator sets is announced for the entire period and depending on the air quality, measures such as stopping construction work, levying heavy fines for garbage burning and shutting brick kilns, among other measures, are taken.

Abhishek Srivastava, a city-based environmental engineer said, “There are three primary reasons for the dip in air quality: stubble burning has started, wind direction has changed from northwest directions and also surface winds have slowed down. The wind direction changed around October 6 and the city also witnessed light rain in the early days of this month, so the air quality was normal then. But now, the wind speed has slowed down which has brought over dip in temperature in the morning and evening hours, so they are all connected.”

### **Gautam Budh Nagar, Ghaziabad air quality starts deteriorating slightly**

*Date:-11-October-2021, Source: hindustantimes.com*



**According to CPCB, the AQI reading of Greater Noida on Monday was 224 against 199 a day earlier. Similarly, Ghaziabad’s AQI reading also went up to 225 against 222 on Sunday**

The air quality of the region, which was stable over the past few months, has started to deteriorating slightly, according to data from Central Pollution Control Board (CPCB).

While Noida's air quality is still in the moderate category, that of Greater Noida and Ghaziabad has slipped into the poor category, a first since the onset of monsoon in July.

An air quality index (AQI) reading between 101 and 200 is considered moderate, between 201 and 300 is considered poor, between 301 and 400 is considered very poor, and above 400 is considered severe.

According to the weather analysts, the air quality of the region may deteriorate further as dry winds will lead to dust particles being suspended in the air, thereby polluting it further.

According to CPCB, the AQI reading of Greater Noida on Monday was 224 against 199 a day earlier. Similarly, Ghaziabad's AQI reading also went up to 225 against 222 on Sunday.

The AQI reading of Noida, meanwhile, managed to remain in the moderate category despite an increase--188 on Monday against 168 on Sunday.

"The region is seeing dry westerly and northwesterly winds. Also, since the monsoon has passed, dust particles, which had settled on the ground earlier, have dried and are getting raised up by the already dust-carrying winds from Rajashtan and elsewhere. In the next week, as the mercury reduces, the entire region will experience haze and that's when the air quality will fall further," said Mahesh Palawat, vice-president, meteorology and climate change, Skymet.

According to the System of air quality and weather forecasting and research (Safar), further infusion of dust into the region's air is likely.

"Due to very dry conditions, local dust gets re-suspended, leading to high concentrations of PM10. The anticyclonic condition over northwest India helps in meso-scale transport of dust from the desert region," said a Safar statement on Monday. Particulate matter (PM)10 and PM2.5 are considered the main pollutants in the region.

## **Loni's air quality monitoring station may be relocated to city forest**

*Date:-12-October-2021, Source: hindustantimes.com*



**Environmentalists said that the relocation of the monitoring station is the administration's attempt to conceal the true picture of air pollution in Ghaziabad**

Officials of the Ghaziabad municipal corporation are planning to relocate the Continuous Ambient Air Quality Monitoring Station (CAAQMS) at Loni to the city forest area in Ghaziabad. They said that the CAAQMS at Loni has been recording very poor/severe air quality index (AQI) readings, which is affecting the overall AQI reading of Ghaziabad and may, in turn, also affect their performance-based grants accorded by the Fifteenth Finance Commission for air quality improvement.

Ghaziabad, currently, has four CAAQMS systems at Vasundhara, Loni, Sanjay Nagar, and Indirapuram. According to official records of the Central Pollution Control Board (CPCB), the monitoring station at Loni recorded the highest levels of PM2.5 and PM10 among all four stations during the years 2019 and 2020.



Official CPCB records indicate that the annual average PM<sub>2.5</sub> reading recorded by the monitoring station at Loni was 121.03 micrograms per cubic metre (mpcm) in 2019--the second-highest among all four stations--and 122.07mpcm in 2020--the highest among all four stations.

Likewise, the annual average PM<sub>10</sub> level recorded by the monitoring station at Loni was 263.22mpcm in 2019--the highest among all four stations-- and 233.98mpcm in 2020--also the highest among all four stations.

The standard reading for PM<sub>2.5</sub> is 60mpcm, and for PM<sub>10</sub> it is 100mpcm.

“The Loni station does not portray an accurate picture, as its AQI readings are added to the readings from the three other stations. Loni is anyway out of the jurisdiction of the corporation area. So, we have planned to relocate the monitoring station at Loni to the city forest at Karhera,” said MS Tanwar, municipal commissioner.

Once relocated, the monitoring station will be installed about 14km away from Loni in the clean surroundings of the city forest, which is near the Hindon river.

The city forest is managed by the Ghaziabad development authority (GDA), while the corporation is the custodian of the 100-acre land on which the forest is located.

“For the past several years, the city’s AQI reading has been impacted by the high readings of the Loni monitoring station and it will, in the long term, affect our performance-based grants allotted by the Fifteenth Finance Commission. So, we are taking the necessary steps. We have received approval for relocation from the state officials and now we have sought permission from GDA to install the station,” Tanwar said, adding that the works for relocation are likely to be completed within a month.

Another station whose location is leading to high readings is the one at Sanjay Nagar. Corporation officials said that they are also considering relocating it elsewhere.

Officials of the Uttar Pradesh Pollution Control Board (UPPCB) said that once the monitoring station at Loni is relocated, they will start monitoring AQI manually in the area.

“The Loni station’s readings remain high because there are bad roads, regular construction activities and even garbage burning and illegal factories in the

area. Once we relocate the station, we will start manually monitoring the AQI at Loni. In the next financial year, when more funds are allotted, an online CAAQMS will be installed in Loni and its readings will be recorded separately in the CPCB's daily AQI bulletin," said Utsav Sharma, regional officer, UPPCB.

However, environmentalists said that the relocation of the monitoring station is the administration's attempt to conceal the true picture of air pollution in the city.

"It seems that the measure has been taken only with the aim to get funds. Loni is a part of the Ghaziabad district and its citizens have the right to clean air if the readings are poor. Instead of relocating the station, the administration should make efforts to lower pollution. Further, relocating the monitoring station to a green area will give low readings. This will conceal the true picture of the city as a whole," said Akash Vashishtha, a city-based environmentalist and lawyer.

Sushil Raghav, another environmentalist, said that if relocation goes through, he will challenge the decision before a court.

"In case they relocate the monitoring station, we will challenge it in a court. Instead, the city should have more monitoring stations, like in Delhi, so that the correct picture can be ascertained. If there is no CAAQMS in Loni, then real-time figures will not be available and Loni residents will continue to suffer due to bad air," Raghav said.

### **Delhi air pollution: 75% of children experience breathlessness, says study**

*Date:-13-October-2021, Source: hindustantimes.com*

With the onset of winters, Delhi's air quality worsens every year. The climatic change leaves more than 75 per cent of the children feeling suffocated, according to Hindustan Times' sister publication Livehindustan; the report is based on a study conducted by The Energy and Resources Institute (TERI).

The health survey was conducted on 413 children, out of which 75.4% complained of breathlessness, 24.2% complained of itchy eyes, 22.3% complained of regular sneezing or runny nose and 20.9% of children complained of coughing in the morning.

The children in the survey aged between 14-17 years.

The TERI report also stated that air in Delhi has a high concentration of major pollutant PM<sub>2.5</sub>, which it claimed is pushing Delhiites, especially children, towards respiratory and heart diseases.

Researchers also identified heavy metals as a major component of PM<sub>2.5</sub> that may result in potential health effects. In October 2019, the concentration of zinc in the city's PM<sub>2.5</sub> (particles less than 2.5 micrometres in diameter) was 379 ng/m<sup>3</sup> (nanograms per cubic meter of air). In September 2020, this increased to 615 ng/m<sup>3</sup> (nanograms per cubic meter of air).

Similarly, the lead content in Delhi's air was 233 ng/m<sup>3</sup> (nanograms per cubic meter of air) in 2019, which increased to 406 ng/m<sup>3</sup> (nanograms per cubic meter of air) in 2020, with an arsenic content of 3 ng/m<sup>3</sup>.

According to experts, some of these metals are extremely hazardous to human health and regular exposure to them could lead to some fatal health consequences. The increased amount of cadmium and arsenic in the air also put the locals at higher risk of cancer, kidney problems and high blood pressure, diabetes and heart diseases.

"PM<sub>2.5</sub> level - less than 60 ug/m<sup>3</sup> - is considered an acceptable norm, but if there is a high concentration of toxic metals in the air, then it may lead to Your health is at risk," the Live Hindustan quoted TERI Associate Fellow (Environment and Health), Kanhaiya Lal, as saying.

### **Greater Noida authority sets up control room to mitigate air pollution in city**

*Date:-14-October-2021, Source: hindustantimes.com*

The Greater Noida authority has set up a control room to handle issues related to air pollution in the city, officials said on Thursday. The authority has divided the city into eight zones for all the stakeholders to better implement the rules, and appointed a nodal officer who will seek reports from all zonal heads on a daily basis and inform top officials to take timely action against the violators.

Narendra Bhooshan, chief executive officer of Greater Noida authority, has directed all zonal officials to act immediately if they come across any violation of rules. The authority has also released numbers: 01202336046, 47, 48 and 49 where people can call and inform about violations of rules. Apart from this, the authority has also released WhatsApp number: 8800882124 where people

can send pictures of unattended construction material or waste anywhere in the city.



**The authority has also directed all developers having construction sites of area more than 20,000-square-metre to have anti-smog guns to reduce the air pollution levels.**

“A resident can call at these phone numbers to file a complaint about violations of construction guidelines or a complaint about dumping waste at undesignated sites. Similarly, zonal officials concerned will address the WhatsApp complaints. If the zonal officials do not

act on these, the nodal officer will take action,” said AK Arora, general manager of Greater Noida authority.

Greater Noida is spread over around 38,000 hectares comprising 124 villages. Nearly 600 construction sites of developers and other individual construction projects are located at different areas of the city. According to the ministry of environment, forest and climate change, guidelines on construction material should not be left uncovered, sand should not be ferried without covering it with sheet, construction site should be covered with green sheet, and green belt should be developed around large size construction sites to make sure that dust is not mixed with the air, causing pollution.

“We have directed all developers having construction sites of area more than 20,000-square-metre to have anti-smog guns to reduce the air pollution levels. If the developers fail to do so, action will be taken against them,” said Bhooshan.

Under the Graded Response Action Plan (Grap) to tackle air pollution in Delhi-NCR from October 15, authorities will annually ban diesel-run electricity generators, specific instructions for washing of roads, and increased patrolling of known hotspots among other measures. Grap is a set of curbs triggered in phases as the air quality deteriorates, which is typical during October-November. Farm fires in neighbouring states and cooling weather typically combine at this time of the year to blanket the region in smoke.

## **Delhi's Air Quality Remains "Moderate", Likely To Deteriorate In Next 2 Days**

*Date:-15-October-2021, Source: ndtv.com*

New Delhi: Air quality in the national capital was recorded in the moderate category on Thursday but is likely to deteriorate in the next two days with a rise in farm fire incidents in Punjab and Haryana.

A total of 407 farm fires were recorded on Thursday in the neighbouring states of Punjab, Haryana, Uttar Pradesh, Rajasthan and Madhya Pradesh with 229 such fires detected in Punjab alone, showed data from the Indian Agricultural Research Institute (IARI).

Haryana recorded 98 fires and Uttar Pradesh recorded 68 such incidents on Thursday.

On the previous day, 272 fires were detected in these five states collectively.

Ministry of Earth Sciences' forecast body SAFAR said that Delhi's air quality index (AQI) is in the moderate category with PM10 as the main pollutant.

"Under dry conditions, local dust gets re-suspended leading to high PM10, in addition to meso-scale transport of dust from desert regions," it said.

According to the Decision Support System (DSS) developed by Indian Institute of Tropical Meteorology-Pune, the ventilation index and the wind speed in the national capital will be lower than average in the next two days, which is unfavourable for dispersion of pollutants.

However, the air quality is likely to improve owing to the rainfall activities on October 17 and 18, which is favourable for removal of pollutants, IITM said, adding that the air quality is likely to remain largely in moderate category.

Stubble burning in the neighbouring states significantly contributes to the air pollution in Delhi. Since October 6, Punjab has recorded 1,008 farm fires while Haryana had 463 fires till date.

Uttar Pradesh recorded 260 farm fires in the last eight days while Madhya Pradesh and Rajasthan accounted for 35 and 16 fires, respectively.

On October 13, paddy crop residue burning fire points were observed over Haryana (91), Punjab (132) and adjoining Pakistan.

"Winds are favourable for transport of pollutants from biomass burning. Approximately, 10 per cent contribution in PM<sub>2.5</sub> over Delhi-NCT is likely from biomass burning on Thursday," IITM said.

The active fire events due to rice residue burning were monitored using satellite remote sensing, following the new "Standard Protocol for Estimation of Crop Residue Burning Fire Events using Satellite Data".

Between September 15 and October 10, Punjab has recorded 764 incidents of crop residue burning in 2021 compared to 2,586 in the corresponding period last year.

Punjab had recorded 1.02 lakh incidents of stubble burning in 2016. The number decreased to 67,079 in 2017; 59,684 in 2018 and 50,738 in 2019 from October 1 to November 30. The state logged 79,093 such incidents last year, according to the IARI.

Haryana saw 15,686 farm fires in 2016; 13,085 in 2017; 9,225 in 2018; 6,364 in 2019 and 5,678 in 2020.

Punjab and Haryana attract attention during the paddy harvesting season in October and November.

### **A day after Dussehra, Ghaziabad and Greater Noida most polluted across country**

*Date:-16-October-2021, Source: hindustantimes.com*



**A view of the New Link Road bridge in Ghaziabad on Saturday**

A day after the Dussehra celebrations, pollution levels of Ghaziabad, Noida and Greater Noida spiked to "very poor" category on Saturday, with Ghaziabad emerging as the most polluted city across the country, according to the air quality index

(AQI) figures of the Central Pollution Control Board (CPCB).



The AQI data also revealed that Greater Noida was the second most polluted city in the country.

On Saturday, the AQI for Ghaziabad, Noida and Greater Noida stood at 349, 312 and 330, respectively. A day earlier, the AQI of Ghaziabad and Greater Noida was under “poor” category at 235 and 241, respectively, while that of Noida was recorded at 192 (“moderate”).

According to CPCB, an AQI between zero and 50 is considered “good”, 51 and 100 “satisfactory”, 101 and 200 “moderate”, 201 and 300 “poor”, 301 and 400 “very poor”, and 401 and 500 “severe”.

Officials of the UP Pollution Control Board (UPPCB) said that the sharp rise in pollution levels was a result of burning of effigies in NCR, high volumes of traffic and other external factors. They also said that it is for the first time this season that the AQI of the three cities spiked to “very poor” category.

“The reason for spike can be attributed to the Dussehra celebrations on Friday and high volume of traffic on the roads. In Ghaziabad, except for the Indirapuram air monitoring station, the primary pollutant at the three other stations was PM2.5 which affected the overall AQI,” said Utsav Sharma, regional officer of UPPCB, Ghaziabad. During the morning hours, several stretches of National Highway 9 remained under hazy conditions which only improved in the afternoon.

“In Noida, the three monitoring stations at sectors 1, 125 and 116 witnessed a spike in air pollution levels around 4am on Saturday, but the situation improved a bit in the afternoon. The Noida Sector 62 and Indirapuram stations are close to each other, and their primary pollutant was PM10. Some external factors like stubble burning also added to the pollution levels,” said Sharma, who is also officiating for Noida city.

Bhuvan Yadav, UPPCB regional officer for Greater Noida, said that unfavourable meteorological conditions made the situation worse. “Due to low wind speed, there was less dispersal of pollutants, and the accumulation led to the spike in pollution levels. This pattern is mostly observed during winter season,” he added. Meanwhile, the System of Air Quality and Weather Forecasting and Research (Safar) stated on Saturday that the fire counts in neighbouring states stood at 1,572.

“With 1572 effective fire counts, the stubble burning contribution in Delhi’s air has suddenly increased to 14%. Fire counts are gradually increasing, and wind

direction is favourable and coming from north-west direction at transport level for intrusion,” the forecast said.

It further added that the AQI will remain under the “moderate” category starting Monday. The Safar also said that there is a likelihood of rainfall in the region under the influence of western disturbance.

Environmentalists said that the vehicular movement during the festivities is largely responsible for spike in pollution levels. “Apart from the external factors, traffic on roads increased due to festivities and it led to spike in PM2.5 levels. Burning of effigies alone cannot be held responsible for the spike. Due to the pandemic, there were restrictions and many Ramlila committees in the city did not burn effigies. Those who did prepared small effigies and burnt them symbolically without firecrackers,” said Akash Vashishtha, a city-based environmentalist.

### **Delhi government to initiate 'Red Light on Gaadi Off' campaign from Oct 18 to curb air pollution**

*Date:-17-October-2021, Source: zeenews.india.com*



**"From tomorrow we are starting the "Red Light on Gaadi Off" campaign against the pollution caused by vehicles in Delhi," said Delhi Environment Minister Gopal Rai**

New Delhi: Delhi Environment Minister Gopal Rai on Sunday (October 17, 2021) said that as the national capital's air quality plunges into the “very poor” category, the Delhi government has decided to start the 'Red Light on Gaadi Off' campaign in the city from tomorrow onwards.

"From tomorrow we are starting the "Red Light on Car Off" campaign against the pollution caused by vehicles in Delhi," said Delhi Environment Minister Gopal Rai.

The Delhi Environment Minister also said that the reason behind the poor air quality is the increase in incidents of stubble burning in neighbouring states and appealed for a “responsible” approach from governments of these states.

Gopal Rai said that it was a normal trend that as the incidents of stubble burning in Punjab, Haryana and Uttar Pradesh increase, the air quality starts deteriorating in the city.

The Delhi Environment Minister went on to add that two days back the AQI was 171 but as the incidents of stubble burning increased in neighbouring states, the AQI started getting worse and it was 284 on Sunday.

“This has been a normal trend. We have appealed neighbouring states to control incidents of stubble burning but to no avail. We have started spraying of bio-decomposer in fields as an alternative to stubble burning the similar should be done by neighbouring states,” Rai said.

"We need a responsible approach from (neighbouring) states in reducing the number of stubble burning. They should make arrangements to spray bio-decomposer in their states so that pollution can be controlled,” he added.

Meanwhile, at 11 am on Sunday the AQI in Delhi was 339 which is in “very poor” category. An AQI between zero and 50 is considered good, 51 and 100 satisfactory, 101 and 200 moderate, 201 and 300 poor, 301 and 400 very poor, and 401 and 500 severe.

### **Noida air quality only improves to ‘poor’ despite showers, rain likely today**

*Date:-18-October-2021, Source: hindustantimes.com*

Despite intense rainfall in and around Noida, the air quality in the region on Sunday only improved to the ‘poor’ category from ‘very poor’ a day earlier, according to the Central Pollution Control Board (CPCB) data.



**Noida on Sunday recorded the air quality index (AQI) at 288, against 312 on Saturday, even as the city received 22mm of rainfall between 8:30am and 5:30pm**

Officials of the Uttar Pradesh Pollution Control Board (UPPCB) said that the AQI in the city on Sunday was still ‘poor’ because it was cumulative of the past 24 hours.

Noida on Sunday recorded the air quality index (AQI) at 288, against 312 on Saturday, even as the city received 22mm of rainfall between 8:30am and 5:30pm.

The officials said that the air quality “must have improved due to the rain” in the afternoon.

“There could be multiple reasons, including vehicular pollution and effigy burning, behind the spike in the pollution in and around Noida. The AQI in the city on Sunday was still poor because it was the cumulative of 24 hours, and the improved AQI would be reflected in the Monday reading,” said Utsav Sharma, regional officer of UPPCB, Ghaziabad and Noida (acting).

The 24-hour air quality monitoring by the CPCB suggested that the air quality in Noida is likely to swing between the ‘poor’ and ‘very poor’ categories.

According to the CPCB, the city's AQI at 6pm was 236 in Sector 62, 256 in Sector 125, 270 in Sector 116, and 330 in Sector 1.

An AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

According to CPCB, the AQI in Ghaziabad on Sunday was 310 against 349 a day earlier, and 244 in Greater Noida against 330 on Saturday.

Meanwhile, weather analysts said that the thunder showers are likely to continue on Monday.

"A cumulative effect of southwesterly winds from the Arabian Sea at the upper level, easterly winds from the Bay of Bengal at the lower level, a low-pressure area over South Madhya Pradesh, and a minor western disturbance over western Himalayas has led to the rainfall in the region. This may wear off from Monday evening," said Mahesh Palawat, vice-president, meteorology and climate change, Skymet.

### **Two injured in lightning**

Meanwhile, thunder lightning struck a house in Noida's Phase 3, leading to destruction of a property, police said on Sunday. "Thunder lightning struck a house in a village in Phase 3, leading to destruction of a house. A woman and a child were injured after a part of the house collapsed. The woman was taken to a hospital in Noida Sector 71, and the child sustained minor injuries and is out of danger," said the Noida police in a statement.

### **And the air in Delhi was 'good' — after 413 days**

*Date:-19-October-2021, Source: hindustantimes.com*

Residents of Delhi breathed good air after 413 days on Monday as heavy downpours through the day settled down pollutants. It was the first time since 2015 that the air in national capital has been so clean in October.

The overall Air Quality Index in Delhi fell to 46, categorised as 'good' by the Central Pollution Control Board, a drop of over 250 in just a day. The index on Sunday had shot up to 298 on Sunday, which is categorised as 'poor' that leads to breathing discomfort to most people on prolonged exposure.



**A rainbow appears in Delhi on Monday, as the air got remarkably cleaner due to the rain**

The relief might be short-lived as winds from the northwest blow in smoke from the farm stubble fires in Haryana and Punjab in the coming days, experts said.

Monday was Delhi's first spell of good air not just in 2021, but since August 31 last year, data from the federal pollution watchdog showed. Delhi has not breathed good air in October since at least 2015, when the agency started keeping AQI records.

The drastic fall in pollution levels was more due to the duration of the rains, scientists of the Indian weather office said, as well as showers in neighbouring states, potentially negating the effect of smoke from the burning of farm residue.

"Delhi has received some intense rain spells this year, but this time, there was a drastic fall in pollution levels because the rain was widespread throughout Delhi and neighbouring Uttar Pradesh, Haryana and others, and it also lasted for a longer duration," said VK Soni, head of the environment and research department at the India Meteorological Department.



“We have seen that intense rain spells during monsoon this year were usually shorter spells, which lasted between two and three hours, because of which pollution levels did not drop as drastically as they did on Monday,” Soni said.

Delhi this year saw one of the most erratic monsoons ever, Met department data show. It started off with an unusually delayed arrival. Instead of its normal arrival date of June 27, monsoon this year entered the capital on July 13, 16 days behind schedule. This was the most delayed arrival in 19 years. In 2002, monsoon hit Delhi on July 19.

The city progressively broke a slew of monsoon-related weather records. The rains in Delhi broke records in July, August and September. Most of the city’s rainy days saw showers concentrated into a few hours, battering the city’s infrastructure and throwing normal life off kilter.

The capital’s air quality has steadily dropped all month, a decline that accelerated on Friday, when AQI reached the far end of the ‘moderate’ zone at 198. On Saturday, as winds calmed, air pollution got worse and reached 284, before climbing to 298 the next day.

Delhi in 2020 recorded five good air days, the most since AQI recordings began. This, however, was likely due to curbs on social and economic activities due to the Covid-19 pandemic. The restrictions have largely been lifted now.

In 2015 and 2016, Delhi did not record a single good air day. In 2017, two such days were recorded — July 30 and July 31. After another year of no good air day in 2018, Delhi in 2019 recorded two good air days on August 18 and 19, official data reveal.

This respite from severe air pollution will be short-lived and air quality will start getting worse under the impact of northwesterly winds from October 21, Soni said.

The winds will blow from the northeast on Tuesday and Wednesday but will change to northwesterly from Thursday, when air quality will again deteriorate, Soni said.

Easterly winds on Monday ensured the share of stubble fires in Delhi’s air was only 1%, according to the System of Air Quality and Weather Forecasting and Research (Safar) of the ministry of earth science. The rains also kept local pollutants in check, it said.

“Local land surfaces are wet and so dust re-suspension is minimum; this is also keeping the PM 10 (particulate matter with diameter less than 10 micrometres) levels low. The presence of western disturbance has led to scattered rainfall over north India, leading to low biomass burning. This condition improved the AQI with low PM 2.5 (particulate matter with a diameter less than 2.5 micrometres) levels. Fire counts reduced to 170 and its share was only 1%,” Safar’s air quality analysis read.

“Moist surfaces inhibit re-suspension of dust, which will keep the AQI in ‘good’ range for the next 24 hours and after that it will degrade to the ‘satisfactory’ category,” the analysis predicted.

### **Centre launches Air Quality Early Warning System to fight pollution in Delhi**

*Date:-20-October-2021, Source: egov.eletsonline.com*



In a major move to tackle air pollution in the national capital, the Union Minister of State (IC) for Science & Technology and Earth Sciences has rolled out the Air Quality Early Warning System (AQEWS). The system will empower the existing air quality management system in Delhi-NCR and will aid in better

decision making through its decision support system (DSS) that presents data for the early warnings.

The Commission for Air Quality Management (CAQM), recently formed by the Centre for the National Capital Region (NCR) and adjoining areas, raised the need for such a system to generate early warnings on the deterioration of air quality. The Commission has observed the developments done by the Indian Institute of Tropical Meteorology (IITM), Pune, in this regard, and has nodded for the present version of the DSS for the effective management of air quality in the capital and the surrounding region.

The Institute has created a web platform <https://ews.tropmet.res.in/dss/> for the DSS and the entire system is up and running. As per the Ministry, the website is best viewed on desktops as of now, however, it will soon be compatible with smartphones operating on both Android and iOS.

The Ministry, on a brief about the new system, said that the web portal will display quantitative information on the emissions from Delhi contributing to deterioration air quality; quantitative data on emissions from Delhi's eight different sectors, biomass burning activities in neighbouring states, vehicular emissions, and more. The data on these will play a key role in implementing anti-pollution measures timely to keep air quality in the capital clean.

Further, the web portal enables the user to create virtual emission reduction scenarios and assess the possible reductions in pollutants and improvement in air quality for the next five days. The data will bring to light the major pollutants degrading the quality of Delhi's air and suggest possible solutions to lower down the level of pollutants. This makes it a handy tool for policymakers to ease the execution of measures.

### **Good to poor in 48 hours: Bad air back in Delhi, and set to get worse**

*Date:-21-October-2021, Source: hindustantimes.com*

Air pollution levels rebounded sharply into the poor zone on Wednesday after unseasonal rains and strong winds led to a rare 'good' Air Quality Index (AQI) day for this time of the year earlier this week, a turn for the worse that experts fear will only deteriorate in coming days.



**As of 7pm on Wednesday, the average AQI in 26 (out of 36 localities with pollution-monitoring stations) was in the ‘poor’ category. Two areas — Dwarka and Anand Vihar — slipped into the ‘very poor’ zone, with readings of 311 and 348 respectively**

Central Pollution Control Board (CPCB) recordings showed the 24-hour average AQI at 4pm on Wednesday at 221 – a drastic worsening from Monday’s 46 (good) and Tuesday’s 69 (satisfactory).

Experts said the sharp fall in air quality was due to the impact of smoke from farm fires in neighbouring states, and calm local winds.

Pollution levels started rising from Tuesday night when the wind blowing into Delhi changed direction from northeast to northwest, bringing in plumes of smoke from agrarian states upwind – Punjab and Haryana.

After an AQI of 69 at 4pm on Tuesday, the index deteriorated to 184 on Wednesday at 11am. An AQI between 0 and 50 is considered “good”, 51 and 100 “satisfactory”, 101 and 200 “moderate”, 201 and 300 “poor”, 301 and 400 “very poor”, and 401 and 500 “severe”.

As of 7pm on Wednesday, the average AQI in 26 (out of 36 localities with pollution-monitoring stations) was in the ‘poor’ category. Two areas — Dwarka

and Anand Vihar — slipped into the ‘very poor’ zone, with readings of 311 and 348 respectively.

Senior scientists from the India Meteorological Department (IMD) said the spike in pollution levels was primary because of the large number of farm fires in neighbouring states and calm local winds, which had a relatively higher share of moisture, enabling local pollutants to hang close to the air near the ground levels instead of being dispersed higher in the atmosphere.

They also warned that the situation is likely to get worse in the coming days.

On Wednesday, the humidity levels in Delhi were 53%.

“The air quality is expected to remain in the ‘poor’ category this week,” said VK Soni, head of IMD’s environment and research department.

The Capital’s air quality had steadily worsened all month, a decline that accelerated on Friday, when the AQI reached the far end of the “moderate” zone at 198.

On Saturday, as winds calmed, the AQI reached 284, before climbing to 298 the next day. It then fell by over 250 points on the back of a record October rain on Monday.

Between Sunday and Monday, the national capital recorded 87.9mm rainfall, the fourth highest in a day ever in October, and the highest since 1956, when the city received 111mm rain, according to IMD data.

This resulted in the first good AQI day since August 31, 2020.

An analysis by the Union ministry of earth science’ air quality monitoring centre, System of Air Quality and Weather Forecasting and Research’s (Safar) shows that 746 fires were reported in Punjab and Haryana on Wednesday, contributing to 12% of Delhi’s PM 2.5 levels (particulate matter with diameter less than 2.5 micrometres).

“Fire emission from upwind region enhances PM2.5 concentration as winds at transport level are from northwest region. Stubble burning share is likely to increase in next two days if there is no rain. The overall AQI is likely to further degrade to higher end of poor for next three days,” Safar’s air analysis for Delhi read.

Their analysis also attributed the pollution spike to high stubble fire count, calm winds and low ventilation and local dust.

## Hyderabad's air quality drops as monsoon weakens

*Date:-22-October-2021, Source: siasat.com*



**An aerial view of Charminar**

Hyderabad: Hyderabad's air quality was in the satisfactory category until October 10. It has started falling since October 11 due to the weakening of the monsoon.

According to Telangana State Pollution Control Board (TSPCB) figures, the Air Quality Index (AQI), which indicates the level of air pollution, has started increasing since October 11.

The AQI of Hyderabad was below 100, Satisfactory Category, throughout the monsoon as due to rainfall, pollutants in the air get washed away resulting in an improvement in air quality. However, on Thursday, it has jumped to 125, Moderate Category.



At five out of six monitoring stations in the city, the pollutants, Particulate Matter (PM) 10 and PM 2.5, were higher. TOI quoted a senior official from TSPCB saying that the pollution level increased due to the weakening of monsoon and an increase in industrial & construction activities.

Earlier, during the lockdown in the State, the air quality of Hyderabad had improved from 'moderate' to 'good'. However, as soon as the lockdown was lifted, the quality had dropped.

### **What is AQI?**

AQI reports the air quality of a particular area. There are six categories based on AQI value, they are Good (AQI 0–50), Satisfactory (AQI 51–100), Moderate (AQI 101–200), Poor (AQI 201–300), Very poor (AQI 301–400), and Severe (AQI 401–500).

Increased vehicular traffic, construction work, resumption of MMTS, etc., can be blamed for the fall in Hyderabad's air quality.

### **IIT-Kanpur to study Delhi's air pollution, give solutions to curb winter smog spike**

*Date:-23-October-2021, Source: edexlive.com*



The Delhi government has signed a Memorandum of Understanding (MoU) with IIT Kanpur to understand the pollutants of air in Delhi on a real-time basis. According to Environment Minister Gopal Rai, this deal will help in suggesting short, medium and long-term recommendations for reducing air pollution contribution. Winter is coming to Delhi, and with it comes thick clouds of smog that greet the people every morning. While stubble burning in neighbouring states and industrial air pollution is attributed to the phenomenon, it often gets worse after the festival of Diwali. Last year, for example, the national capital recorded its worst Air Quality Index (AQI) in four years after Diwali. In 2017, the matter had touched severity when pollutants in the air were recorded at 999 - scores ahead of the accepted limit of 60-100.

The Environment Minister expressed satisfaction over the fact that the Aam Aadmi Party (AAP) government was the first to sign such an agreement. He said, "We are thrilled to sign this MOU and the Kejriwal government is the first state government in the entire country to implement such an advanced technology based solution."

The deal has been signed between IIT Kanpur and Delhi Pollution Control Committee (DPCC), which is the nodal agency in matters related to pollution in the city. The MoU was signed by Prof AR Harish, Dean of Research and Development from IIT Kanpur and KS Jayachandran, Member Secretary, DPCC.

IIT Kanpur will be working on a project titled Real-Time Source Apportionment and Forecasting for Advance Air Pollution Management in Delhi. As per the plan, scientists will now start working on this innovative project full swing.

The project was originally presented to the CM by Mukesh Sharma from IIT-Kanpur and was approved by the Delhi cabinet recently. "The technology to carry out real-time source apportionment of pollution has not been implemented in any other city in the country. Weekly, monthly, and seasonal interpretation of air quality will take place, along with additional knowledge of PAHs, molecular markers, and secondary organic and inorganic aerosols," added environment minister Rai.

There will also be a mobile van that will be stationed at various locations in Delhi in order to identify various sources of pollution in different localities of Delhi. The project will help identify the factors responsible for the spike in air pollution at any spot in Delhi. It will help understand the real-time impact of various pollution sources like vehicles, dust, biomass burning, stubble burning, and emissions from industries. Based on the results obtained, the

Delhi government will be able to take the necessary actions to curb the sources of pollution.

## Fight is on: Delhi govt to review hotspots to check pollution

Date:-24-October-2021, Source: timesofindia.indiatimes.com

**TACKLING WINTER POLLUTION**

Teams from various departments formed to control air pollution in the capital this winter

➤ To conduct day and night patrolling, act against polluting activities

**TEAMS TO FOCUS ON SIX SOURCES OF POLLUTION**

- 1 Road dust
- 2 C&D dust
- 3 Vehicular pollution
- 4 Open & stubble burning
- 5 Industrial pollution
- 6 Firecrackers

**150 new hotspots identified**

➤ Based on maximum complaints received on the Green Delhi app in the last one year

➤ Agencies concerned told to focus on these hotspots

Photo: Anindya Chattopadhyay

**PRAGATI MAIDAN**

| Pollution source   | No. of hotspots identified |
|--|----------------------------|
| Road dust  | 41                         |
| Dust due to C&D waste  | 7                          |
| Illegal dumping of garbage   | 60                         |
| Air pollution from sources other than industries                       | 14                         |
| Burning of garbage/ plastic waste/ biomass/ garden waste               | 23                         |
| Illegal dumping of C&D waste on roadside/public land/Yamuna floodplain | 5                          |

NEW DELHI: Delhi government's department of environment, which identified 150 pollution hotspots based on complaints received on the Green Delhi app in the past year, will review these after a month to see if there has been any improvement. The agencies concerned have been asked to focus specially on these locations. At the

same time, 544 teams drawn from different departments have been constituted to conduct day and night patrolling against six major sources of pollution.

Delhi had declared 13 locations as pollution hotspots in 2018 on the basis of poor air quality levels, but the state government listed 150 new hotspots this month after these were cited in the maximum number of complaints on the Green Delhi app. "Next month, we will assess these hotspots and check if the number of complaints about these places has gone down. We will then take action accordingly," said an environment department official.

The new hotspots, identified at micro-levels such as roads, have been categorised on the sources of pollution, including road dust, construction and demolition waste, illegal dumping of garbage, emissions from sources other than industry and burning of biomass, garden waste, garbage and plastic waste. Of the 150 places in the list, the source of pollution at 60 is illegal dumping of garbage on roadsides or on vacant plots, while 41 are plagued by road dust. Though the 150 troublesome spots are spread across all the 11

districts of Delhi, most are located in six districts: West, South, Central, North-west, Shahdara and New Delhi.

Meanwhile, 544 teams belonging to different departments have been constituted to control air pollution in the winter months. “Every year, all the departments concerned constitute their own teams for monitoring the sources of pollution. However, this is the first time when we have made centralised teams and each department will be submitting details of action taken in their respective areas to Delhi Pollution Control Committee every day,” said an environment department official.

For instance, for vehicular pollution, the agencies concerned will have to submit details like extent of pollution-under-check scrutiny conducted daily, number of 10- and 15-year-old vehicles impounded, number of challans issued to C&D transport vehicles, challans issued for parking violations, number of new electric vehicles registered and number of new charging points for e-vehicles commissioned. “The centralised system will help in monitoring all sources of pollution,” said the official.

### **Delhi's air quality improves to 'moderate' with rains; cloudy sky on forecast today**

*Date:-25-October-2021, Source: indiavnews.com*



**Delhi air quality continues to be moderate**

Air quality in the national capital improved to the 'moderate' category on Monday while rains in Delhi brought down the temperature. According to the India Meteorological Department (IMD), a partly cloudy sky with maximum and minimum temperatures around 31 and 18 degrees Celsius respectively, is on the forecast today.

The System of Air Quality and Weather Forecasting And Research (SAFAR) recorded the overall Air Quality Index (AQI) at 135 on Monday morning.

"Due to scattered rainfall AQI will improve slightly over the next 24 hours and then again degrade to moderate," SAFAR said.

The concentrations of PM 2.5 and PM 10 stood at 68 and 152 respectively in the national capital. SAFAR has predicted AQI in Delhi tomorrow to be 122.

Notably, the air quality in the national capital was in the "poor" category last week with an increase in stubble burning.

In presence of local dry weather and southwesterly wind, local dust emission will enhance PM10. Additional dust input from desert areas via transport is very likely in the national capital, according to SAFAR, which is under the Centre's Ministry of Earth Science.

Stubble burning effective fire count as per SAFAR model is 735 and its share in PM2.5 is 2 per cent.

The impact of fire emission will be low as wind is mainly from south-westerly.

With the change in wind direction from south-westerly to north-westerly, the AQI may degrade.

An AQI between 0-50 is marked good, 51-100 is satisfactory, 101-200 is moderate, 201- 300 is poor, 301-400 is very poor and 401-500 is considered severe.

Meanwhile, Delhi Government has started the 'Red Light On, Gaadi Off' campaign from October 18 with an aim to tackle air pollution and the first phase of the campaign will run till November 18.



## **Delhi's air quality has been surprisingly good in Oct, but smog may be on way**

*Date:-26-October-2021, Source: hindustantimes.com*



### **A man performs yoga on a hazy morning at Sanjay Lake in New Delhi**

The air quality this October in Delhi is not only better than last year, but also the best in at least the past four years. Covid-19 related restrictions and their impact on mobility would suggest that this improvement in air quality should have happened in 2020, not 2021. After all, transport and industry are important contributors to pollution, and both mobility and economic activity are higher this year.

If things are better, it's because of a drastic change in weather conditions this year that has prevailed over these factors and reduced air pollution – for the time being. This also means that when these conditions change, we might return to business-as-usual, which, in the case of Delhi, means smog.

### **Air quality this October is the best in at least four years...**

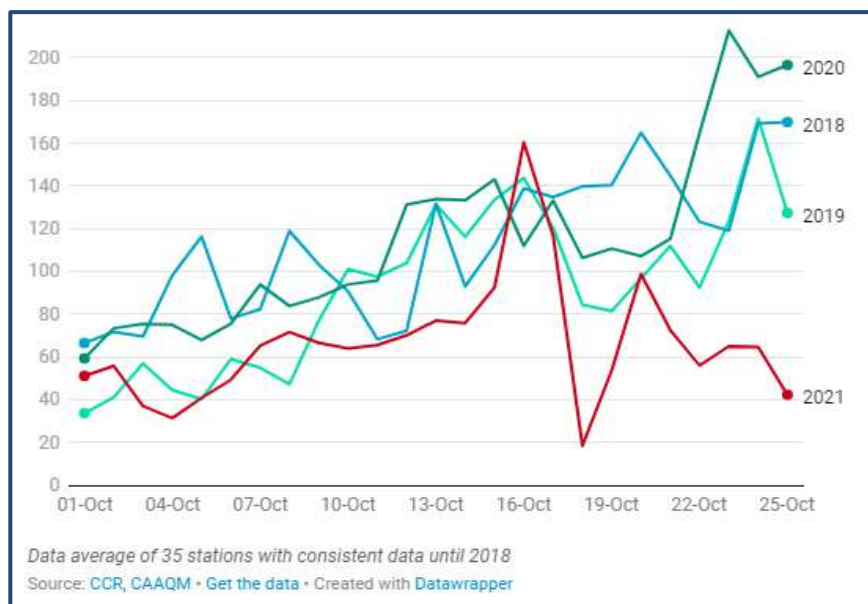
One metric of air pollution available more consistently than others is the concentration of PM2.5 particles, or particles smaller than 2.5 micrometers wide that penetrate deep into the lungs and bloodstream. On 18 of the first 25



days of October, the 24-hour average of PM2.5 concentration in Delhi was less than in all the years after 2018. It suggests that air quality in October has been much better. To be sure, October 2021 has had four days when PM2.5 concentration was in the poor or worse categories.

### **PM2.5 concentration is lower than usual this October**

Average PM2.5 concentration in Delhi (microgram per cubic metre)



Why is this comparison limited to after 2018? The Central Control Room for Air Quality Management (CCR) shows that PM2.5 data is available from 40 different stations for Delhi. However, only 35 of them have consistent data from 2018 for October. In 2017, this number

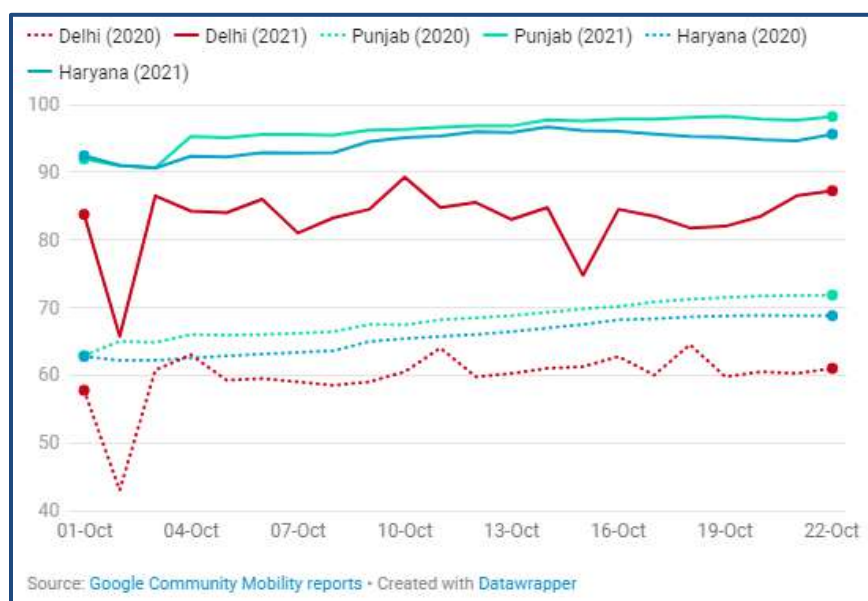
falls to 15. This comparison is limited to after 2018 so that we have a sufficient number of stations to better represent Delhi's air, and its quality also remains comparable across years. This means that it is possible that Delhi's air quality is better this October than in a longer time period than four years.

### **despite higher mobility and economic activity**

The reason good air in October is surprising is because movement of people and economic activity is both higher this year than in 2020. An improvement in air quality 2020 – as it did happen during the 68-day lockdown starting March 25 – could be explained because the sources of pollution were shut. Google mobility data shows this is not the cause for improved air in October 2021. Mobility levels in Delhi, as well as in the neighbouring north-western states of Punjab and Haryana, are far higher this October than last year. An analysis published in HT on October 26 showed economic activity is also higher this October than at the same time last year.

## Mobility levels in October are higher this year and in 2020

Average mobility levels (excluding visits to grocery, pharmacy, and residence)



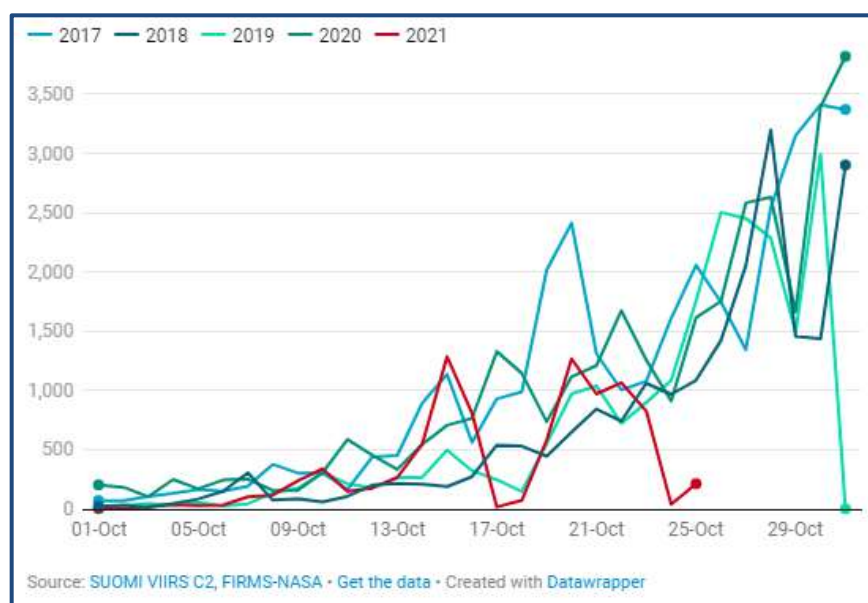
### Weather, not sources of pollution, is the likely reason for better air this October

As the above data suggests, vehicular and industrial sources of pollution are unlikely to have driven the improvement in air quality.

There is a third source of pollution that becomes important at this time of the year – farm fires in Punjab and Haryana. Data shows that farm fires are also somewhat lower this year, especially in the second-half of the month when the number of fires is usually more. On eight days until October 25, farm fires were the lowest since 2017. Five of these eight days have come after October 15.

### Farm fires are lower this year than usual

Fires detected in Punjab and Haryana



One reason for a lower number of farm fires is that paddy procurement was postponed from October 1 to October 11. This could possibly have delayed clearing of farms for the next crop, which is why the stubble is burnt. Another likely reason for lower

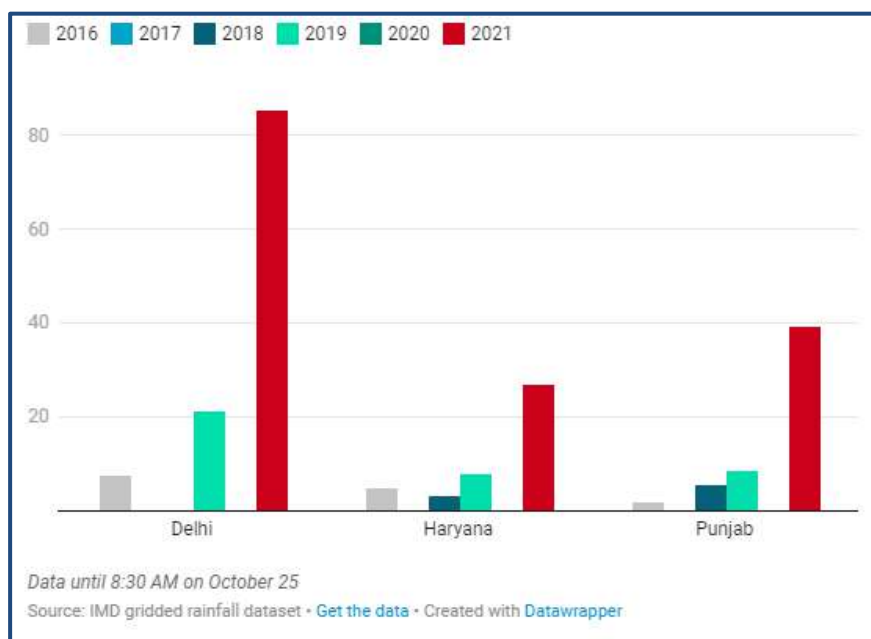
number of fires is the rainfall this October. Until 8:30 AM on October 25, rainfall in Punjab and Haryana has been 290% and 192% more than the average rainfall for the same interval between 1960 and 2010, also called the Long Period Average, according to the India Meteorological Department's gridded rainfall database.

Such rainfall, apart from preventing fires, has also likely cleared existing pollutants in the air from other sources. In not only Punjab and Haryana, but also in Delhi, the rainfall this October has been much higher than in all years for which comparable air quality data is available.

### **Rainfall this October has been exceptionally high**

Total rainfall until October 25 (mm)

### **Good air dependent on weather is not sustainable**



If the farm fires have just been delayed, it is likely that farmers will be even more compelled to take the faster route of burning the stubble to clear the fields for their next crop.

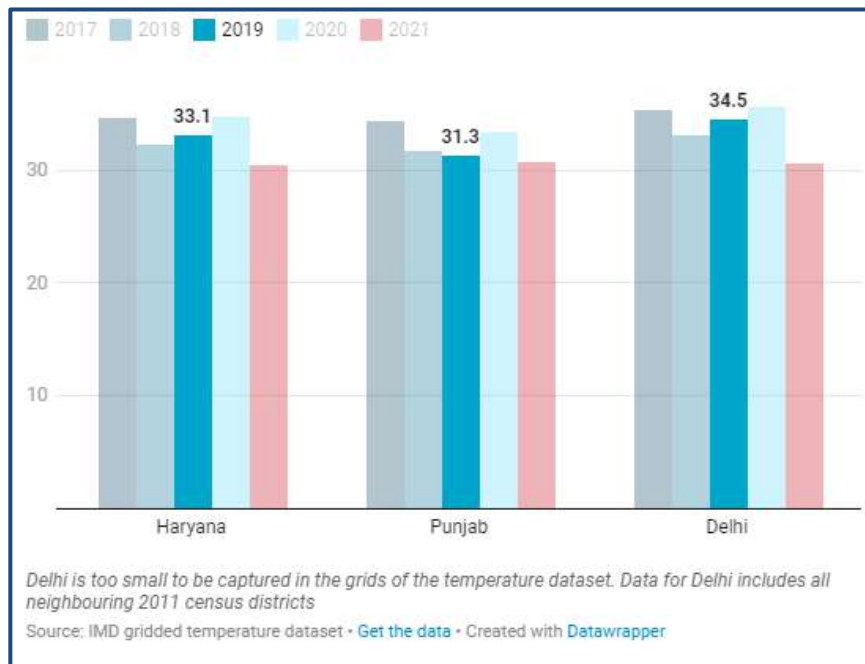
This can possibly bring an even bigger peak in air pollution later on. This situation can also be

complicated by the trend in temperatures so far this October.

The maximum temperatures in Punjab, Haryana and Delhi, especially in the past one week, have been lower than in the past four years for which air quality data is available. Maximum temperatures are daytime temperatures.

## Maximum temperatures have been low in the second half of October

Average maximum temperature in the week ending October 24 (degree Celsius)



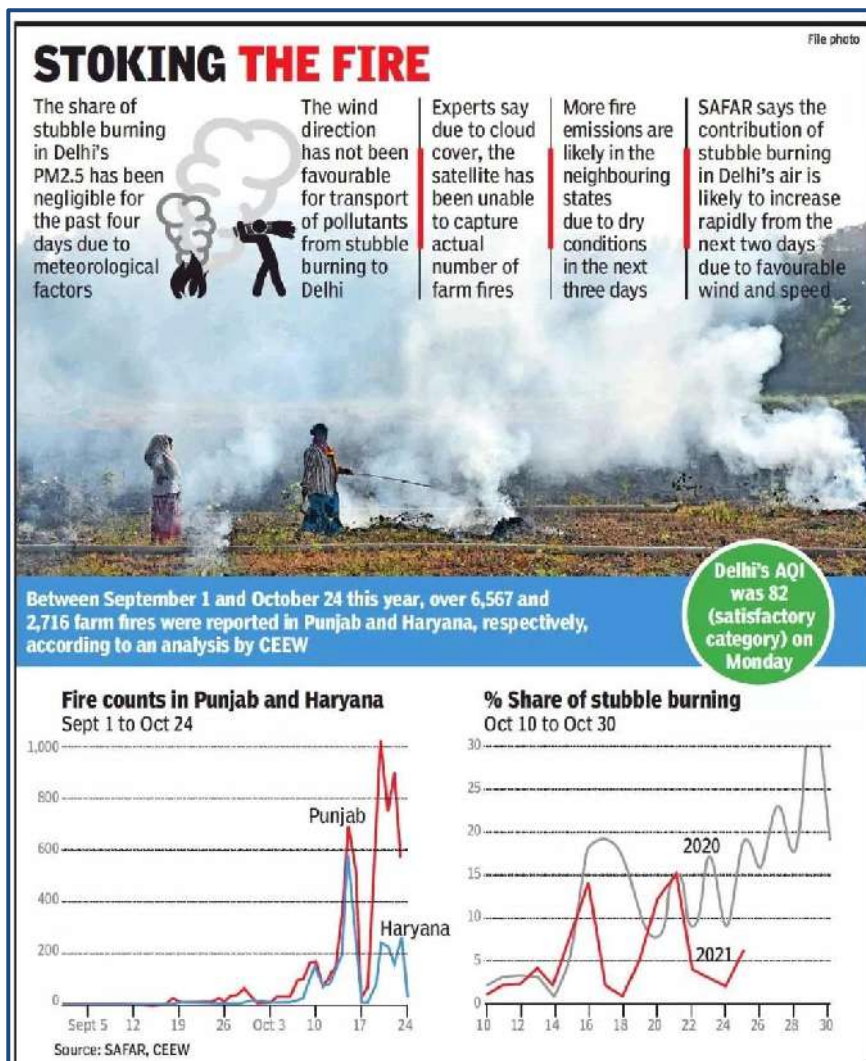
A higher temperature during the day prevents the accumulation of pollutants close to the ground. This has been prevented so far because of rainfall. Without a curb on the sources of air pollution, a quick reversal to bad air quality days will not be surprising. But for now, breathe.

## Stubborn stubble: Delhi's agony set to return

*Date:-27-October-2021, Source: timesofindia.indiatimes.com*

NEW DELHI: The emission from harvest remnant burning in the PM2.5 pollutants in Delhi's air has been negligible for the past four days due to meteorological factors. However, the farm fires are likely to increase and stubble burning is expected to impact Delhi's air quality rapidly from October 27. The 'satisfactory' air after Sunday's rain is, in that regard, a short-lived respite for Delhiites. Track the pollution level in your city

System of Air Quality and Weather Forecasting and Research (SAFAR), the Union earth sciences ministry's forecasting body, foresees more stubble fires in the coming days. Gufran Beig, founder and project director, SAFAR, said, "Due to rain and cloud cover, satellites haven't been able to capture with accuracy the incidence of farm fires. For instance, just 127 farm fires were spotted in the last 24 hours when the fire emission proportion in Delhi's PM2.5 was 6%."



In its bulletin on Monday, SAFAR forecast, "More fire emission is likely due to dry conditions over the next three days in the upwind, northwest region. Due to this, PM2.5 will increase. The effective fire counts observed in the last 24 hours are just 127 and their contribution in Delhi's PM2.5 is 6%. However, as satellites highly underestimate the counts during cloudy and rainy periods, actual counts might be much higher."

SAFAR added that with transport level

winds blowing in from Punjab and Haryana, enhancing the intrusion likelihood in terms of speed and direction and no likelihood of rainfall, the impact of farm fires in Delhi's AQI was likely to be increasing rapidly from October 27. While the AQI was 82 in the 'satisfactory' category on Monday, SAFAR predicts the index on October 27 and 28 to be in the high end of 'poor' category or the lower end of 'very poor' category.

L S Kurinji, programme associate, Council on Energy, Environment and Water, added that between September 1 and October 24, over 6,567 fire were reported in Punjab and 2,716 in Haryana. Kurinji said, "The share of stubble burning in Delhi's PM2.5, however, remained less than 5% for the past three days due to southwesterly winds. The rain on Sunday also brought down the particulate levels to below the permissible limits of 60 microgramme per cubic metre. For the next two days, predicted northwesterly winds may support the movement of smoke from the neighbouring states to Delhi-NCR."



Tanushree Ganguly, programme lead, CEEW, felt that action had to be taken against year-round sources of pollution in Delhi, including transport, road and construction dust and disposal of municipal waste. "Delhi government must use insights from the newly developed Decision Support System in its planning and preventive and responsive measures," she said.

### **Delhi: In first for the season, temp below 15°C as AQI worsens**

*Date:-28-October-2021, Source: hindustantimes.com*



#### **A haze over the Yamuna river during sunrise on Wednesday**

The mercury fell below the 15-degree Celsius mark on Wednesday morning for the first time this winter, with the minimum temperature recorded at 14.6 degrees Celsius — two notches below normal — as Delhi's air quality deteriorated sharply in the last 24 hours, and was expected to get over the rest of the week.

Delhi's overall Air Quality Index (AQI) was recorded at 232 (poor), from Tuesday's reading of 139 (moderate), largely owing to a rise in farm fires across the northern plains as the contribution of stubble burning in Delhi's overall PM 2.5 concentration touched a season high of 16%, data from the System of Air Quality and Weather Forecasting and Research (Safar) showed.



Safar, which comes under the Union ministry of earth sciences, has forecast that the air quality will further deteriorate “rapidly” in the next 24 hours to touch “very poor” by Thursday, and then hit the higher end of the “very poor” category by Friday.

“Delhi’s AQI is in the ‘poor’ category. The effective fire count of stubble burning in the northwest region of Delhi is 656 and its share in PM2.5 is 16% as transport level winds are north westerly. AQI is now forecasted to deteriorate rapidly and slip to the ‘very poor’ category by Thursday and deteriorate further to the higher end of the ‘very poor’ category by Friday,” SAFAR said on Wednesday, stating that calm local winds, along with highly favourable transport-level winds (northwesterly winds that will bring pollution from Punjab and Haryana towards Delhi) are expected to enhance stubble-burning related intrusion.

“Any increase in fire counts in the next three days would increase the finer particle levels of Delhi,” it added.

Prior to Wednesday, the highest contribution of stubble burning in Delhi’s air was 15% on October 21.

Two stations – Shadipur and Anand Vihar were in the “very poor” category, with readings of 316 and 313 respectively.

An AQI between 51 and 100 is classified as “satisfactory”, between 101 and 200 is “moderate”, between 201 and 300 is “poor”, and between 301 and 400 is “very poor”. An AQI over 401 is meanwhile classified as “severe” by the Central Pollution Control Board. The Capital’s air quality deteriorates to hazardous levels every winter, plunging the city into a public health emergency.

Anumita Roy Chowdhury, executive director, research and advocacy at the Centre for Science and Environment (CSE) says while a delayed monsoon has helped control pollution spikes, historical data shows an episodic smog event is generally seen in late-October and early November, coinciding with stubble burning peaks and Diwali.

“With the current meteorological conditions, we may see another such event before or around Diwali and the exposure to air pollution during this period is at its peak. With Covid-19 still around, as a community, we may have to avoid exposure to outside air and this is generally seen each year when regulatory agencies ask people to avoid stepping out or exercising during smog events,” she said.

Safdarjung, Delhi's base station recorded a maximum temperature of 28.2 degrees Celsius on Wednesday – three notches below normal, while the minimum was recorded at 14.6 degrees. Mayur Vihar recorded the lowest maximum temperature on Wednesday at 26.8 degrees, while the lowest minimum across Delhi was 14.1 degrees Celsius at Mungeshpur.

A Met official says local winds are becoming calm at night, which coincides with a drop in temperature, leading to a spike in pollution late at night and in the morning. "Following the rain, there is also moisture in the air and you are now seeing a slight haze at night. Calm winds mean the contribution from stubble burning and local pollutants are now becoming trapped and similar conditions are expected in the next few days," said the official who asked not to be named.

IMD has forecast the minimum temperature to remain around 14 degrees Celsius for the next two days, and said it could dip to 13 degrees by Saturday.

The maximum temperature, meanwhile, is expected to remain below 30 degrees till the end of the week.

### **City's air quality likely to be 'very poor' today**

*Date:-29-October-2021, Source: thehindu.com*

The air quality in the city deteriorated to the higher end of the "poor" category on Thursday and is expected to worsen to the "very poor" level on Friday, official data showed. The effect of stubble burning has increased and is likely to further go up.

"As predicted by SAFAR, the AQI is now forecasted to degrade to the very poor category by tomorrow and likely to remain so till the next day," government-run monitoring agency SAFAR (System of Air Quality and Weather Forecasting and Research) said in a statement.

On Thursday, the contribution of stubble burning in neighbouring States to PM2.5, a chief pollutant, in Delhi increased to 19% and the number of active fires counts in the region was 502.

The air quality index (AQI) of Delhi was 268 on Thursday, up from 232 on Wednesday, as per the Central Pollution Control Board's 4 p.m. bulletin, which is an average of the last 24 hours and considered the day's AQI.

An AQI between 0 and 50 is considered “good”, 51 and 100 “satisfactory”, 101 and 200 “moderate”, 201 and 300 “poor”, 301 and 400 “very poor”, and 401 and 500 “severe”.

### Chatbot

The Delhi Government has launched ‘Paryavaran Saathi Chatbot’ to connect with the youth in the fight against air pollution, Environment Minister Gopal Rai said.

The chatbot is an initiative with the UNICEF’s YuWaah with over 10 lakh youths already connected, of whom 50,000 are from Delhi, according to the government.

“One can simply text ‘Hi’ on WhatsApp to 9650414141 to talk to the chatbot and become an active contributor to the Government’s movement against pollution. Paryavaran Saathi Chatbot is a medium to engage the youth by making them the ‘Paryavaran Saathis’. These saathis will be given points based on their participation and the top 100 will be felicitated,” Mr. Rai said.

The Delhi Government on Thursday also urged all departments to reduce use of single use plastic and issued a list of alternatives, including bamboo bottles and mugs, cloth banners, and paper and bamboo straws.

### **All 'green crackers' have toxic heavy metals: Awaaz Foundation**

*Date:-30-October-2021, Source: timesofindia.indiatimes.com*



**The new WHO guidelines of September 2021 say that such an air pollution could lead to reduced lung growth and function, respiratory infections and aggravated a asthma among children**

MUMBAI: After Awaaz foundation found only one cracker out of 12 samples of 'green crackers' flouting the noise levels, shockingly it has found almost all of them containing the toxic heavy metals such as mercury, lithium, lead and arsenic.

These metallic elements are considered systemic toxicants that are known to induce multiple organ damage, even at lower levels of exposure. They are also classified as human carcinogens (known or probable) according to the international environmental protection agencies and the International Agency for Research on Cancer. They also contribute to greenhouse gas emissions and thus the climate change.

"Foundation also got commonly available 'green crackers' tested for heavy metal contents with the help of two independent laboratories. The test results are truly shocking, as both the labs found them to contain dangerous and banned metals viz. mercury, lead and arsenic," foundation's convenor Sumaira Abdulali has revealed in her letter to chief minister Uddhav Thackeray.

According to Abdulali, independent results show that these green crackers are avowedly violating the orders passed by the Supreme Court of India that firecrackers in any case shall not contain antimony, lithium, mercury, arsenic and lead in whatsoever form. She, however, demanded that since conducting tests from independent private laboratories is expensive for an NGO to sustain, the government should order such tests in the interest of environment, human and animal health.

Recently the mandatory QR Codes which can track emission levels and are published alongside NEERI certification on the packs of green crackers have been found to be fake by the foundation. Also, a number of other citizens attempting to verify them through an app developed by NEERI, the same government agency which has developed chemical formula for 'green crackers', have found them fake.

"These facts were also placed before the Supreme Court while hearing an application by the petitioner Arjun Gopal on Friday. SC while admitting foundation's test results on record, has directed an enquiry into fake green crackers and made senior government officers personally responsible for enforcing them," she has revealed further in her letter.

"One of the laboratories has also found other dangerous contents including cadmium, sulphur, strontium and chlorine. All of these are extremely dangerous to health, as they contribute to toxic air pollution," she has pointed out in a letter also addressed to Aaditya Thackeray, the environment minister.

The new WHO guidelines of September 2021 say that such an air pollution could lead to reduced lung growth and function, respiratory infections and aggravated asthma among children. The WHO has also recommended lower air

quality levels for six pollutants including sulphur dioxide ahead of the CoP26 Climate negotiations in Scotland and has said that air pollution is one of the biggest environmental threats to human health, alongside climate change.

"Sulphur and its oxides are a leading cause of acid rain. Firecrackers also emit greenhouse gases and carbon dioxide. State's Mumbai Climate Action Plan has already acknowledged that air pollution levels in Mumbai are dangerously high and that there is an urgent need to control air pollution. We request that the state should ban all fake 'green crackers' from distribution, sale and use to safeguard health, environment and climate change," her letter to the CM stated at the end.

## **Delhi's October Air Quality Best In 4 Years, Courtesy Record Rainfall**

*Date:-31-October-2021, Source: ndtv.com*



**Delhi recorded a "good" air day in October this year, also a first in four years**

New Delhi: An extended monsoon season and record-breaking rainfall in October gave Delhi its best air quality in the month in four years, according to data from the Central Pollution Control Board (CPCB).

This is also the first time in four years that Delhi did not see a single "very poor" or "severe" air quality day in October which generally records a sharp rise in pollution levels due to unfavourable meteorological conditions and stubble burning in the northwest region of the capital.

The capital recorded a "good" air day in October this year, also a first in four years.

An AQI between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe"

Delhi gauged 122.5 mm of rainfall in October, the highest in the month since 236.2 mm of precipitation recorded in 1956, according to the India Meteorological Department.

Stubble burning and its share in Delhi's PM<sub>2.5</sub> pollution also remained low due to heavy rain.

According to data from the Indian Agricultural Research Institute, Punjab has recorded 10,374 farm fires this season since September 15 as compared to 29,712 stubble burning incidents in the corresponding period last year.

The city recorded an average air quality index of 173 in October this year, the lowest in the month in four years.

October saw an average AQI of 265 in 2020; 234 in 2019 and 264 in 2018.

The CPCB data showed the city witnessed three "satisfactory" air quality days in October this year as compared to zero in 2020, four in 2019 and nil in 2018.

The capital also saw 19 "moderate" air quality days as against six such days each in 2020, 2019 and 2018.

Eight "poor" air quality days this month was the lowest in October since 2018.



**November 2021**

**Delhi Air Pollution: Air quality turns 'very poor' ahead of Diwali, likely to improve today**

*Date:-1-November-2021, Source: english.jagran.com*



New Delhi | Jagran News Desk: The air quality of Delhi-NCR on Monday morning plunged to the 'very poor' category after the air quality index (AQI) breached the grim mark of 302, said the System of Air Quality And Weather Forecasting and Research (SAFAR) while adding that the share of crop residue burning emissions in PM2.5 is about 8 per cent.

However, the SAFAR has predicted that the air quality in the NCR is expected to "improve to the upper end of poor" from Monday as the wind direction will likely change from north-westerly to westerly and south-westerly, reducing the "transport of emissions from stubble burning".

"Isolated rainfall is likely in the upwind region that would improve air quality," said the Centre-run SAFAR, as reported by news agency ANI.

Notably, the India Meteorological Department (IMD) had also predicted that the air quality in the Delhi-NCR will stay in the lower end of 'very poor' category till Thursday. However, it has also warned that the air quality might "significantly" deteriorate from November 5.

"Isolated rainfall is likely in the upwind region that would improve air quality," said the Centre-run SAFAR, as reported by news agency ANI.

Notably, the India Meteorological Department (IMD) had also predicted that the air quality in the Delhi-NCR will stay in the lower end of 'very poor' category till Thursday. However, it has also warned that the air quality might "significantly" deteriorate from November 5.

GRAP, which was approved by the Supreme Court in 2016, is a set of action plans formulated by the Environment Pollution Authority (EPCA) to control air pollution in Delhi-NCR.

"Mechanical/ vacuum-based sweeping of roads to be carried out daily. Ensure water sprinkling along with use of dust suppressants on roads to arrest road dust especially at hotspots, heavy traffic corridors, vulnerable areas (before peak hours) and proper disposal of dust collected in designated sites/ landfills," said Sub-Committee on GRAP in its order.

### **Air quality set to plummet in India's capital after clean spell**

*Date:-2-November-2021, Source: reuters.com*

NEW DELHI, Nov 2 (Reuters) - Intermittent rain and winds led to a rare drop in pollution in India's capital last month, with residents breathing the cleanest air in at least four years, but authorities warn that air quality is set to drop sharply in November.

A delayed end to the monsoon and a sharp pick-up in wind speeds ensured that the concentration of hazardous, small airborne particles known as PM2.5 in a cubic metre of air averaged 72 in October when air quality typically takes a turn for the worse.

That was sharply down from an average concentration of 126 recorded in October 2020 - 25 times over the World Health Organization's safe limit - according to data gathered by the state-run Central Pollution Control Board.



**A man sprays newly-developed bio-decomposer solution in a field to prevent stubble burning, in New Delhi, India, October 13, 2020**

But factors including falling temperatures, a drop-off in wind speed and farmers torching crop stubble are likely to turn the air hazardous.

"Because of frequent rains, most farmers didn't get to burn crop stubble, and now they have an even shorter window to dispose of crop waste," said Anumita Roychowdhury, an executive director at the Centre for Science and Environment think tank.

India should actively strive for an earlier date of zero emissions after reassessing the situation in coming years, said Avinash Kumar Chanchal, senior climate campaigner at Greenpeace India.

"The next ten years are going to be crucial in achieving the climate target, and the action plan must start reducing emissions at sources, as fast and as much as possible," he said.

Adding to concerns over air quality in New Delhi, the Diwali festival of lights falls on Thursday when Indians set off firecrackers as part of an ancient Hindu tradition.

"The October air was clean, but we're really worried about November," said a senior government official involved in framing policies to curb air pollution. "Stubble burning could peak right after Diwali."

Since 2018, India has given individual farmers a 50% subsidy and farm cooperatives an 80% subsidy to buy machines that dispose of rice stubble left out in the field by mechanised harvesters.

Despite the subsidies, the machines are expensive. Farmers also complain that they need to pay upfront and then claim subsidies later - a process that takes about 10 months.

In October, crop waste burning came down by 52% against the same month last year, government data showed.

In Lahore in neighbouring Pakistan, not far from the border with India, the air quality index rose to 341, the worst in the world on Monday, according to IQ Air. On Tuesday, air quality in Pakistan's second-most populous city was 162.

In the winter months, industrial and vehicular emissions, smoke from brick kilns and crop stubble fires lead to a sharp spike in air pollution in Lahore, just as in India.

### **Delhi News highlights: Capital's air quality enters red zone first time this season**

*Date:-3-November-2021, Source: indianexpress.com*

Air quality in the national capital entered the "very poor" category for the first time this season on Tuesday due to unfavourable conditions for dispersion of pollutants, authorities said. Stubble burning accounted for six per cent of PM2.5 pollution in Delhi. The rest of the pollution is due to local sources, said Gufran Beig, the founder project director of SAFAR, a government framework for air quality forecasts.

The Gurgaon district administration on Tuesday cancelled permission to offer namaz at eight sites, which were among a list of 37 designated sites approved earlier where Friday prayers are offered under police protection in the city. In a

statement, the district administration said that the decision was taken after “objection from local residents and resident welfare associations”.



### **Stubble burning accounted for six per cent of PM2.5 pollution in Delhi**

Meanwhile, Facebook India requested an extension of 14 days to appear before the Delhi Legislative Assembly’s Committee on Peace and Harmony to “ensure the availability of senior representatives with the requisite knowledge” who are “best placed to provide the Committee with the data required”, the government said Tuesday. The proceedings have now been rescheduled to 12.30 pm on November 18. The committee is examining the “unprecedented communal disharmony and violence in Delhi in February 2020”.

The India Meteorological Department (IMD) has predicted a minimum temperature of around 15 degree Celsius and maximum of 30 degree Celsius for Delhi-NCR on Tuesday. Over the next six days, the minimum temperature could drop to around 13 degree Celsius, the IMD’s seven-day forecast suggests.

### **Toxic smog chokes Indian capital during Diwali celebrations**

*Date:-4-November-2021, Source: straitstimes.com*

NEW DELHI (AFP) - India's capital was choked in a shroud of thick, toxic smog on Thursday (Nov 4) as millions gathered with family and friends to celebrate the Hindu festival of Diwali.





### **New Delhi is ranked as one of the most polluted cities globally**

New Delhi is ranked as one of the most polluted cities globally, with a hazardous melange of factory emissions, car exhaust and smoke from agricultural fires settling in the skies over its 20 million people each winter.

People across the sprawling city woke to find themselves enveloped in a grey-yellow blanket of haze, with experts warning of worse to come in the days ahead.

Levels of PM<sub>2.5</sub> - the smallest and most harmful particles polluting the air - peaked at an average of 389 on Thursday, according to readings from metropolitan monitoring stations run by government air quality agency SAFAR.

The figure is more than 15 times higher than the safe limits set by the World Health Organisation.

SAFAR advised residents to avoid outdoor activities and wear masks when outside.

The agency also warned that illegal fireworks traditionally used to mark the Diwali festival could further heighten pollution levels on Friday.



Delhi and many neighbouring cities have banned or highly restricted their use to avoid a spike in air pollution.

In the lead-up to the festival, police seized four tonnes of firecrackers from around the city and arrested dozens selling them illegally.

The capital witnesses its annual smog crisis at the onset of winter, when temperatures drop and air moisture levels rise.

Low wind pressure over the city often traps pollutants emanating from vehicles and industries.

The problem is compounded by agricultural fires, set by farmers in neighbouring states to clear their lands of crop residue before the next planting season.

The practice was banned in 2015 but continues unabated, and smog levels are set to spike further in the coming days as the burning reaches its annual peak.

"The share of pollution from stubble burning has increased from eight per cent to 25 per cent today and on Friday it will be 40 per cent," Dr Gufran Beig, SAFAR's programme director, told AFP.

A 2020 report by Swiss organisation IQAir found 22 of the world's 30 most polluted cities were in India, with Delhi ranked the most polluted capital globally.

The same year, the Lancet said 1.67 million deaths were attributable to air pollution in India in 2019, including almost 17,500 in the capital.

### **Air quality, fog condition to improve once wind speed picks up; expert's view on Delhi's air pollution**

*Date:-5-November-2021, Source: zeenews.india.com*

New Delhi: New Delhi has the worst air quality of all world capitals, but even by its grim levels Friday's (November 5) reading was extra bad as the bursting of firecrackers on Diwali contributed to the air pollution of the national capital amid rising bio-mass burning.

Residents in several parts of Delhi-NCR woke up with an itchy throat and watery eyes as a thick layer smog engulfed the region on Friday (November 5) which was a result of cracker bursting on Diwali night.



Senior scientist at India Meteorological Department (IMD), R K Jenamani said, fog conditions intensified in Delhi-NCR on Friday (November 5) morning lowering visibility at the Indira Gandhi International Airport and the Safdarjung Airport to the range of 200 to 500 metres at 5:30 am. Visibility in parts of the city dropped to 200 metres.

According to the Central Pollution Control Board (CPCB), the 24-hour average concentration of lung-damaging fine particles known as PM<sub>2.5</sub> in Delhi-NCR shot up from 243 micrograms per cubic metre at 6 pm on Thursday (November 4) to 410 micrograms per cubic metre at 9 am on Friday (November 5), around seven times the safe limit of 60 micrograms per cubic metre.

The PM<sub>10</sub> levels crossed the 500 micrograms per cubic metre mark around 5 am on Friday (November 5) and stood at 511 micrograms per cubic metre at 9 am.

According to the experts, the air quality turned severe owing to unfavourable meteorological conditions -- calm winds, low temperature and low mixing height -- and a poisonous cocktail of emissions from firecrackers, stubble burning and local sources and it may worsen further on Friday as an increase in fumes from farm fires likely.

## **Stubble burning emissions account for 36% of Delhi's pollution: SAFAR**

*Date:-6-November-2021, Source: hindustantimes.com*



### **Public Works Department (PWD) workers spray water to curb the air pollution in New Delhi on November 6, 2021**

As Delhi's air quality stayed at "severe" category for the second consecutive day on Saturday, emissions from stubble burning accounted for 36 per cent of the pollution share, Centre-run System of Air Quality and Weather Forecasting and Research (SAFAR) said.

In the last 24 hours, SAFAR added, the PM<sub>2.5</sub> pollutants' concentration across the national capital has become higher than in 2020 but "much less than that in 2018." "However, it may be noted that local winds have picked up since morning and now the fast dispersion is expected," SAFAR forecasted.

The central agency further predicted the contribution of stubble burning to remain almost the same today, and that the air quality in Delhi is expected to improve to "very poor" by tonight if no more firecrackers are burnt in the city.

The Aam Aadmi Party (AAP)-led government in Delhi had imposed a blanket ban on the sale, use and bursting of firecrackers, including green ones, on

Diwali. However, the prohibition was widely flouted resulting in the air quality of the capital degrading to “severe” category by Thursday 9pm. It was the first time this season that the air quality index (AQI) dipped beyond the “very poor” category in the city.

In fact, on Friday – a day after Diwali celebrations, Delhi reported the highest average AQI at 462 in five years. Last year, the AQI on Diwali’s next day was recorded at 435. As per SAFAR, the PM2.5 levels yesterday was also the highest in three years owing to firecracker bursting as well as stubble burning. However, SAFAR clarified that it was still better in comparison to 2018.

According to the latest data provided by the SAFAR, PM2.5 and PM10 levels stand at 306 and 439, respectively, in Delhi with both being in the “severe” category, at 4pm. The central agency has forecasted PM10 levels to reach “poor” and PM2.5 levels to “very poor” category on Sunday.

Citing a report, environmental activist Vimlendu Jha told news agency ANI that people living in Delhi and the National Capital Region (NCR) lose 9.5 years of their lives because of air pollution.

### **Delhi: Farm fires at season’s high, share in bad air jumps too**

*Date:-7-November-2021, Source: timesofindia.indiatimes.com*



**The effective fire count comprises the number of fires that can impact Delhi’s air.**

**NEW DELHI:** Saturday recorded the highest single-day effective harvest stubble burning count at 5,159. The share of farm fires to Delhi’s PM2.5 pollution level also rose from 36% on Friday to 41% on Saturday, according to System of Air Quality and Weather Forecasting and

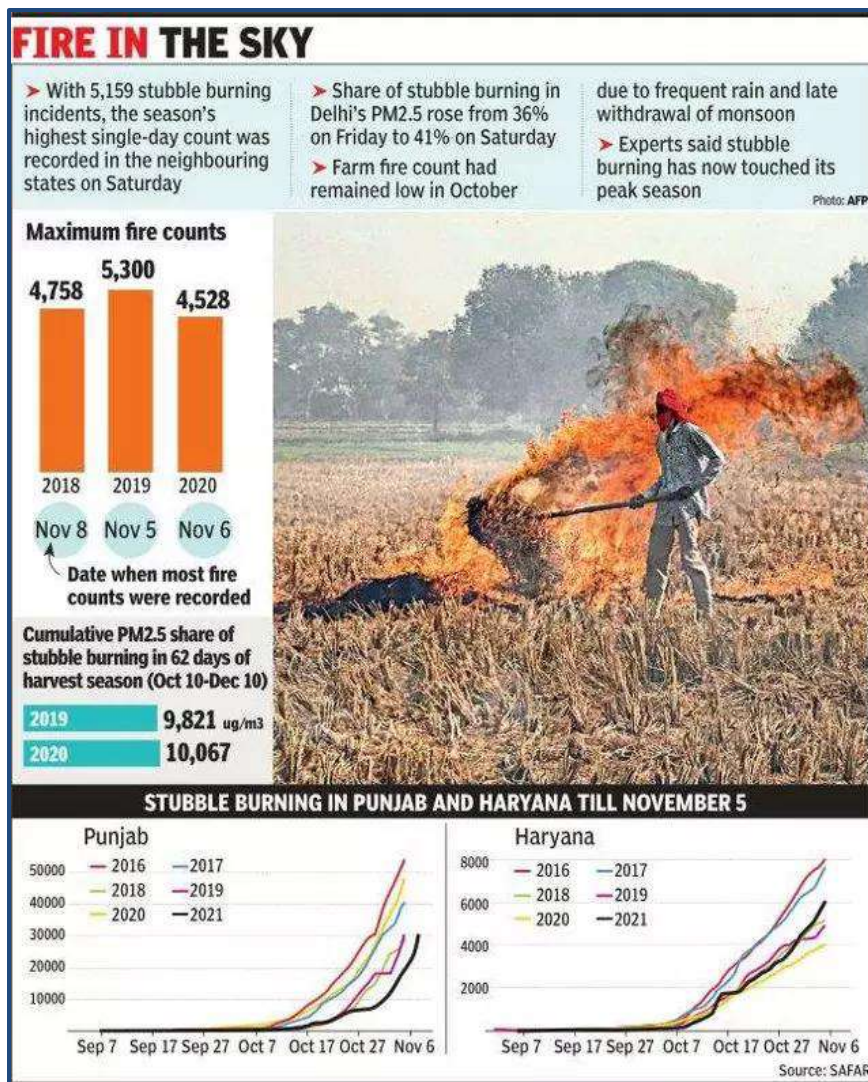
Research, the Union earth sciences ministry’s forecasting body.

The effective fire count comprises the number of fires that can impact Delhi’s air.



Though the harvest remnant burning has reached its peak now, its cumulative share to Delhi's PM2.5 has been lower this year than the previous two years.

According to SAFAR's data, the cumulative share of stubble burning in Delhi's PM2.5 in 62 days of the harvesting season (October 10-December 10) in 2019 was 9,821 micrograms per cubic metre, rising to 10,067 micrograms per cubic metre in 2020. This year, due to the delayed withdrawal of the monsoons and periodical rainfalls in October, the share has remained much lower.



SAFAR's Gufran Beig said, "The share of stubble burning to Delhi's air varies daily according to wind direction and wind speed." For instance, November 5, 2019 logged the highest single-day fire count at 5,300 but the share of the fires in Delhi's PM2.5 pollutants was just 10%. On the same day a year earlier, however, there were a much fewer 2,190 farm fires, but their contribution to Delhi's PM2.5 was reckoned at 58% because the wind direction and speed were favourable for the transportation of pollutants. According

to data from NASA's satellite imagery, 30,552 farm fires have been sighted in Punjab between September 1 and November 5 this year compared with 48,412 in 2020, 30,665 in 2019 and 29,133 in 2018 in the same period. In Haryana, 6,051 stubble burning incidents have been recorded between September 1 and

November 5 this year while the number of farm fires was 4,000 in 2020, 4,937 in 2019 and 5,165 in 2018 in the same period.

Pawan Gupta, senior scientist, earth sciences, Universities Space Research Association at NASA, said, around 6,000 farm fires were recorded in Punjab on Friday. He told TOI, “The cumulative count of farm fires between September 1 and November 5 this year is lower when compared with 2020, but it is close to the figures for 2018 and 2019. It appears that a lot of the harvest remnants is still left to burn and the fire counts are expected to be higher this week. However, the number of fires will start decreasing from next week.” Chandra Bhushan, CEO, International forum for environment, sustainability and technology (iForest), added, “Due to the delayed withdrawal of the monsoon from the region, we are only now reaching the peak of stubble burning in the neighbouring states. We cannot control Delhi’s high pollution level without addressing the problem of the farm fires in the neighbourhood. Apart from stubble burning, other forms of biomass burning also have to be addressed to check air pollution.”

## **World’s worst air pollution blankets India’s capital in smog**

*Date:-8-November-2021, Source: stripes.com*



**Commuters make their way along a road amid smoggy conditions in New Delhi, India on Sunday, Nov. 7, 2021**



Toxic air shrouded India's capital for a fourth consecutive day, making it the most polluted city across the planet and underscoring the risks faced by the nation highlighted at the ongoing global climate talks.

The air quality index, or AQI, for New Delhi was at 451 at 9:30 a.m. local time, according to website IQAir, which monitors air pollution around the world. Readings below 50 are considered safe, while anything above 300 is considered hazardous. Levels surged after people violated a ban on bursting firecrackers and stubble burning by farmers spiked in areas adjoining the capital. Some parts of the city recorded levels as high as 627.

The toxic air pollution levels underline the risks faced by India as it discusses climate priorities at the global negotiations at the COP26 summit in Glasgow. Prime Minister Narendra Modi pledged last week that the world's third-worst emitter will aim to reach net-zero by 2070.

India has also committed to adding 500 gigawatts of non-fossil electricity capacity, half of energy from renewable sources by 2030 and to increasing its carbon intensity reduction goal — measured as carbon dioxide emissions per unit of gross domestic product — from 35% to 45%, by the end of this decade.

While the Indian capital suffers severe air pollution each year in the winters as farmers burn crop stubble, excessive reliance on fossil fuels, which form three-fourths of India's energy needs, compound the problem. Of the top 10 most polluted cities in the world last year, nine were Indian, IQAir data shows.

Air pollution costs Indian businesses \$95 billion or roughly 3% of its GDP every year, according to U.K.-based nonprofit Clean Air Fund and the Confederation of Indian Industry.

### **Delhi's air quality continues to remain in 'very poor' category**

*Date:-9-November-2021, Source: indiatoday.in*

The air quality in Delhi remained on the higher side of the 'very poor' category on Tuesday, with an overall Air Quality Index (AQI) of 381, according to the latest estimates updated by System of Air Quality and Weather Forecasting And Research (SAFAR).

However, AQI is likely to improve further but will continue to remain in the 'very poor' category.



While winds coming from the north-west direction are favourable for transport of stubble-burning related pollutants to Delhi, the impact on Delhi's PM2.5 (particulate pollutants) has been reduced as wind speed has reduced, an official statement from SAFAR said.

The share of crop residue burning on Tuesday is 30 per cent at PM 2.5.

Delhi's air quality improved marginally to the 'very poor' category on Monday

due to moderate surface winds, after remaining in the 'severe' category for three consecutive days post-Diwali.

AQI between the range of 51 and 100 is considered as 'satisfactory', 101-200 is 'moderate', 201-300 falls under the category of 'poor'. While 300-400 is considered as 'very poor', levels between 401-500 fall under the 'hazardous' category.

In a bid to reduce the levels of air pollution and settle dust, the Delhi government has deployed over 100 tankers to spray water across the city. Delhi Environment Minister Gopal Rai also said that they would install 20 anti-smog guns to help dilute the smog.

## **Delhi govt comes up with five-point plan to combat local sources of pollution**

*Date:-10-November-2021, Source: hindustantimes.com*



### **A worker sprinkles water on the road at Azadpur in New Delhi on Tuesday to curb dust pollution**

Delhi environment minister Gopal Rai on Tuesday announced a five-point plan to provide some relief from the high-pollution levels prevailing over the Capital. Government officials said that the five-point plan has been chalked out based on the four key sources of pollution affecting Delhi--dust, vehicular emissions, burning of waste and pollution from landfills, and stubble burning.

Rai said an emergency meeting was held around 12 noon on Tuesday with government departments and agencies, including the three municipal corporations, the New Delhi Municipal Council and the Delhi Development Authority (DDA) to discuss measures to control the four sources of pollution.

“While we know it is not in our hands to control stubble burning, which is polluting Delhi, we can stop open burning within Delhi and for this, an anti-open burning campaign will be held for a month from November 11. This is a joint campaign in which ten different departments, including the Delhi Pollution Control Committee, three municipal corporations and the DDA, will

form their respective teams and monitor open burning. So far, 550 teams have been formed, of which 246 will conduct patrolling at night,” said Rai asking people to report instances of open burning of waste through the Green Delhi app.

The minister said to tackle dust, directions have been issued to all departments to start phase two of the anti-dust campaign, that will run from November 12 to December 12. All the departments have been asked to set up an anti-dust cell. “During the first phase of the anti-dust campaign that was held from October 7 to 29, DPCC teams inspected around 2,500 sites, of which 450 were fined ₹1.23 crore for not complying with norms. We are hoping that the second phase will be more successful with all departments joining in. We will also take daily reports from each anti-dust cell to keep a record of the work being done at the ground-level,” said Rai.

While directions were earlier issued to deploy 114 water tankers to control dust pollution, Rai said the government’s water sprinkling drive will be intensified by deploying 400 water tankers. Earlier, while only the public works department was carrying out this exercise, now the three civic corporations, the Delhi State Industrial and Infrastructure Development Corporation Limited (DSIIDC) and the Delhi Cantonment board have also been asked to spray water on Delhi’s roads.

The other measures include strict implementation of the directions mentioned in the graded response action plan (Grap), which includes a ban on diesel generator sets, stopping the use of coal-based tandoors at eateries and intensifying the use of public transport services.

Directions have also been issued to spray bio-decomposer solution over 4,000 acres of farmland in Delhi. Rai added while the solution--prepared by the Indian Agricultural Research Institute-- has been sprayed on 2,300 acres of farmland, the remaining 1,700 acres will be sprayed with the solution by November 20.

Tanushree Ganguly, programme lead at the Council on Energy, Environment and Water (CEEW) said the announcement shows that the government is taking measures to ensure better coordination between different agencies responsible for managing and regulating pollution from local sources. However, she said the government also needs to look at vehicular emissions.

## **Noida's air improves, Ghaziabad still the most polluted in the country**

*Date:-11-November-2021, Source: hindustantimes.com*



**Ghaziabad, India - November 08, 2021: A view of a farm land engulfed in smog at Kusalia in Ghaziabad on Monday, November 8, 2021**

The air quality in Noida showed some improvement on Wednesday for the first time since Diwali. With an air quality index (AQI) reading of 378, the city's air was in the 'very poor' category. On the other hand, Ghaziabad again topped the list of most polluted cities in the country as with an AQI of 428, its pollution levels continued to be in the 'severe' category.

According to the AQI bulletin of the Central Pollution Control Board (CPCB), Greater Noida too had 'very poor' air on Wednesday with an AQI of 374.

An AQI reading between 0 and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

Noida reeled under "severe" pollution levels for six days at a stretch since November 4--the day Diwali was celebrated. Official statistics of the UP

Pollution Control Board (UPPCB) indicate that it is for the first time since 2018 that Noida suffered “severe” pollution levels for six days at a stretch.

Last year, the city suffered from “severe” pollution levels for six consecutive days from November 5 to November 10.

“The ‘very poor’ AQI of Noida is the result of less traffic on roads; there were hardly any traffic congestion on the day of Chathh Puja. Moreover, the impact of firecrackers burst during Diwali has considerably died down. It is likely that once the wind speed increases, more pollutants will be dispersed,” said Utsav Sharma, regional officer of UPPCB.

According to official statistics, Ghaziabad city reeled under “severe” pollution levels for eight consecutive days from November 9 to 16 in 2017.

“There is huge traffic volume in Ghaziabad due to Chhath Puja. The two air quality monitoring stations at Loni and Sanjay Nagar continued to record the higher ends in the ‘severe’ category. We have asked the authorities in Loni to increase the frequency of water sprinkling as there is high volume of dust on roads. The Ghaziabad Municipal Corporation has also told us that they will be procuring more mechanical road sweeping machines and these will be deployed at Sanjay Nagar and at Delhi Meerut Road,” Sharma added.

The Delhi Meerut Road is estimated to have a volume of 1.2 lakh passenger car units per day. Work on the Regional Rapid Transit System on the median of the road is also going on in full swing. This has led to an increase in traffic congestion, which increase the amount of PM2.5 in the air.

As per the CPCB AQI bulletin, all the monitoring stations in Ghaziabad, Greater Noida and Noida were running high on PM2.5 and it also stood as the primary pollutant on Wednesday.

“Air quality is expected to deteriorate for the next two days but will remain either at the upper end of the ‘very poor’ category or touch the lower end of ‘severe’ category. Calm local surface winds may cause stagnation, which weakens dispersion of pollutants. Today’s share of crop residue burning is 27% in PM2.5 and effective fire count is 5,317. Air quality is likely to improve on November 13,” said the forecast by the System of air quality and weather forecasting and research (Safar) on Wednesday.

Environmentalists blame the agencies for lack of ground level action.



“Their claims of abetting pollution through various action plans have fallen flat. The ‘severe’ AQI for seven days calls for some introspection by agencies in Ghaziabad. They are yet to procure the required equipment to tackle pollution. This indicates the seriousness with which agencies are dealing with pollution,” said Akash Vashishtha, a city-based environmentalist.

## **Bengaluru records dip in air pollution this Deepavali**

*Date:-12-November-2021, Source: thehindu.com*



**Prior to Deepavali, the average air quality index in Bengaluru was nearing 100, with PM 2.5 levels about 30**

The rain may have played spoilsport for those bursting firecrackers during Deepavali last week, but they impacted the city's air quality index (AQI), bringing it to just above 50. This was the analysis of AQI and pollution levels pre- and post-festival by Ambee, a company that provides hyperlocal data on environmental factors in real-time across the globe.

The company also analysed air quality data of Delhi, Mumbai, Chennai, and Hyderabad, along with a comparative analysis of air quality in all the five cities during Deepavali this year and the last. In Bengaluru, the average AQI was just above 50 and PM2.5 levels were around 20. The city's AQI levels this year were

lower than that of last year, with a dip in air pollution. Madhusudhan Anand, CTO and co-founder, Ambee, said: "The continuous downpour due to cyclonic effect might be the reason behind the drop. Prior to Deepavali, the average AQI was nearing 100, with PM2.5 levels above 30. Post Deepavali, AQI decreased to 60, while the PM2.5 level was lower than 25 last week, indicating an improvement in air quality. Over the last three years, AQI trend in the city has seen a consistent dip."

This year, along with AQI and PM2.5 levels, Ambee identified the 10 least and most polluted areas by analysing data between November 1 and 7. Among the most polluted areas were Vijayanagar East, Hampinagar, and Chandra Layout, where the average AQI was above 100 and average PM2.5 was above 40. Tavarekere, Jnanabharati, and Nayandanahalli were among the other most polluted areas. On the other hand, Jalahalli West, Dasanapura, and Laggere were among the least polluted with average AQI just above 40 and average PM2.5 levels as low as 10. Five cities Among the five cities, Delhi recorded the highest levels of pollution, with an average AQI above 160 prior to Deepavali and around 250 post festival.

The PM2.5 level increased from 100 to 175 post Deepavali. However, there was a marginal decrease in average AQI from 271 in 2020 to 225.5 in 2021. On the contrary, Chennai was the least polluted among the five cities, with the average AQI levels lower than 50 and PM2.5 level hovering around 15.

Mumbai recorded an average AQI of around 150 throughout the period, while Hyderabad saw a marginal drop in pollution levels, with average AQI 110 prior to Deepavali to below 100 and PM2.5 level at 25 post Deepavali. Mr. Anand said the overall air quality had improved this festival.

"For instance, Chennai experienced unusually high precipitation during Deepavali, which largely improved the air quality in the region. Delhi saw a marginal improvement in its air quality level this year as compared to 2020. The October rainfall in Delhi delayed the accumulation of stubble burning smoke and this led to reduction in PM2.5 content. However, Delhi still falls under the severe category and the ongoing stubble burning will add to the increase in pollution levels," he said.

## **As Delhi pollution nears emergency level, CPCB advises people to skip outdoors, cut vehicle use**

*Date:-13-November-2021, Source: hindustantimes.com*



### **Air pollution was the top risk factor for death in India in 2019, killing an estimated 1.67 million people, according to the Global Burden of Disease report**

As the air quality level in Delhi plunged to near emergency levels, the pollution controlling authorities have asked people in the national capital to limit outdoor activities and told government and private offices to cut vehicle use by at least 30 per cent. The air quality index (AQI) in Delhi was 471, according to the Central Pollution Control Board's (CPCB) 4pm bulletin on Friday, the worst this season so far. It was 411 on Thursday.

A record number of farm fires are among the major reasons for pushing up Delhi's pollution on Friday.

A sub-committee on Graded Response Action Plan (Grap) said meteorological conditions will be highly unfavourable for dispersion of pollutants till November 18 and agencies concerned must be fully ready to implement measures under "emergency" category.

After warning, parents have begun keeping their children at home as the days remain particularly dangerous for those with respiratory conditions.

“This spike in pollution is an amalgamation of many things. Delhi already saw peak pollution levels after Diwali and the high stubble count in Punjab and Haryana. Because of slow winds, the pollution load is not being eased, and more pollution is being added. All this is being recirculated in the air,” said VK Soni, head of IMD’s environment and research department.

According to an analysis of data from heat-sensing satellites done by Hindustan Times, there have been 24,694 incidents of fire recorded since November 8. This number is the highest for the second week of November since 2012, the earliest year for which data was available.

The CPCB said the 24-hour average concentration of lung-damaging fine particles known as PM2.5 in Delhi-NCR crossed the 300 mark around midnight and stood at 381 micrograms per cubic metre at 4pm on Friday, over six times the safe limit of 60 micrograms per cubic metre.

The PM10 level was recorded at 577 micrograms per cubic metre, over five times the safe limit of 100 micrograms per cubic metre.

According to Grap, the air quality is considered to be in the 'emergency' category if the PM2.5 and PM10 levels continue to be above 300 micrograms per cubic metre and 500 micrograms per cubic metre respectively for 48 hours or more. The emergency-level curbs include measures like ban on construction work and entry of heavy vehicles, and odd-even car use limits.

A layer of eye-stinging smog lingering over Delhi-NCR thickened on Friday, giving an orange tint to the sun and lowering visibility to 200 metres at several places in the region.

### **Noida most polluted for second day in a row, no respite in sight**

*Date:-14-November-2021, Source: hindustantimes.com*

There seems to be no respite from ‘severe’ air for Ghaziabad, Greater Noida and Noida as pollution levels spiked for the second time this season starting from Friday--the first being around the time of Diwali (November 4) and led to a rise in PM10 and PM2.5 concentrations.

The air quality index (AQI) bulletin of the Central Pollution Control Board (CPCB) indicated that with an AQI of 464, Noida was the most polluted city in

the country for the second consecutive day on Saturday. While Ghaziabad recorded an AQI of 441, the AQI of Greater Noida showed a marginal improvement and was at the lower end of the 'severe' category at 408 compared to 478 on Friday.



**Noida, India - November 13, 2021: A view of a ground blanketed in haze amid rising air pollution, in Noida, India, on Saturday, November 13, 2021**

An AQI reading between zero and 50 is considered “good”, 51 and 100 “satisfactory”, 101 and 200 “moderate”, 201 and 300 “poor”, 301 and 400 “very poor”, and 401 and 500 “severe”.

Ghaziabad has been reeling under ‘severe’ pollution levels for 10 days since November 4, the day Diwali was celebrated. Noida too has been under the ‘severe’ category for all days, barring November 10.

The four monitoring stations in Ghaziabad and two in Greater Noida recorded PM2.5 as the primary pollutant while all the four stations in Noida had PM10 and PM2.5 as the primary pollutants.

There has been a major spike in PM10 and PM2.5 levels in Noida and Ghaziabad. According to CPCB data, the first spike in pollution levels lasted from November 4 to 6 and the second spike started on Friday (November 12) and is continuing.

According to official figures of the CPCB, the PM<sub>2.5</sub> levels ranged between 297.45 micrograms per cubic metre (mpcm) to 691.18 mpcm in Ghaziabad between November 10 to 12. Likewise, the PM<sub>10</sub> levels stood in the range of 511.74 mpcm to 840.68mpcm during the period.

The standard limit for PM<sub>10</sub> is 100 micrograms per cubic metre (mpcm) while that for PM<sub>2.5</sub> is 60 mpcm.

According to official figures of the CPCB, Delhi NCR this season had the worst PM<sub>10</sub> levels as the concentration peaked to as high as 551.2 mpcm between November 5 to 6. The PM <sub>2.5</sub> concentration spiked to 424 mpcm .

During the second spike in pollution levels, the PM<sub>10</sub> concentrations have shot beyond the permissible limit of 500 mpcm and spiked to 574.1 mpcm while the PM<sub>2.5</sub> concentration spiked to 372.2 mpcm.

“There is spike in PM concentration levels and it is due to the unfavourable meteorological conditions, which also includes slow wind speed. The Ghaziabad/Noida region is still under ‘severe’ category as the pollutants are trapped and will disperse only if the wind speed increases or if there is rainfall,” said Utsav Sharma, regional officer of Uttar Pradesh Pollution Control Board.

Experts said there is no likelihood of rain till November 19, which would help wash away the trapped pollutants.

“The wind speed has marginally increased from 7kmph to 9kmph since Friday. On Saturday, the scenario was more or less to what it was on November 10 and 11. The visibility has also improved in the range of 1500-1800 metres, while it was about 500 meters on Friday. Overall, there is a marginal improvement but conditions will remain more or less same for the next couple of days,” said an officer from the Indian Meteorological Department.

“The pollution levels are in the ‘severe’ category in most places in NCR. It is also due to the impact of stubble burning and accumulation of local pollutants. A depression over Odisha and Chattisgarh was present with easterly winds blocking the north-westerly winds. Since the depression has moved out, it is likely that the wind speed in NCR will pick up in the next two to three days and is expected to be in the range of 10-15kmph,” said Mahesh Palawat, vice-president, meteorology and climate change, Skymet.

“The rise in PM concentrations indicates the collective failure of agencies in mitigating the local sources of pollution, which is a contributing factor to the deteriorating air quality, besides external factors such as stubble burning and



meteorological conditions,” said Akash Vashishtha, a city-based environmentalist.

The forecast by System of air quality and weather forecasting and research (Safar) said on Saturday that the AQI is likely to improve for the next two days as winds at transport level (925 mb) are slowing down, resulting in lesser intrusion of pollutants from farm fires into Delhi.

“However, as local winds are becoming calm and minimum temperature is decreasing further, preventing efficient dispersion of pollutants leading to improvement of air quality to upper end of very poor category or lower end of severe category,” said the Safar forecast.

As a result of the deteriorating air quality and the prevailing weather conditions, residents staying in the flats on the higher floors of buildings are complaining of different complications.

“I stay on the 10th floor and have to keep my doors and windows closed and also ensure my children are indoors. There is poor visibility in the morning. Hardly any measures are being taken at the ground level to control local sources of pollution,” said Sanjeev Sethi, a resident of Sector 107 in Noida.

“I stay on the 18th floor. The high pollution levels have triggered burning sensation in my eyes and allergic reactions in the respiratory tract. There is a thick blanket of pollutants, which can be easily seen in the morning hours,” said Kamiya Arora, a resident of Crossings Republik Township.

The sub-committee of the Commission for Air Quality Management (CAQM), after a meeting on November 12, directed the concerned states and implementing agencies to be ready to implement measures listed under the “emergency” category of the Graded Response Action Plan (Grap).

### **Air quality panel suggests Rajasthan, UP to close schools amid deteriorating air quality**

*Date:-15-November-2021, Source: indiatoday.in*

On Sunday, the Commission for Air Quality Management, CAQM, advised Rajasthan and Uttar Pradesh to consider implementing several restrictions, including the closure of schools, amid spiraling air pollution levels.

On Saturday, the Delhi government announced that physical classes in schools, colleges, and other educational institutions will be suspended for a

week, starting from Monday. Further, it was announced that government offices, agencies, and autonomous bodies, except those involved in essential services, have been asked to work from home.



**The Air Quality Panel has suggested the Rajasthan, and Uttar Pradesh governments to close schools due to degrading air quality**

Similarly, after witnessing a thick layer of smog in the air, the Haryana government has decided to shut all the schools in Gurugram, Faridabad, Sonipat, and Jhajjar till November 17.

The state governments and district administrations in the National Capital Region have also been suggested to issue a "citizen charter/advisory" for the public on steps that need to be taken during various stages of the Graded Response Action Plan (GRAP).

**Soaring pollution has Delhi considering full weekend lockdown**

*Date:-16-November-2021, Source: theguardian.com*

India's capital, Delhi, and several surrounding states have shut schools, imposed work-from-home orders and a full weekend lockdown of the city is being contemplated in an attempt to tackle the deadly levels of pollution that have yet again enveloped the region.



### **Commuters pass an anti-smog gun spraying water to curb air pollution in Delhi**

Over the past weeks, in what has become a dreaded seasonal occurrence, Delhi has suffered pollution levels 20 times higher than the levels deemed healthy by the World Health Organization and a thick brown smog settled over the city.

The causes of the severe pollution that have made Delhi the most polluted capital in the world are a combination of factors including car exhaust fumes, stubble-burning by farmers in nearby states, industrial pollution, waste burning and construction work.

The drop in temperature, change in air pressure and the lack of wind as winter arrives then causes the pollution to become trapped over the city like a toxic umbrella.

Delhi was given a brief reprieve last November as Covid-19 reduced industrial activity and cars on the roads, but pollution has returned to the same deadly levels as before and on several days even hit a rating of 1,000 AQI in some areas – the highest the charts can measure.

People going outside have complained of stinging eyes, nausea, breathing difficulties and lethargy caused by the toxic air and doctors reported a sharp rise in admissions related to respiratory and cardiac problems.

The school closures in the capital, which came only weeks after they reopened following 18 months of being closed due to the Covid-19 pandemic, were joined by measures including a halt to construction work and drivers of Delhi's 13m cars being asked to turn off their engines when stationary at traffic lights.

Delhi's state government has also said it is ready to impose an emergency weekend lockdown, similar to that implemented for the first time during Covid, to ease pollution levels, as India's supreme court summoned it to demand answers on how the pollution was being dealt with, saying it required "drastic steps".

The court reprimanded the Delhi government for "passing the buck" and ordered it to hold an emergency meeting within 48 hours with the central government to find concrete ways to tackle the pollution.

The Delhi government, however, told the judges a lockdown would have "limited" impact unless it was imposed on all the neighbouring states.

Other north Indian states of Punjab, Haryana and Uttar Pradesh have also imposed work from home orders this week as air quality plummeted. The chief minister of Uttar Pradesh, Yogi Adityanath, ordered that people use public transport rather than cars and for the ban on stubble-burning to be fully enforced

In October, the air in Delhi was at its cleanest in years due to belated monsoon rains but the situation began to rapidly deteriorate after Diwali, in the first week of November, as the temperature and wind in the city dropped, firecrackers were set off across the city despite a ban, and millions of cars – consistently the biggest source of pollution from within the capital – were on the roads. In recent days, stubble-burning from farms in neighbouring rural states has been responsible for up to 48% of the pollutants in capital's air.

A survey conducted this week by the digital community platform Local Circles found that 86% of families in Delhi surveyed had someone experiencing ailments, including sore throat, congestion, breathing difficulties and headaches, due to the toxic air. The pollution is also known to have long-term impacts. A study published in a science journal this year found that one-third

of deaths in India – more than 2.5 million people – were as a result of air pollution.

The Delhi government has taken steps to bring down the pollution in recent years, including closing all coal-fired power stations, expanding the public transport networks, which now only run on natural gas, banning diesel trucks from entering the city during the day, imposing a clean fuel policy and regulating construction.

Smog towers, erected by the Delhi government to supposedly filter the city's air, appeared to have little impact.

Anumita Roy Chowdhury, the executive director of the Delhi-based Centre for Science and Environment, said: “We cannot do anything about the weather but we should be able to control the pollution. There are still certain sectors where we have to do a lot more, particularly the number of private vehicles in the city, which are exploding right now because public transport and walking infrastructure has not been built to the scale that is needed. Waste burning is also a huge problem, as is the booming construction sector.”

However, she emphasised that the pollution was not Delhi's alone. “If you take a satellite view of the entire north of India right now, you'll see the smog problem has built up across the whole Indo-Gangetic plain, which means this is not a problem Delhi can fix within its own boundaries,” she said. “This requires a strong regional approach. And a lockdown is not a silver bullet that will make all the pollution just disappear.”

### **Delhi Pollution: No Entry for Trucks with Non-essential Items, Schools and Colleges to Remain Shut**

*Date:-17-November-2021, Source: news18.com*

To combat pollution, the Delhi government on Wednesday issued 10 directions, including a ban on the entry of trucks carrying non-essential items in the city and closure of schools and colleges till further orders, even as the air quality improved marginally due to a dip in emissions from farm fires. The Delhi government has banned construction and demolition activities in the city till November 21. It has also ordered its employees to work from home till Sunday.

The city government had earlier announced the closure of all schools, colleges and educational institutions till Sunday and banned construction and demolition activities till November 17. Delhi Environment Minister Gopal Rai

said 1,000 private CNG buses will be hired to strengthen the public transport system. The process will start on Thursday.



**Vehicles ply on a road amid smog, in New Delhi, Wednesday, Nov. 17, 2021**

Delhi's air quality improved marginally, registering the 24-hour average air quality index (AQI) at 375 on Wednesday from 403 the day before. Authorities, however, said no major improvement is likely till Sunday. Faridabad (378), Ghaziabad (361), Greater Noida (362), Gurugram (344) and Noida (356) also recorded their air quality in the 'very poor' category.

The minimum temperature in the capital dropped to 9.6 degrees Celsius, three notches below normal and the lowest this season so far. The maximum temperature settled at 27.4 degrees Celsius, the India Meteorological Department (IMD) said. VK Soni of the IMD on Tuesday told the Commission for Air Quality Management (CAQM) that a lower ventilation index due to low temperatures and calm wind conditions is predicted between Wednesday and Sunday, which is unfavourable for dispersion of pollutants.

The air quality is likely to improve Sunday onwards due to relatively strong winds, he said. The Ministry of Earth Sciences' air quality monitor SAFAR also said the air quality is likely to remain the same for the next two days. According to Gopal Rai, the Delhi Metro and the Delhi Transport Corporation



have written to the Delhi Disaster Management Authority to allow people to travel in metro trains and public vehicles standing.

The Transport Department has provided a list of diesel and petrol vehicles older than 10 years and 15 years, respectively, to the traffic police to stop them from plying on roads.

The traffic police have been directed to create a special task force to monitor congestion. The drive to check pollution-under-control certificates will be intensified, the minister said.

"Machines of the fire brigade will sprinkle water at 13 pollution hotspots in Delhi in addition to the 372 tankers already deployed in the city for this purpose, he said. Ahead of a Supreme Court hearing on the air pollution issue, the CAQM late on Tuesday night directed that schools, colleges and educational institutions in the National Capital Region will remain closed until further orders, allowing only online mode of education.

It also said that only five of the 11 thermal power plants located within a 300 km radius of Delhi will remain operational till November 30. The commission directed Delhi and the NCR states to stop construction and demolition activities in the region till November 21, barring railway services/railway stations, metro rail corporation services, including stations, airports and inter-state bus terminals and national security/defence-related activities/ projects of national importance subject to strict compliance of the Construction and Demolition Waste Management Rules and dust control norms.

State governments in NCR have been directed to allow work from home for at least 50 per cent of their employees in offices in NCR till Sunday and encourage private establishments to follow suit. Trucks carrying non-essential items have been banned from entering Delhi till Sunday. "All industries in NCR still using unapproved fuels shall be closed by respective governments with immediate effect... NCR states and GNCTD shall enforce a strict ban on the use of diesel generator sets, except for emergency services," the panel said. It directed the Delhi government to expeditiously procure and put on the road an adequate number of CNG buses at the earliest.

## **Schools in India's Delhi close as smog envelops city**

*Date:-18-November-2021, Source: mothership.sg*

All schools and colleges in Delhi, India, have been shut indefinitely due to worsening levels of air pollution, the BBC reported.

### **City might be going into a brief lockdown**

Apart from transport and defence-related projects, construction work in the city has also been banned until Nov. 21.

Previously on Nov. 13, the state government had initially ordered schools to close for a week and construction work to halt for four days, according to Al Jazeera.



The BBC reported that India's Supreme Court ordered the state and federal government to implement "imminent and emergency" measures to handle the pollution.

The local government is considering a weekend lockdown to curtail automobile traffic and other potentially polluting sources of activity, and is waiting for approval from India's Supreme Court, AP reported.

However, the decision is deemed ineffective by some experts, who said it's not going to do much to reduce pollution, and might even disrupt the lives of millions of people.

### **Concentration of PM2.5 particles way higher than WHO guidelines**

Since the festival of Diwali, Delhi has reportedly been affected by a toxic haze.

As of Nov. 18, the air pollution tracking website IQAir rates the city's air quality index (AQI) at 310 AQI, well above the 100 AQI that is deemed "satisfactory" by the U.S. Environmental Protection Agency.

Meanwhile, the concentration of the harmful PM2.5 pollutant in Delhi's air is also 51.9 times higher than the World Health Organisation (WHO)'s safety guidelines.

### **More measures to handle air pollution**

According to Bloomberg, six coal-fired power plants located around Delhi have been ordered to halt operations until the end of November, as authorities are looking to clean the air in the city.

Trucks have been restricted from entering Delhi and its neighbouring states, except for those carrying essential goods, as per the BBC.

Delhi's Commission for Air Quality Management also said that at least 50 per cent of government staff should work from home until Nov. 21, and encouraged private firms to implement similar measures, Al Jazeera reported.

Additionally, water sprinklers and "anti-smog guns" will reportedly be deployed at hotspots for at least three times a day.

### **Annual occurrence**

Despite the closure of power plants, the power supply for Delhi and its neighbouring states is unlikely to be affected, as power companies would usually prepare in advance for the annual occurrence, according to Bloomberg.

Every year, the city and its surroundings are affected by a toxic haze, especially when temperatures drop nearing winter.

Indian billionaire Sunil Mittal said Delhi was "covered with smog", when he was speaking at the Bloomberg New Economy Forum in Singapore on Nov. 17.

Highlighting the issue of air pollution and climate change, Mittal added that Delhi is experiencing one of its worst weeks, and that they "can't live like this".

### **Air quality in Delhi could remain 'very poor' till Saturday**

*Date:-19-November-2021, Source: indianexpress.com*

Delhi's air quality is likely to remain in the 'very poor' category Friday, though it could improve from November 21 onwards with strong winds, according to the Air Quality Early Warning System for Delhi.

The air quality could reach the lower end of the 'very poor' category Saturday and is likely to settle in the 'poor' category on Sunday, the forecast indicates. AQI between 301 and 400 is considered 'very poor,' while 'poor' stands between 201 and 300.

The AQI on Thursday was 347, in the 'very poor' category.

According to the SAFAR forecasting system, the contribution of crop residue burning to PM2.5 levels in Delhi plummeted to 2 per cent on Thursday, the lowest figure so far this month. The effective fire count on Thursday was also at this month's lowest figure of 773, according to SAFAR.

Meanwhile, the minimum temperature on Friday is likely to stand at 11 degree Celsius, with the maximum at 26 degree Celsius. Foggy conditions are set to persist over the next six days, according to the India Meteorological Department forecast.

The minimum temperature over the next six days is likely to be around 10 or 11 degree Celsius, while the maximum could stand at around 26 or 27 degree Celsius.

### **Gurugram air quality 'very poor' for 5th straight day**

*Date:-20-November-2021, Source: timesofindia.indiatimes.com*

GURUGRAM: The city air quality remained in the 'very poor' category for the fifth consecutive day, with the AQI at 324 on Friday compared to 323 on Thursday. From November 15 to 17, the city recorded AQIs of 332, 369, 344, respectively.

According to India Meteorological Department (IMD), a depression system over the Bay of Bengal (BoB) is preventing winds from picking up speed and the AQI may remain in the 'very poor' category for two more days.



“There is a depression in southwest BoB, which doesn't allow winds to blow from the northwest, resulting in calm conditions in the lower atmosphere. Till the depression is cleared, (the air quality in) Delhi-NCR will remain the same.

We are expecting rain in two days and then the air quality will improve a bit,” said Dr Dipankar Saha, former head at Central Pollution Control Board.

Three of the four monitoring stations in Gurgaon recorded ‘very poor’ air quality on Friday, with Vikas Sadan recording the highest AQI of 357 followed by Sector 51 recording an AQI of 347 and Teri Gram recording an AQI of 333. Meanwhile, Gwal Pahari was the only monitoring station that registered ‘poor’ air quality, with an AQI of 258.

In Faridabad, the air quality marginally declined on Friday, with the AQI at 352, up from 348 on Thursday.

According to Haryana State Pollution Control Board (HSPCB), civic authorities and other agencies were taking anti-pollution measures across the state.

Construction sites are being inspected by our teams regularly. Also, unauthorised parking is a major concern as it leads to traffic congestion and emission of harmful gases into the atmosphere by waiting vehicles. We are also ensuring that people do not drive polluting vehicles, which are a major source of air pollution in some parts of the city. All concerned departments are taking adequate steps to mitigate air pollution,” said a senior official from HSPCB.

## **More people fall ill as air pollution suffocates New Delhi**

*Date:-21-November-2021, Source: [sabcnews.com](https://www.sabcnews.com)*

More people have fallen ill due to air pollution in India’s capital New Delhi in the past two weeks, according to the surveying results from an Indian agency.



**A residential area is seen shrouded in smog in New Delhi, India, November 9, 2020**

An Indian agency conducted a survey among 25,000 respondents in New Delhi and surrounding areas, and the results showed that 80% of households have one or more members suffering from air pollution-related diseases.

The air pollution in the city has become increasingly serious, which makes many people feel unwell. In the past two weeks, the proportion of families visiting the hospital increased from 22% to 44% due to air pollution.

“Specifically, people who do not have any previous sickness start to complain about the burning of eyes. Often they feel a lot of burning in their eyes, water from their eyes, a lot of sneezing, feeling of suffocation, feeling of sore throat. There are more younger people having a cough. Cough is the major symptom here,” said Anshul, a doctor from the local Max Hospital Delhi.

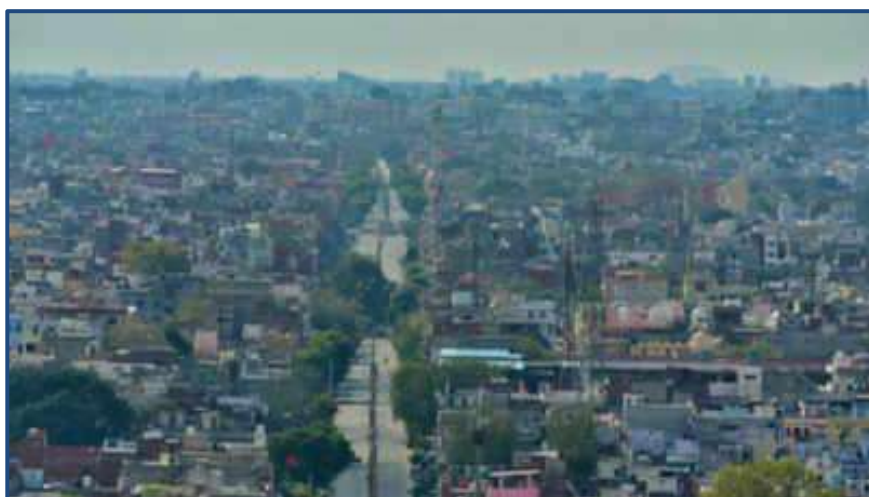
On Saturday, the air quality in New Delhi was in the “very bad” category for the seventh consecutive day. The air quality index rose from Saturday’s 332 to 355. The air quality indexes of many cities near New Delhi also fell into the “very bad” category on the day. In the past week, the PM2.5 indicator in the air in New Delhi was around 220, which was several times higher than the safety level proposed by the Indian Health Department.



“My body is prone to allergies. Recently, there are many dust particles in the air in New Delhi, and I will sneeze, and my eyes are dry and congested. The main cause of these symptoms is dust,” said Ayush, a student. Experts say that long-term exposure to toxic air can cause many common heart and lung diseases. According to the 2019 Global Burden of Disease Report, air pollution is one of the important risk factors for death in India in 2019, causing an estimated 1.67 million deaths.

## Jaipur: Respite after 10 days as air turns ‘moderate’

*Date:-22-November-2021, Source: timesofindia.indiatimes.com*



**Aerial view of Jaipur city**

JAIPUR: City’s air quality has finally started improving. It has moved to the ‘moderate’ level for the first time in the last 10 days.

In other districts of the state too, the air quality has improved drastically. Cities, including Udaipur, Jodhpur, Ajmer, and Pali, have recorded a ‘satisfactory’ air quality, while Kota and Alwar have reported a ‘moderate’ air quality. Except for Bhiwadi, not a single district in the state has ‘poor’ or ‘very poor’ air quality.

The city witnessed a clear sky on Sunday. Health experts claimed that due to

| <b>11-DAY DATA (AIR QUALITY INDEX)</b> |        |         |         |      |       |      |       |         |
|--|--------|---------|---------|------|-------|------|-------|---------|
| Date                                   | Jaipur | Jodhpur | Udaipur | Kota | Ajmer | Pali | Alwar | Bhiwadi |
| Nov 11                                 | 198    | 203     | 128     | 161  | 96    | 141  | 176   | 410     |
| Nov 12                                 | 236    | 179     | 148     | 288  | 59    | 131  | 188   | 469     |
| Nov 13                                 | 300    | 235     | 221     | 337  | 74    | 117  | 152   | 446     |
| Nov 14                                 | 328    | 274     | 331     | 375  | 72    | 250  | 117   | 308     |
| Nov 15                                 | 289    | 320     | 348     | 353  | 141   | 258  | 172   | 337     |
| Nov 16                                 | 257    | 243     | 289     | 349  | 140   | 175  | 188   | 373     |
| Nov 17                                 | 301    | 274     | 286     | 334  | 183   | 185  | 141   | 356     |
| Nov 18                                 | 210    | 271     | 263     | 329  | 167   | 180  | 112   | 378     |
| Nov 19                                 | 214    | 228     | 123     | 239  | 155   | 222  | 137   | 323     |
| Nov 20                                 | 236    | 161     | 50      | 137  | 132   | 101  | 114   | 355     |
| Nov 21                                 | 163    | 91      | 100     | 136  | 59    | 66   | 128   | 342     |

the change in velocity of air, the pollutants have disappeared to some extent, but Jaipur still has a long way to go. Jodhpur, Ajmer, Udaipur, and Pali have recorded better air quality than Jaipur.

According to the Central Pollution Control Board, Ajmer has the lowest Air Quality Index (AQI) in the state at 59, while Pali's AQI is at 66. At 258, Pali had recorded the highest AQI in the state from November 15 to 21. For the first time this month, the AQI in Jodhpur has slipped below 100 and touched 91 on Sunday, which shows that Jodhpur has the best air quality. Besides, Jaipur reported an AQI of 163, Udaipur 100, and Alwar was at 128.

Health experts have pointed out that the increasing pollution-level can affect different organs of the body. It can not only affect our lungs, but also the heart and the brain.

### **Delhi pollution: Winds of change may boost AQI to 'poor'**

*Date:-23-November-2021, Source: timesofindia.indiatimes.com*



**Monday was the first day in November this year when visibility at Palam was above 3,000 metres**

NEW DELHI: Strong winds improved Delhi's air quality marginally on Monday, but it continued to remain "very poor". The overall air quality index (AQI) was 311 on Monday in comparison to 349 on

Sunday. AQI is likely to touch the "poor" category on Tuesday,

but may deteriorate again on Wednesday as wind speeds may slow down. R K Jenamani, senior scientist at India Meteorological Department, said, "Wind speed reached 15-25kmph. It was mostly westerly winds and visibility also improved to 1,500-3,200m.

An analysis of hour-to-hour visibility and wind speed data from November 1 to 22 shows Monday was the only day so far in the month when Palam reported visibility of more than 3,000m and such strong winds."

Tanushree Ganguly, programme lead of Council on Energy, Environment and Water, said, "While Delhi's air quality remained in the upper end of 'very poor' category for the past one week, it improved marginally on Monday due to relatively stronger surface winds in the afternoon hours, which are favourable for pollutant dispersion."

According to System of Air Quality and Weather Forecasting and Research (SAFAR), a central forecasting body, the share of stubble burning to Delhi's PM2.5 was just 6% and effective fire count 909. "These strong winds are likely to continue on Tuesday, leading to further improvement of air quality to the 'poor' category. It is likely to improve to 'poor' or 'lower end of very poor' categories for the next two days."

From Wednesday, the air quality is predicted to deteriorate as local and transport level winds are likely to slow down, stated SAFAR. It will result in slight deterioration of air quality but expected to be within the "lower end of very poor" range, it added.

"Given that meteorology plays a crucial role in influencing the city's air quality, the Delhi government should actively make use of insights from IITM's early warning system to plan and execute pre-emptive measures in advance to keep pollution levels under control," Ganguly said.

In the coming days, with declining temperatures, the contribution from local biomass burning for warming needs may see a rise, she pointed out. "Local authorities should take immediate measures to ensure that Delhi's homeless have access to warm clothes and blankets, and that security personnel have access to electric heaters," Ganguly added.

## **Delhi Schools, Colleges To Reopen From Nov 29 As Air Quality Slightly Improves**

*Date:-24-November-2021, Source: republicworld.com*

In view of the improving air quality in the national capital, Delhi Environment Minister Gopal Rai announced the reopening of Delhi schools, colleges, and educational institutes from November 29. Due to worsening air quality, the Delhi government announced a total shutdown of schools, colleges, and governmental offices. However, after remaining in the "severe" category for more than a week, the air quality index (AQI) in Delhi improved to "poor" on Tuesday.

## **Delhi Air Pollution: Delhi Schools reopening**

According to the System of Air Quality and Weather Forecasting And Research (SAFAR), the air quality index (AQI) stood at 280 on Wednesday. Meanwhile, several areas in Delhi recorded a slight improvement in air quality. From the "very poor" category, it came to the "poor" category for the first time in the period of 10 days. However, many areas in Delhi, including ITO, Lodhi Road, and Mathura Road, recorded air quality as "very poor" with an AQI of 333, 303, and 346. At Anand Vihar and Jahangirpuri, the AQI was in the "severe" category with 422 and 436, respectively. In view of the Delhi air pollution, the Arvind Kejriwal-led government had ordered to shut down the schools on November 13, and after a review meeting that was held recently, the Delhi government decided to reopen schools, colleges, and other educational institutions. Recently, a group of 140 parents in Delhi urged Lieutenant Governor Anil Bajjal to intervene in the reopening of schools.

## **Delhi Pollution**

As per the SAFAR bulletin, the national capital may experience a little more improvement in air quality because local surface winds are likely to increase, resulting in an improvement in air quality. "The AQI today indicates a "poor" category. Winds at the transport level are likely to slow down and also change direction from northwest to south/southeast tomorrow and north or northwest on the 25th. Local surface winds are also relatively low for the next 3 days, reducing the dispersion of pollutants and leading to deterioration. The net effect is that air quality is likely to be in the "poor" or "lower end of very poor" category for the next 3 days. Local surface winds are expected to increase beginning on the 27th, resulting in an improvement in air quality, but it is expected to be in the "poor" or "lower end of very poor" category range. In a bulletin, it said, "The effective stubble fire count is 770 and its share of Delhi's PM2.5 is 3 percent".

## **NO2 levels hazardous in many traffic-heavy areas**

*Date:-25-November-2021, Source: hindustantimes.com*

As agencies in Delhi focus their mitigation measures on cutting PM2.5 and PM10 (ultrafine particles) emissions, the concentration of nitrogen oxides (NOx) in the city's air has largely gone under the radar, despite their levels being more than two-and-a-half-times the global safe standards, according to data from pollution monitoring stations across the Capital.

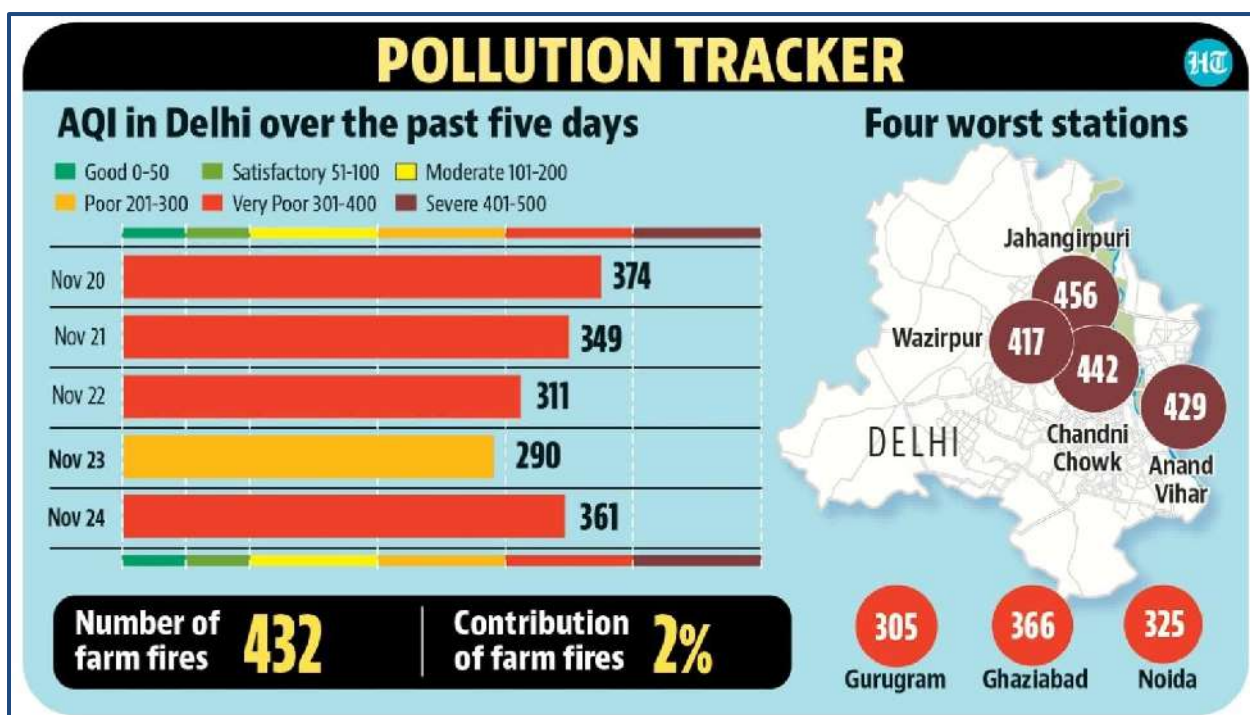


**This is followed by Anand Vihar (136 micrograms per cubic metre), East Arjun Nagar (125 micrograms per cubic metre) and Okhla (112 micrograms per cubic metre).**

Between November 1 and 24 this year, Delhi recorded a 24-hour average nitrous dioxide (NO<sub>2</sub>) concentration of 65 micrograms per cubic metre, according to data from air quality monitoring stations run by the Central Pollution Control Board (CPCB) and Delhi Pollution

Control Committee (DPCC) – the highest so far across in any month this year, and almost three times the World Health Organization's (WHO) limit of 25 micrograms per cubic metre.

Vehicular emissions are the primary source of NO<sub>2</sub> in the national capital.



While this concentration is below the national daily safe standard of 80 micrograms per cubic metre, this limit, too, has been breached across several parts of Delhi, primarily because of the traffic load in those areas.



Data analysed by NCAP Tracker (which tracks the progress of India's National Clean Air Programme) — released jointly by the environmental groups Respirer Living Sciences and Carbon Copy — shows the 24-hour average NO<sub>2</sub> levels between November 1 and November 22 were the highest at the Dr Karni Singh Shooting Range station in south Delhi, which recorded a concentration of 145 micrograms per cubic metre.

This is followed by Anand Vihar (136 micrograms per cubic metre), East Arjun Nagar (125 micrograms per cubic metre) and Okhla (112 micrograms per cubic metre).

Anand Vihar is one of the most polluted localities in Delhi even in terms of the average AQI, PM<sub>2.5</sub> and PM<sub>10</sub> levels, owing primarily to the two interstate bus terminals in the area (in Delhi and in neighbouring Ghaziabad).

The three other regions with high NO<sub>2</sub> levels in Delhi are not among Delhi's pollution hot spots in terms of the AQI or PM levels. All of these regions are, however, see high vehicular volume, and experts said these could also be in the red because of congestion points near measuring stations.

Experts warn that long-term exposure to high NO<sub>2</sub> levels cause asthma and increase susceptibility to respiratory infections.

Ronak Sutaria, founder, Respirer Living Sciences, said nitrogen oxides, which get added into the air from vehicular emissions and power plants are already at unsafe levels in Delhi and several cities across Uttar Pradesh.

“The Indian annual standard for NO<sub>2</sub> is 40 micrograms per cubic metre, which is being breached at all locations in Delhi so far this November. The daily parameter is also being breached at several locations, most of which have high traffic,” says Sutaria.

In comparison, locations which see relatively less vehicular traffic showed lower NO<sub>2</sub> concentrations.

Najafgarh (22 micrograms per cubic metre), Aurobindo Marg (36 micrograms per cubic metre) and Vivek Vihar (37 micrograms per cubic metre) were amongst those locations.

“Congestion points can also lead to higher NO<sub>2</sub> build-up, which can lead to formation of PM 2.5 as well,” Sutaria said.



Before November this year, February saw the highest average NO<sub>2</sub> concentration with a 24-hour average of 57 micrograms per cubic metre through the month.

### **Delhi pollution: Air quality continues to be in 'very poor' category**

*Date:-26-November-2021, Source: livemint.com*



#### **Delhi: An AQI between 301 and 400 is considered 'very poor'**

Delhi's air quality continues to be in the 'very poor' category with the AQI slipping to 368, according to the System of Air Quality and Weather Forecasting and Research (SAFAR). Gurugram and Noida recorded AQI of 350 and 463 respectively in the "very poor" and "severe" categories.

"The AQI today indicates 'Very Poor' category. Local surface winds are relatively low for the next 3 days that reduces the dispersion of pollutants leading to the deterioration of air quality but within the 'upper end of very poor' category for the next three days," SAFAR said in a bulletin.

It further said that on November 29 local surface winds are likely to increase resulting in improvement of air quality but remains within the 'Very Poor' category.

"Local emissions and weather (Mixing layer height and wind speed) are likely to be the dominant factors controlling air quality. Effective fire count is 219 and its per cent share in Delhi's PM2.5 is 6 per cent," it added. An AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

### **Delhi air pollution: Only CNG and electric vehicles allowed entry from today**

*Date:-27-November-2021, Source: dnaindia.com*



#### **Entry of trucks and other vehicles, except for those involved in essential services, from outside Delhi has already been stopped from November**

With air quality showing no visible improvement, only CNG-run and electric vehicles will be allowed entry into Delhi from today. All petrol and diesel-run transportation will remain banned till December 3. The decision in this regard was taken on Wednesday.

Entry of trucks and other vehicles, except for those involved in essential services, from outside Delhi has already been stopped from November 18 to tackle the air pollution crisis. Although the order will affect the movement of commercial vehicles, it remains to be seen if private vehicles are also included under its ambit.

The move is part of a series of steps taken in the past few days to improve the deteriorating condition of Delhi's air quality. Air pollution has been a long-term problem for Delhi. On the other hand, after a short closure, Delhi schools and other educational institutes have been allowed to reopen from November 29.

Delhi Environment Minister Gopal Rai also said that all government offices will open from November 29 in Delhi. The Environment Minister has advised the staff to use public transport. Special buses will be deployed for them, he said. In another effort to control air pollution, the Supreme Court has reimposed a ban on construction activities in Delhi and its adjoining areas on Wednesday.

Meanwhile, the air quality in parts of Delhi deteriorated to a 'hazardous' level on Saturday with AQI at 556. The overall AQI in Delhi, however, stands at 386 in the 'very poor' category, according to the System of Air Quality and Weather Forecasting And Research.

### **Increase in wind speed may improve air quality in Noida, Ghaziabad**

*Date:-28-November-2021, Source: hindustantimes.com*



**Heavy dust pollution at Loha Mandi Road in Ghaziabad on Sunday. The air quality index in the city stood at 353**

Some respite is likely in store for Noida, Greater Noida and Ghaziabad, which have been reeling under 'very poor' air at least for the last five days till Sunday, as the forecast by Safar indicates that there might be a slight improvement in the air quality over the next two days (November 29 and 30) due to increase in wind speed.

According to the air quality index bulletin issued by the Central Pollution Control Board (CPCB), Ghaziabad, Greater Noida and Noida recorded AQI values of 353, 346 and 362, respectively, on Sunday.

"Local surface winds are likely to increase moderately on 29th and 30th (November) that increases dispersion of pollutants leading to slight improvement but AQI remains in 'very poor' category. From December 1, wind speed and temperature are likely to decrease reducing ventilation and leading to slight deterioration of air quality. Low mixing layer height is preventing efficient dispersion of pollutants," said the forecast by the System of Air Quality and Weather Forecasting and Research (Safar).

Experts, on the other hand, said there are chances of a western disturbance around December 5-6.

"This could lead to snowfall in hilly regions and light rains may take place in Delhi-NCR. The rainfall may be moderate in Punjab, Haryana and western Uttar Pradesh. Due to this, there is likelihood of further drop in temperature, which may lead to foggy conditions after December 7," said Mahesh Palawat, vice-president, meteorology and climate change, Skymet.

"The rainfall would prove beneficial as it is likely to bring down the pollution levels," he added.

Officials of the Uttar Pradesh Pollution Control Board (UPPCB) said they are implementing measures, such as road sweeping and water sprinkling, to control local sources of pollution.

"Ghaziabad's AQI levels have come down. However, our overall AQI has been affected for the past one week due to high pollution levels at Loni, where road construction is going on. We have asked the concerned agencies to take up corrective measures," said Utsav Sharma, regional officer of UPPCB, Ghaziabad.

In Noida, the air quality readings recorded at the Sector-62 monitoring station is adversely affecting the overall AQI.

“Air pollution levels have spiked sharply at the Sector 62 monitoring station. We are trying to find the reasons for the high pollution levels but nothing has come to the fore till now. Since this station is of the Indian Meteorological Department, we have asked them to re-calibrate the sub-station in order to resolve the issue. All the local measures to curb pollution are already in place across the city,” said Praveen Kumar, regional officer of UPPCB, Noida.

## **India's farmers happy as ban on smoky stubble burning repealed**

*Date:-29-November-2021, Source: thenationalnews.com*

Indian farmers and environmentalists have hailed the government's move to decriminalise stubble-burning but have urged authorities to help end the earth-scorching method that is blamed for aggravating worsening air pollution in New Delhi.

The capital is one of the world's most polluted cities. It suffers from the scourge of air pollution throughout the year but toxic air levels soar during winter when winds push the smoke from farmlands into the city and shroud it under a blanket of smog.

Stubble-burning, which involves farmers setting fire to leftover rice straw, was banned by an environmental court in 2015. It was repeatedly endorsed by the Supreme Court after several studies found that the crude practice exacerbates the air pollution crisis in Delhi.

Estimates say about 20 million tonnes of stubble is burnt in the vast farmlands of the northern states of Haryana and Punjab between October and November when farmers clear their fields for the next crop.

More than 70,000 farm fires were reported in the twin breadbasket states this season, with Nasa satellite imagery showing 57,000 fires between November 1 and November 13.

This month, the government told the Supreme Court that farm fires accounted for an average of 10 per cent of the city's air pollution. But government monitoring agencies say at its worst the effect of farm fires can account for 45 per cent of Delhi's pollution.

Those caught stubble-burning are either fined for flouting the court ban or charged under the Indian penal code, which could lead to jail terms of one month.

The announcement by the government is the latest move to placate protesting farmers – who are camping at the borders of Delhi to press for renewed demands – after Prime Minister Narendra Modi’s decision to repeal three divisive farm laws.

Farmers have refused to end their year-long protest, which was sparked by the contentious legislation, until the government decriminalises stubble-burning, reforms its electricity laws and promises guaranteed benchmark rates for agricultural produce.

"The farmers' demand was to decriminalise stubble-burning. The Government of India has agreed to this demand," Agriculture Minister Narendra Singh Tomar told an Indian news agency.

Farmers hailed the move but have demanded that the government follows up with subsidies and alternative methods to help them manage and dispose of millions of tonnes of farm residue.

"It is a welcome move but rather than just decriminalising it, farmers should be given a substitute. People will stop burning stubble if they know how to get rid of the stubble without burning it," Lovepreet Singh, 24, a farmer protesting at the Singhu border, told The National.

Environmentalists say the ban on stubble-burning was an ad hoc measure and is a move in the right direction as the government needs to find a long-lasting solution to the issue.

"While decriminalising stubble-burning, the government has a responsibility to raise awareness in farmers and to find and implement real solutions to farm waste management," Sunil Dahiya, an analyst for the Centre for Research on Energy and Clean Air, told The National.

### **Delhi's pollution drops to 7-day low but stays in 'very poor' zone**

*Date:-30-November-2021, Source: hindustantimes.com*

Delhi's air quality improved on Tuesday, but stayed in the 'very poor' category, as wind speeds ranged between 10-12 km/hr during the day, helping pollutants disperse.





**Low visibility due to a layer of smog at Vijay Chowk, in New Delhi on Tuesday**

Delhi recorded a 24-hour average air quality index (AQI) of 328 (very poor) on Tuesday, down from 389 on Monday, according to the Central Pollution Control Board's 4pm bulletin.

Winds did, however, get significantly slower in the evening, falling to speeds of less than 3km/hour after 5.30pm. Weather officials forecast that calm conditions from Wednesday will see the pollution take a turn for the worse, adding that Delhi could receive light rain on Thursday, as a western disturbance approaches.

"Local surface winds were relatively strong on Tuesday, leading to an improvement, but the AQI remained within the 'very poor' category. On December 1 and 2, winds are likely to be calm, reducing ventilation and leading to deterioration in the air quality," said the System of Air Quality and Weather Forecasting And Research (Safar), a body under the ministry of earth sciences.

Gufran Beig, founder and project director at Safar said stubble burning season in northern states was at its end, with farm fires contributing to just 1% of Delhi's PM2.5 (ultra-fine polluting particles) count on Tuesday.

“Only 186 fires were recorded across the northern plains. Wind speeds will again drop from Wednesday and a low mixing layer will also influence pollution levels,” he said.

Delhi recorded a minimum temperature of 9.8 degrees Celsius on Tuesday, while the maximum was 25.6 degrees, both around the normal mark for this time of the year.

“Delhi is expected to see two western disturbances in the first week of December. While the first may bring light rain on December 2, the second could bring light rain on December 6,” said RK Jenamani, scientist at IMD, stating showers will drop the day-time temperature, but minimum temperature will rise during these two spells. He said while November tends to see one to two WDs each year, December generally sees two to three WDs. “We are already expected to see two of these WDs and this can help the air quality,” he added.

According to the seven day forecast by the Early Warning System (EWS) for Delhi, the air quality will remain in the ‘very poor’ category, unless Delhi receives significant rain.

“From December 1, the air quality is likely to deteriorate but will remain in the ‘very poor’ category and PM 2.5 will be the prominent pollutant during this period,” said the daily bulletin released by the EWS.

## **December 2021**

### **Delhi air pollution: No relief in sight till Thursday**

*Date:-1-December-2021, Source: indiatvnews.com*



### **Delhi air pollution: No relief in sight till Thursday**

A cloud cover over Delhi led to a slight increase in the minimum temperature that settled at 11.5 degrees Celsius, two notches above normal, on Wednesday morning, officials said. They said a Western Disturbance affecting northwest India will result in a spell of partly cloudy days and a drizzle on Thursday in the national capital. The maximum temperature is likely to settle around 25 degrees Celsius.

However, the slow wind speed due to the Western Disturbance will allow accumulation of pollutants and thus, increase the air pollution levels, the officials said.

At 9 am, the city's Air Quality Index (AQI) read 357. The 24-hour average AQI stood at 328 on Tuesday. Neighbouring Faridabad (342), Ghaziabad (361), Greater Noida (310), Gurgaon (359) and Noida (336) also recorded a dip in the air quality with the wind speed decreasing. An AQI between zero and 50 is

considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

According to the Ministry of Earth Sciences' air quality monitor SAFAR, a favourable wind speed is expected again from December 3.

On Tuesday, the Delhi government had issued an order extending the ban on the entry of trucks, barring those engaged in essential services, in the city till December 7. CNG and electric trucks will be allowed to enter Delhi.

The ban on construction and demolition activities in the national capital will continue till further orders in view of the high air pollution levels. Physical classes in schools, colleges and other educational institutions resumed and government offices reopened from Monday.

### **Local pollution sources at fault as stubble fire season wraps up**

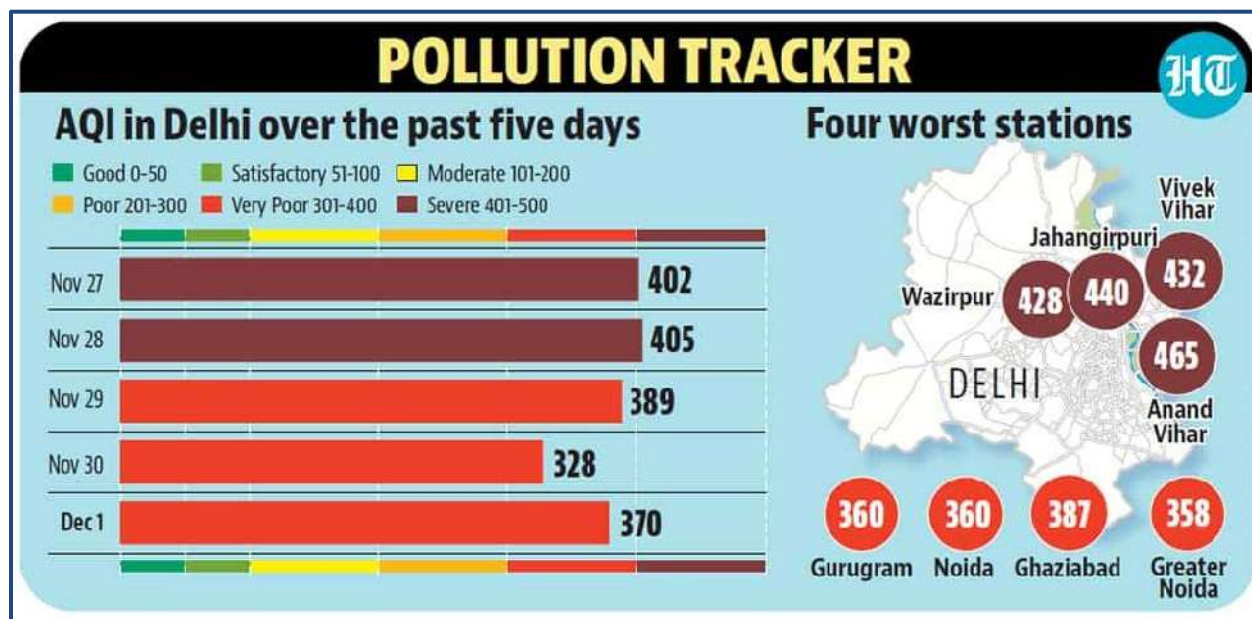
*Date:-2-December-2021, Source: hindustantimes.com*



With farm fires falling to negligible levels in Haryana and Punjab, Delhi's hazardous pollution levels were largely due to local emissions, showed data collated by the Indian Institute of Tropical Meteorology's (IITM) decision support system.

According to their recordings, since November 30, the share of stubble burning in Delhi's pollution came down to zero, a level it is likely to stay at for the next five days, establishing the end of the stubble fire season this year.

On Thursday, vehicular emissions contributed to nearly 20% of the city's PM 2.5 levels (ultrafine particulate matter with diameter less than 2.5 micrometres), while industrial emissions from Delhi and peripheral areas contributed to over 11% of the Capital's pollution levels, the data showed.



“Farm fire season is over. Its contribution to Delhi's air has been nearly zero for the past few days. The predominant contributors to Delhi's pollution currently are its own local sources and some emissions from the National Capital Region,” said a senior IITM scientist, requesting anonymity.

Environmental experts also stressed on the need to control local pollution sources.

Tanushree Ganguly, programme lead, Council on Energy, Environment and Water (CEEW) said, “We are observing high PM2.5 levels during the morning and evening hours, when winds are typically calmer. While the government is taking measures to reduce emissions from trucks and construction sites, authorities should explore restrictions on private vehicles. Private offices should consider working from home.”

She added, “Data from previous years suggests that the months of December and January experience poor to very poor air quality conditions. Therefore, it is

critical to take all possible measures to reduce emissions and the exposure of vulnerable populations like children and elderly during these months.”

## **Haryana schools to remain closed in 4 NCR districts amid rising air pollution**

*Date:-3-December-2021, Source: news.careers360.com*



### **Haryana schools closed as air quality deteriorates in Delhi**

CHANDIGARH: The Haryana government has ordered the closure of all schools in its four districts adjoining Delhi with immediate effect in the wake of “deteriorating air quality” in the National Capital Region (NCR). Also read | All Delhi schools to be closed from tomorrow till further orders due to poor air quality The schools in Gurugram, Faridabad, Sonipat and Jhajjar will remain shut until further orders following the government's order on measures to manage air quality in NCR districts of Haryana.

The order, issued by the additional chief secretary of Haryana's Environment and Climate Change Department dated December 2, has also completely banned construction activities, except "non-polluting activities" such as plumbing, interior decoration, electrical work and carpentry, besides those exclusively permitted by the Commission for Air Quality Management in NCR and adjoining areas.



These curbs shall be strictly implemented in all 14 NCR districts of Haryana until further orders, it said. Delhi government also closed all schools from today due to high air pollution levels. The announcement was made by the environment minister Gopal Rai after the Supreme Court slammed the Delhi government for reopening schools amid the deteriorating air quality in the national capital. The Commission for Air Quality Management(CAQM) had previously advised the states of Haryana, Rajasthan and Uttar Pradesh to consider implementing restrictions including the closure of schools and ceasing construction and demolition activities to limit air pollution levels. Also read | HTET Application Form 2021: Last day to apply at [haryanatet.in](http://haryanatet.in)

### **The reason behind the high pollution levels in Delhi and adjoining states**

If the particulate matter (PM2.5 and PM10) levels continue to be above 300 micrograms per cubic metre for PM2.5 and 500 micrograms per cubic metre for PM10 for 48 hours or more, the air quality is considered to be in the emergency category. The countermeasures for dealing with the "emergency" situation include stopping the entry of trucks in Delhi, ban on construction activities and introducing of the odd-even car rationing scheme. According to the commission, the dust storm moving in from the south-westerly directions of the Thar desert contributed significantly to the rising PM2.5 and PM10 levels. The commission further noted that five areas which include stubble burning, construction and demolition activities, dust from roads and open areas, vehicular pollution and industrial emissions need better focus with efforts from the concerned agencies.

### **Farm fires gone, weather now polluting Delhi's air?**

*Date:-4-December-2021, Source: [hindustantimes.com](http://hindustantimes.com)*

The Union government told the Supreme Court on Friday that it is constituting an enforcement task force and 17 flying squads to implement pollution control measures through surprise checks, inspection and closure of polluting units. On Thursday, the top court observed that it could set up a task force itself since “nothing is really happening to control pollution”. The court is not wrong about the pollution problem. Delhi's Air Quality Index (AQI) has been in the “severe” category in four out of the last seven days ending December 2, according to 24-hour bulletins issued by the Central Pollution Control Board at 4pm. PM2.5 concentration level – it is the most harmful pollutant – has been above the “severe” benchmark for five of seven days ending December 1. Even the light rain on December 2, did little to bring down pollution levels with AQI

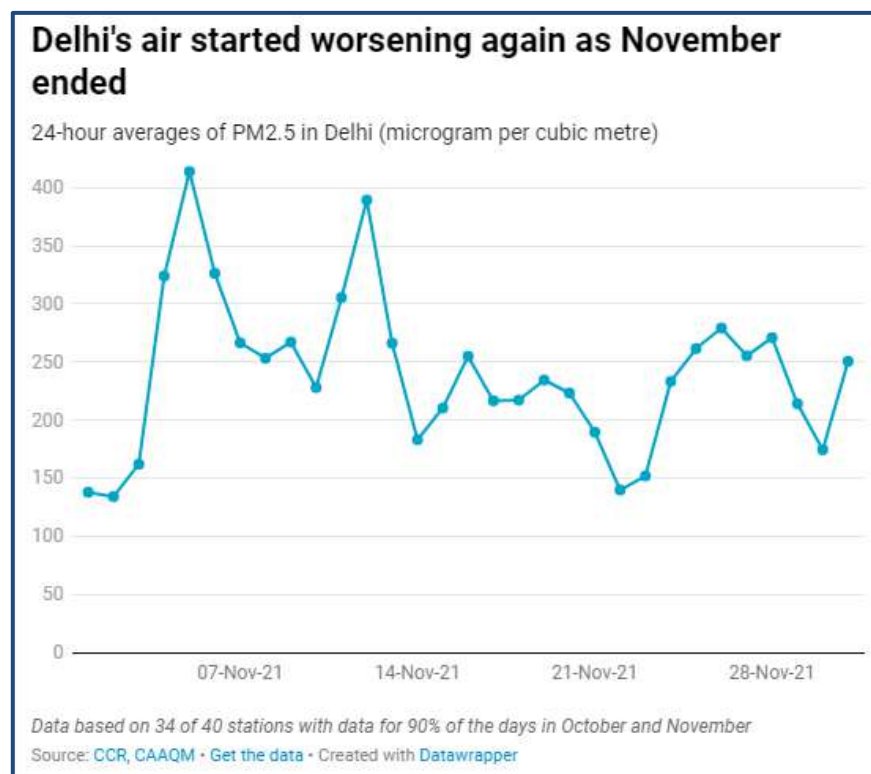
remaining in the “very poor” category (346) according to the 24-hour average at 4pm on December 3.

The recent spike in pollution comes despite a fall in the contribution of pollutants from stubble burning. According to data from VIIRS instrument aboard the Suomi-NPP satellite, the number of farm fires fell every week after the second week of November. The spike in pollution, even though farm fires have fallen, underlines the importance of climatic conditions in pollution levels in not just in Delhi but entire north India. This also highlights the need for a holistic pollution policy instead of ad-hoc measures. Here are four charts which explain this argument in detail.

### **Latest spike in Delhi pollution despite decline in farm fires**

The daily average of PM<sub>2.5</sub> levels in Delhi was very high in the first week of November. The situation improved over the month, only to worsen again towards the end. A weekly classification of days by PM<sub>2.5</sub> levels shows this clearly. There were nine ‘severe’ days in the first half of November. This came down to just one day in the third week, but increased to four again in the last eight days of the month.

### **Delhi's air started worsening again as November ended**

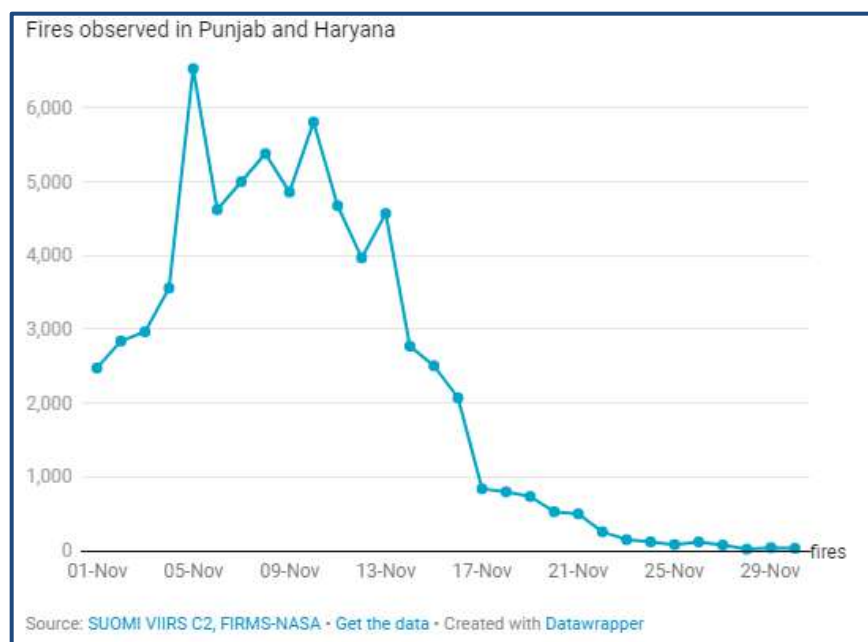


Data from the SAFAR database shows that the farm fires had a very different role to play in the spike in overall pollution levels in the beginning and end of November. Stubble burning contributed to 8% of the PM<sub>2.5</sub> concentration in the period between October 30 and November 3. This increased to 30% between November 9 and 13. The average

contribution of stubble burning to PM<sub>2.5</sub> levels was 4% in the last week of

November. This data corroborates a satellite-based count of number of farm fires in the adjoining states.

### **Farm fires have not been a problem after mid-November**



To be sure, there need not be a one-to-one correspondence between farm fires and their polluting impact on Delhi, as was explained by HT on November 16.

What explains the recent spike in pollution?

Probably it's the weather. There has been very little rain,

low wind speed and day time temperatures have been lower than average.

### **Low rains in November didn't help**

One reason why October air in Delhi and large parts of north India was cleaner than usual was the very high rainfall washing away the pollutants in air in the literal sense. The tables have turned in November, with most north-Indian states experiencing lower than normal rainfall in November. Punjab, Haryana, Delhi, Uttar Pradesh, and Bihar – all received rainfall 150% or more above the long period average or LPA (the average of rainfall in 1961-2010 period) for October. This was among the top 10 years of highest October rainfall since 1901 in all these states except Haryana, where it was the 18th highest. This helped these states in October, as rainfall washes away the pollutants. This advantage vanished in November. None of these states received even half a millimetre of rainfall when the LPA for November ranges from 3.6 mm in Haryana to 6.2 mm in Bihar.

### **Neither did low day-time temperatures**

Higher day-time temperatures can prevent accumulation of pollutants close to the ground during the day when vehicular and industrial pollutants are more likely to be added to the air. While November in itself is colder than October,

this year the day-time temperatures in November also deviated further below normal. Average maximum temperature for November in Delhi was 6.1% below the 1981-2010 average in the month of November.

The statistics described above show clearly how Delhi's pollution levels remain at the mercy of meteorological factors. The December 2 air quality forecast on the SAFAR website speaks for itself, "The AQI today (December 2) indicates 'very poor' air quality. For the next three days, winds are likely to be calm reducing ventilation leading to deterioration of air quality but within the same category. From 6th Dec onwards winds are expected to increase dispersing pollutants but AQI likely to remain in 'very poor' category. Partly cloudy sky and low mixing layer height are preventing efficient dispersion of pollutants", the forecast says.

### **Delhi Metro tackles air pollution with 14 anti-smog guns**

*Date:-5-December-2021, Source: indiavnews.com*



**Delhi Metro tackles air pollution with 14 anti-smog guns**

The Delhi Metro Rail Corporation (DMRC) has pressed 14 Anti Smog Guns (ASGs) into service to combat air pollution at the sites where it is constructing infrastructure for the metro rails. The anti-smog guns throw fine mist from time to time to check the possibility of dust pollution emanating from the construction work.

Currently, as part of its Phase 4 expansion as well as some other construction projects, 12 civil contracts are operational across the national capital. These state-of-the-art ASGs are capable of spraying fine mist up to 70 to 100 meters. One ASG is considered adequate for covering an area of up to 20,000 square meters.

The DMRC said it ensures that the water used for sprinkling is free from coliforms, viruses, and bacteria.

"High-quality nozzles with droplet sizes of 10 to 50 micrometers are used for greater impact. With the gradual expansion of construction work, more such ASGs shall be introduced at the sites in the days ahead," it said.

The Delhi Government in November imposed a ban on construction and demolition activities in the city, following soaring levels of air pollution.

"Currently, all construction work apart from those which are non-polluting in nature have been stopped in compliance with relevant directions. While, the DMRC is ensuring complete compliance to all the pollution-related instructions, these mist guns have been installed as a permanent measure to combat pollution and are employed at the sites around the year. Even when construction work is not going on, Mist Guns prevent the loose soil/earth stored at construction sites from being airborne thus reducing air pollution," it added.

Traditionally, anti-smog guns were used at coal and cement manufacturing sites across the world.

In November 2016, DMRC became possibly the first construction company in the National Capital Region to use the ASGs at its sites as a pilot project.

Based on the feedback received from the initial use of ASGs at the sites, their use was made mandatory in the conditions of contract for civil contractors in DMRC's fourth phase of expansion.

Even the Delhi Government has now made the use of ASGs mandatory for all construction agencies in the national capital as a tool to combat pollution.

Detailed guidelines regarding the use of water droplets, nozzles have also been issued in this regard.

Pertinently, entire northern India, especially the Delhi-NCR grapples with the menace of severe pollution during the months of October to December.

### **Delhi air quality slightly improves but still in 'very poor' category**

*Date:-6-December-2021, Source: business-standard.com*



#### **Low visibility due to a thick layer of smog at Vijay Chowk in New Delhi**

Delhi's air improved slightly on Monday but was still polluted as property developers moved the Supreme Court against its order to re-impose the ban on construction activities in the national capital.

The Air Quality Index (AQI) was 311 --'very poor'-- at 8 am, according to the state-run System of Air Quality and Weather Forecasting And Research



(SAFAR). Readings below 50 are considered safe, while anything above 300 is considered hazardous or 'severe'.

The Developers and Builders Forum, a body of more than 60 builders, filed a plea in the apex court, and contended that they use the latest construction technology so as to reduce dust pollution and adhere to the laid-down norms. The plea is likely to be mentioned on Monday.

As of now, schools have been ordered to remain closed, construction and demolition activities have been banned in the national capital to curb the air pollution levels in Delhi.

Delhi's air quality in November was the worst in seven years, data showed. The national capital's air quality became worse after Diwali on November 4 as people violated a ban on bursting firecrackers while the pollution compounded due to an increase in stubble burning by farmers in areas adjoining the national capital.

Delhi was this morning the world's sixth most polluted city with an AQI of 183, said iQair, a website that tracks air pollution worldwide.

Air pollution costs Indian businesses \$95 billion or roughly 3 per cent of its GDP every year, according to U.K.-based non-profit Clean Air Fund and the Confederation of Indian Industry, Bloomberg has reported.

### **Kolkata's air quality improves by 80-90% after cyclone-induced rainfall**

*Date:-7-December-2021, Source: business-standard.com*

Kolkata's air quality improved by around 80-90 per cent after Cyclone Jawad-induced rain lashed the city in the last couple of days, pollution control board officials and environmentalists said on Tuesday.

The Air Quality Index (AQI) of 20 (good) was registered at Victoria Memorial, 43 (good) at Ballygunge, 33 (good) at Rabindra Sarobar, and 51 (satisfactory) at Rabindra Bharati University at 7 AM on Tuesday, as per data provided by the Central Pollution Control Board.

It was 185 (moderate) at Victoria Memorial, 212 (poor) at Ballygunge, 163 (moderate) at Rabindra Sarobar, and 307 (very poor) at Rabindra Bharati University at 9 AM on December 3 before the rain kicked in, it said.



"A maximum of 90 per cent and a minimum of 80 per cent improvement in the AQI of Kolkata was reported after the cyclone-induced rain lashed the city. This was a record low for the city in the month of December in the last 40 years," Environmentalist S M Ghosh told PTI.

West Bengal Pollution Control Board (WBPCB) Chairman Kalyan Rudra said that the improvement in AQI was very encouraging and air pollution was certainly one of the lowest, and the unseasonal rain definitely played a part in it.

He, however, said there was no mechanism to monitor real-time air quality four decades ago.

The average PM 2.5 level was at 19 mg per cubic meter, which is one of the lowest in the air pollution history of the eastern metropolis, the WBPCB said.

Even Howrah's Ghosuri, which normally records heavy air pollution due to the presence of several foundries where junk metals are processed, the AQI was 40 (good).

The AQI at Victoria Memorial monitoring station on December 6 last year was 254, and 175 in 2019.

### **Delhi's air quality improves slightly form 'very poor' to 'poor', AQI at 235**

*Date:-8-December-2021, Source: zeenews.india.com*



New Delhi: Delhi's air quality improved marginally on Wednesday morning as it slipped to 'poor' category from the 'very poor' category. The Air Quality Index (AQI) in the city (overall) was recorded at 235 at 7.40 AM.

According to the System of Air Quality and Weather Forecasting And Research (SAFAR), the level of PM 2.5 and PM 10 in the air at 7.40 am stood at 'poor' and 'moderate' levels, respectively.

The air quality in the national capital remained stagnant in the 'very poor' category for several days in the past week. An AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

Even after witnessing a slight improvement in air quality, the resident of the city complained of its poor quality. "The government should take stricter measures to check pollution. Awareness campaigns like `Red light on, Gaadi (car) off` does not help in tackling the situation at a larger level," said a local resident from Khan Market.

Vinay Kumar Verma echoed the same opinion and said, "The situation of pollution is still bad and the government must take stricter measures. I am sure the pollution must have improved slightly but we must not rest at this."

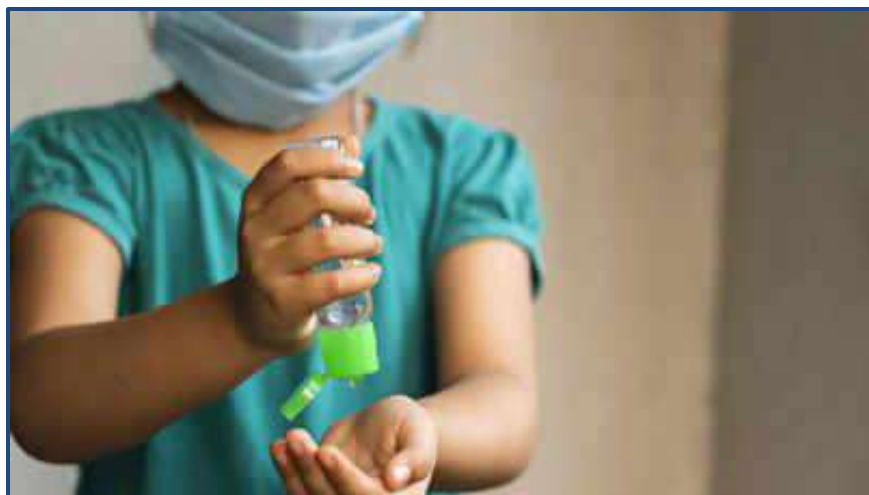
Meanwhile, the AQI in Gurugram and Noida was recorded at 235 and 286 respectively, both in the `poor` category at 7.40 am.

In light of the poor air quality standards in Delhi-NCR, the Commission for Air Quality Management in NCR and Adjoining Areas (CAQM) on Tuesday ordered the immediate closure of industries not running on PNG or cleaner fuels in industrial areas despite the availability of gas infrastructure and supply.

After the Supreme Court pulled up Delhi Government for the opening of schools amid the rising air pollution level in the city, it directed that schools should remain closed until further orders. The schools in the four districts of Haryana adjoining Delhi has been closed till further orders.

### **Delhi's indoor pollution levels way above WHO limit: Study**

*Date:-9-December-2021, Source: [timesofindia.indiatimes.com](https://timesofindia.indiatimes.com)*



NEW DELHI: A study conducted by Energy Policy Institute at the University of Chicago over a period of two years has revealed indoor PM<sub>2.5</sub> levels in Delhi to be extremely high during the winter.

While the average PM<sub>2.5</sub> levels for low-income households were 23 times the WHO-recommended safe limit of 10mg per cubic metre, it was 29 times in the case of high-income households.

The survey covered about 3,000 households in the city between 2018 and 2020. The findings were released on Wednesday.

The research also found that on an average, the indoor PM2.5 levels were substantially higher than the corresponding value reported by the nearest government monitor.

The study suggested that high-income households were 13 times more likely to own air purifiers than low-income households. However, the indoor air pollution levels in those homes were only 10% lower than those living in disadvantaged settings.

“In Delhi, the bottom line is — whether someone is rich or poor, no one gets to breathe clean air,” said Dr Kenneth Lee, the lead author of the study. “It’s a complex vicious cycle. When you do not know about the pollution levels inside your homes, you do not worry about it and are less likely to take corrective action. Only with increased awareness can the demand for clean air gain momentum.”

Dr Lee said it was critical to address the information gaps related to indoor air pollution urgently.

“High-frequency accurate PM2.5 information communicated through government monitors or indoor monitors is the first step, but only when it is complemented with an increase in literacy around health consequences of pollution and the benefits of adopting various defensive actions can we expect favourable outcomes,” he added.

The study said indoor PM2.5 levels tend to spike in the mornings and evenings, the usual time for cooking in households. It also found that in homes with access to real-time pollution data, an 8.6% decline in indoor PM2.5 concentrations was recorded.

The research said households were offered a free, month-long trial for an indoor air quality monitor during peak pollution period, but only 15% agreed. It indicated that demand for air pollution information and defensive technologies may be low among residents in the city.

## **Delhi: Mercury dips to season's low, pollution up**

*Date:-10-December-2021, Source: hindustantimes.com*



### **Pigeons take flight on a foggy morning in the outskirts of Dwarka in New Delhi.**

The minimum temperature in Delhi on Thursday fell to a season-low of 8.4 degrees Celsius, showed data from the central weather office, as clear skies paved the way for cooler days and nights.

The pollution levels too stayed in the 'poor' zone for the second straight day, though forecasters did warn that the air quality may worsen marginally this week.

The minimum temperature at Safdarjung, Delhi's base station, on Thursday was a notch below normal, and lower than the previous day's recording of 10.1°C.

The maximum temperature in the Capital, meanwhile, was 23.5°C, one below normal, and down marginally from 24°C on Wednesday.

Weather forecasters said that cloudy skies in Delhi over the past few days kept temperatures from dipping, adding that clearer skies over the coming week will see the mercury fall further.



“When you have cloudy skies, the heat from the surface gets trapped and cooling does not happen at a fast rate. Now that Delhi is likely to have clearer skies the minimum temperatures will remain around 7-8°C,” said Mahesh Palawat, vice-president (meteorology and climate change), Skymet Weather Services.

He added that heavy snowfall in parts of Himachal Pradesh, Uttarakhand and Jammu & Kashmir played their part in reducing Delhi’s mercury.

“Delhi has been receiving consistent winds from the northwest. Since there has been heavy snowfall in parts of Himachal Pradesh, J&K and Uttarakhand, colder winds from there are helping bring down the temperatures,” he said.

Owing to the cloud cover over the city for much of the month, Delhi has so far this December been warmer than normal, according to data from the India Meteorological Department (IMD).

The minimum temperature has oscillated between 10-12°C over the last week, and on December 5, it rose to 15°C (three above normal).

And while clear skies helped keep the city’s pollution levels in the ‘poor’ zone on Thursday, they did increase marginally from the previous day, showed recordings from the Central Pollution Control Board (CPCB).

Delhi’s 24-hour average air quality index (AQI) rose to 289 on Thursday, from 237 on Wednesday.

An AQI between zero and 50 is considered good, 51 and 100 satisfactory, 101 and 200 moderate, 201 and 300 poor, 301 and 400 very poor, and 401 and 500 severe. Forecasts said that they air is likely to worsen on Friday.

“The air quality over Delhi is likely to deteriorate marginally but remain in poor to lower end of very poor category owing to slow wind speed. No major deterioration in air quality is forecast for the next two days,” the pollution forecast by the Union ministry of earth sciences’ early warning system read

### **AQI in Delhi back to very poor as winds get slower**

*Date:-11-December-2021, Source: hindustantimes.com*

Pollution levels in Delhi got worse on Friday as winds got slower, said the India Meteorological Department (IMD), even as the weather office predicted improved air quality over the weekend.



**The average AQI in the national capital remains in the ‘very poor’ category**

Temperatures increased marginally on the day and officials said they expect the mercury to remain stable till Monday.

Recordings from the Central Pollution Control Board (CPCB) showed Delhi’s 24-hour average air quality index (AQI) at 4pm on Friday was 314 (very poor), worse than 289 (poor) a day earlier.

“The winds were relatively slower on Thursday, because of which there was some accumulation of pollutants in Delhi. But the winds picked up from Friday afternoon, the impact of which will be visible from Friday evening. There will be a marginal improvement in air quality on Saturday, and the AQI will remain in the poor range till November 13,” said VK Soni, head of IMD’s environment and research centre.

He said that winds will be strong enough to clear up pollutants till November 13, but added that the weather office expected the AQI to worsen into the ‘very poor’ zone again on November 14 and November 15, on the back of a fall in the temperature and wind speeds.

An AQI between zero and 50 is considered good, 51 and 100 satisfactory, 101 and 200 moderate, 201 and 300 poor, 301 and 400 very poor, and 401 and 500 severe.

“Low temperatures impact the mixing height of the atmosphere and force pollution particles to stay close to the surface,” explained Soni. The air quality forecast issued by the Union ministry of earth sciences’ early warning system said the winds on Saturday are likely to get faster and reach 8-10kmph.

Meanwhile, the minimum temperature at Safdarjung, Delhi’s base station, was 9°C, up from 8.4°C on Wednesday. The maximum temperature was 23.7°C, a notch below normal.

“Temperatures are likely to remain in the 7-8°C range for the next two days. Cold winds from the freshly snowed states of Jammu & Kashmir, Himachal Pradesh and Uttarakhand will blow into Delhi and keep the temperatures lower compared to what it

### **Air pollution: AQI of UP cities improves to “moderate” from “severe”**

*Date:-12-December-2021, Source: hindustantimes.com*

The Air Quality Index (AQI) of major Uttar Pradesh cities has shown marked improvement from “severe” and “very poor” to “poor” and “moderate” since November, as per the data of Central Pollution Control Board (CPCB).

“The AQI numbers of major UP cities have not only improved since last month but are also better than the numbers of previous years. The air quality has improved despite drop in temperatures. This shows that the efforts made by agencies at district level and that of Uttar Pradesh Pollution Control Board (UPPCB) have been effective in improving air quality,” said member secretary of UPPCB Ajay Sharma.

The pollution control boards along with municipal corporations, traffic and agriculture department have implemented graded response action plan (GRAP) across the state to reduce air pollution as per the directions of chief minister Yogi Adityanath.

The GRAP refers to strict curbs on air pollution causing activities like stubble/garbage burning, uncovered construction work, illegal emissions in industries and taking measures to improve air quality.

According to experts, recent scattered rains in part of west UP and drop in stubble burning has helped in improving the air quality.

The AQI value of state capital Lucknow on Saturday was recorded at 199 that was down from 205 on November 11. An AQI in range of 101 to 200 is considered moderate, between 201 and 300 is considered poor while above 401 is considered severe with known adverse impact on human health on exposure.

The change in AQI value of other cities differ more. The AQI of Agra, Baghpat and Bulandshahar on Saturday was 148, 193 and 185, far less than the AQI recorded on November 11 that was 437, 437 and 447 for the cities respectively. The AQI of Ghaziabad and Kanpur on Saturday was recorded at 264 and 186 which was less than 461 and 246 recorded on November 11. Similarly, the AQI in Prayagraj, Varanasi and Gorakhpur was recorded at 117, 122 and 113 as compared to 247, 293, and 271 recorded respectively on November 11.

### **Delhi air pollution: Ban on construction and entry of trucks to continue till further orders**

*Date: -13-Dec-2021, Source: scroll.in*



**A man rides a bicycle along a street amid smoggy conditions in Delhi on December 2**

The ban on construction activities and the entry of trucks in the national Capital will continue till further orders in view of predictions of a decline in the

city's air quality, Delhi Environment Minister Gopal Rai said on Monday, reported PTI.

Rai said Delhi's air quality index has remained between 250 and 325 between December 1 and December 12. However, he said that experts have predicted that the air quality was likely to deteriorate in the next three days, he said.

Delhi's air pollution levels has worsened drastically since Diwali.

Construction activities had been banned in Delhi and the adjoining National Capital Region on November 25 in view of the air pollution following a Supreme Court order.

On December 10, the Supreme Court, which is hearing petitions seeking emergency steps to control the worsening air pollution, had allowed the Delhi government to resume construction work of hospitals.

On Monday, Rai said that the education department has sent a proposal to his ministry about reopening colleges and schools for students in Class 6 and above. The minister said that the education department has also suggested reopening schools for children of Class 5 and below from December 20.

The Delhi government had closed all schools on December 3 after reopening them just four days ago.

The education department's proposal will be sent to the Commission for Air Quality Management, which has been tasked by the Supreme Court to take a call on the reopening of schools and colleges, Rai said.

Rai also listed measures undertaken by the Delhi government to curb pollution, including a water sprinkling drive and anti-open burning, reported ANI.

Meanwhile, real-time data available on System of Air Quality and Weather Forecasting and Research, or Safar, showed that Delhi's overall Air Quality Index was at 328 as of 6 pm on Monday,

Air Quality Index, or AQI, between zero and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and 401 and 500 "severe".

## Bihar's air quality deteriorates with dip in mercury

Date: -14-Dec-2021, Source: hindustantimes.com



**Low visibility at Bailey road in Patna on November 20**

With a dip in temperature, the air quality index (AQI) turned 'very poor' in the state on Tuesday.

According to the Central Pollution Control Board (CPCB), an overall air quality index (AQI) of Patna based on six air monitoring stations stood at 313 which

was categorised under 'very poor'. Observatories near Planetarium, Danapur, Samanpura and Rajbansi Nagar inched close to 'severe' air pollution where AQI levels fluctuated between 350 to 380. Muradpur-based apparatus recorded 'poor' and Shikapur 'moderate' AQI.

The CPCB classifies an AQI of zero to 50 as 'good', 51-100 as 'satisfactory', 101-200 as 'moderate', 201-300 as 'poor', 301-400 as 'very poor' and above 401 as 'severe'.

Apart from Patna, Muzaffarpur also recorded 'very poor' air quality with an index value of 346. Gaya recorded 'poor' air quality with an index value of 233.

Meanwhile, the maximum temperature in the state remained 22°C while the minimum temperature was around 10°C.

As per Patna Meteorological Centre, Gaya remained the coldest in the state with the lowest minimum temperature of 7.8°C. Patna recorded a maximum temperature of 24.2°C and a minimum temperature of 9.2°C.

As per data available, Patna recorded 'very poor' AQI five times in 15 days this month.

Bihar Pollution Control Board's chairman Ashok Ghosh, said, "Rise in air pollution with a dip in mercury in common during the winter season as low



temperature causes thermal immersion which traps air pollutants and obstructs them from rising high.”

Ghosh said the pollution control board is working closely with concerned departments including road and building construction, agriculture, environment and urban development for reducing air pollution levels in the state.

He said, “In a recent meeting, we have emphasised construction department to ensure coverage of construction sites with green screen. Similarly, other departments are also working on assigned tasks for reducing air pollution in the state. However, we need to put consistent efforts for a couple of years to get visible improvement in air pollution in the state”, he added.

### **Pollution: Air quality in Delhi, Noida in 'very poor' category**

*Date:-15-December-2021, Source: oneindia.com*



New Delhi, Dec 15: Delhi's air quality has continued to remain in 'very poor' category with the overall Air Quality Index (AQI) at 346 at 7:20 am. The level of PM 2.5 at 7:20 am stands at 'very poor' category, while the PM 10 stands at 'poor' category.

With AQI at 344, the air quality in Noida too remains in the 'very poor' category. Meanwhile, the air quality in Gurugram has slipped to the 'poor' category. The AQI here stands at 269. According to the government agencies, AQI between 0-50 is considered good, 51-100 is satisfactory, 101-200

moderate, 201-300 poor, 301-400 very poor and 401-500 are marked as severe/hazardous.

The air quality in the national capital has remained in 'poor' to 'very poor' categories for over a month now. The Delhi government has taken several measures to bring down the air pollution. From banning construction workers to launching 'red light on gaadi off' campaign, the government has taken steps to reduce the pollution levels.

After a review meeting on Monday, the Delhi government has extended the ban on the entry of non-essential trucks in the national capital till further orders.

### **India has 9 of 10 most polluted cities, but few air quality monitors**

*Date:-16-December-2021, Source: business-standard.com*



With its size, population and aggravating air pollution, India needs 1,600 to 4,000 air quality monitors but has only 804 as of September 16, 2021, most of which are concentrated in urban areas, shows research. This, experts say, prevents India from knowing the true extent, scale and geographical spread of

various pollutants, and limits the government's ability for preventive public health measures.

India has nine of the 10 most polluted cities in the world, but with 200 particulate matter (PM) 2.5 monitoring sites in operation during the 2010-2016 period, India's air quality monitor density--about 0.14 monitors per million people--is below China (1.2), the United States of America (3.4), Japan (0.5) and Brazil (1.8), according to research from 2019.

As a consequence, India does not accurately know the spread of pollutants, including sulphur dioxide (SO<sub>2</sub>), nitrous dioxide (NO<sub>2</sub>), respirable PM 10, the finer particulate matter or PM 2.5, lead, carbon monoxide (CO) and ammonia. Chronic exposure to these pollutants contributes to the risk of developing ailments such as cardiovascular, respiratory diseases, as well as of lung cancer, according to the World Health Organization.

Further, since existing air quality monitors are concentrated in urban areas, health and environmental authorities cannot assess the extent of air pollution in rural areas due to biomass, fuelwood, stubble burning and spraying of pesticides.

### **Real-time air quality monitoring needed**

Ambient air quality is monitored by observing pollutants, including SO<sub>2</sub>, NO<sub>2</sub>, PM 10, PM 2.5, lead, CO and ammonia, present in the air. Currently, the country's clean air programme has set a tentative national target of 20%-30% reduction of air pollution in 132 non-attainment cities by 2024, taking 2017 as the base year. The 'non-attainment cities', called so because they did not meet the national ambient air quality standards (NAAQS) at the time, are required to formulate city-specific action plans in order to reduce air pollution. So, while the thrust is on the most-polluted cities, rural and semi-urban areas are not being fully monitored for want of monitors and protocols.

In India, air quality has been traditionally monitored using manual readings. Data from 804 monitoring stations are used for monitoring ambient air quality. Even after the introduction of real-time monitors, the Central Pollution Control Board (CPCB) continues the practice of using data only from manual monitors to report compliance with air quality standards, according to a Centre for Science and Environment (CSE) report from 2020.

There are 261 real-time monitors whose data are updated on the central database. This network is technically part of the National Air Quality

Monitoring Programme (NAMP) but its data are stored and treated separately because CPCB has not established a method of equivalence between the two monitoring techniques, the 2020 CSE report pointed out.

In the manual method, the monitoring of pollutants is carried out for 24 hours (four-hourly sampling for gaseous pollutants and eight-hourly sampling for particulate matter) with a frequency of only twice a week, whereas real-time monitors measure pollutants constantly. In simple terms, the readings from manual monitors are the ones the CPCB uses for ascertaining long-term air quality trends, including annual data on air quality. Data from real-time monitors are only included in calculating daily AQI (air quality index) of a location.

"These numbers from our 2020 report need updating but, in any case, coverage of overall urban population is inadequate and rural population is completely outside the ambit of monitoring today," said Anumita Roychowdhury, executive director at CSE and the report's author.

"Manual monitoring protocol requires readings from 104 days in a year but for some stations, we have found data was recorded only for 50-75 days," she said.

Manual monitors do not make sense for air quality monitoring anymore, said S.N. Tripathi, head of the civil engineering department at the Indian Institute of Technology, Kanpur and a member of the NCAP steering committee. "It is a very tedious procedure and readings once or twice a week are not very helpful for a day-to-day understanding of air quality. We need more frequent measurements--at least hourly readings are needed."

Experts have suggested that data from real-time monitors also be used for ascertaining long-term trends and not just for daily AQI.

In 2015, identifying this lack of monitors--there were even fewer at the time--IndiaSpend had launched its own network of low-cost sensors to measure the air quality in many Indian cities. You can read more about the project that ended in 2018, [here](#).

India needs 1,500 air quality monitoring stations

The minimum number of stations to monitor suspended particulate matter where the area's population is less than 100,000 is four. The minimum number is three for SO<sub>2</sub>, four for NO<sub>2</sub>, one for CO, according to CPCB guidelines for ambient air quality monitoring released in 2003. The number of monitors required increases with the population.

The number of sampling sites depends on the size of the area to be covered, variability of pollutant concentration, data requirements related to monitoring, pollutant to be monitored and population figures which can be used as indicators of criticality both from view of likely air quality deterioration as also health implications, the guidelines state.

When scientists compared the density of India's monitoring network with that of other high-population countries, they found large differences.

"It is like when a person is ailing, the doctor will need to measure fever before deciding the course of treatment, otherwise treatment can go wrong. The number of monitors we have recommended [in the paper] is the basic, bare minimum requirement," explained Tripathi, who is also one of the authors of this paper.

India's six megacities (Mumbai, Kolkata, Bengaluru, Chennai, Hyderabad, Delhi) need at least 23 to 44 air quality monitoring stations each, while the existing number of stations range between nine and 12 [excluding Delhi], according to the CSE report from 2020.

The monitors that India has are also not evenly distributed. "More than 33 per cent of the real-time monitors are concentrated in Delhi-NCR. Delhi alone has invested over Rs 100 crore to set up 38 stations over time," said the CSE report. In several states, including Manipur and Arunachal Pradesh, station density is very poor and only two to five years of data are currently available, said another paper, titled 'Monitoring particulate matter in India' published in Springer journal in 2019. For comparison, there are 87 monitoring stations for PM 10 and 32 for PM 2.5 in the Greater London region, a city of nine million, it said. In 2021, Manipur, with a population of 2.7 million, has only one monitoring station and Arunachal Pradesh, with a population of 1.25 million has two.

Using CPCB criteria, an average city of one million-plus residents requires around 25 monitoring stations, and if this number is extrapolated across 60 [million-plus] cities, a total of around 1,500 stations would be required, the Springer journal paper said.

An environment ministry report on NCAP agreed. "With reference to the existing 4,000 cities in the country, 703 manual monitoring stations in 307 cities reflect limited numbers and need augmentation. It is proposed to augment it to 1500 stations from existing 703 stations," it stated in its 2019 report.

At its very launch, NCAP had promised to increase the number of monitoring stations in the country, including rural monitoring stations.

### **The cost of measuring pollutants**

To address the data gaps in monitoring pollutants, India will require 1,600-4,000 monitors (1.2-3 monitors per million people), the Elsevier paper said, and warned that even at these densities, only relatively basic information on common air pollutants would be available more frequently, and would cover a relatively limited area.

The average cost of a monitoring station is around Rs 1 crore with around 10% for annual maintenance costs, the 2019 Springer paper had estimated. This would require an initial investment [of setting up 1,500 stations] of Rs 3,000 crore due to capital and operational costs for 10 years.

India has set aside a budget of Rs 470 crore for control of pollution in the financial year 2021-22, which includes funding for its ambitious National Clean Air Programme.

"On top of this, costs associated with infrastructure, personnel and training need to be accounted for; and this can be estimated as an additional Rs 3,000 crore; to cover other miscellaneous costs, an additional 50% is added to this, resulting in a total of Rs 7,500 crore. These estimates indicate that the average cost of running the Continuous Ambient Air Quality Monitoring [CAAQM] station network in each city over a 10-year period would amount to around Rs 12.5 crore per year," the paper read.

### **Rural areas should also be monitored**

The NCAP report had itself pointed out the grave problem of air pollution in rural areas and proposed to set up 75 stations in rural areas.

Rural areas suffer from outdoor air pollution as well as indoor air pollution. Major sources of outdoor air pollution are indiscriminate use of insecticides/pesticides sprays and burning of wheat and paddy straw. Atmospheric concentration of ozone has been observed higher in rural areas as compared to urban areas, the report stated.

"Under NCAP, city-level action plans were to find out pollution sources within the city," said Sunil Dahiya, analyst, Centre for Research on Energy and Clean Air. "But instead of looking at just cities, look at airsheds [airshed is a region which shares similar air quality]. States were supposed to formulate their own



state-level clean air plans based on cities' plans. Stubble burning, power plants, these are regional sources of pollution and not limited to a city or town. A hybrid of local and regional approach is needed. While we have formulated local city action plans, we are far away from state or regional plans."

### **Alternatives to expensive monitors**

Procuring new air quality monitors is expensive and time-consuming.

"Apart from government monitors, there are monitors set up by industries. If that data is coupled with government data, it could give much more granular information for the situation of pollution across the country. It will also save the cost of setting up new stations," Dahiya said.

Another alternative to expensive monitors could be low-cost sensors. These sensors offer an opportunity to generate high-resolution data at a lower cost, and with fewer deployment and access limitations. But they have not been proven to provide long-term, accurate data yet and efforts are underway to improve precision in such sensors. Latest analyses are supporting the case for deployment of well-designed low-cost sensors for measurement of air pollution at the city level, according to the Springer paper.

"While it is true that we have to expand our monitoring network, procurement of monitors is very expensive. India needs to leverage its real-time monitoring network for long-term trends and have a hybrid model with satellite monitoring and low-cost sensors that help in mapping the pollution profile and exposure of a region," Roychowdhury said.

### **At 326, Ghaziabad's air quality worst in 12 days**

*Date:-17-December-2021, Source: timesofindia.indiatimes.com*

NOIDA: Air quality in Ghaziabad and Greater Noida slipped to the "very poor" category on Thursday, a day after it recorded a marginal improvement when the AQI had settled in the "poor" category. In Noida, too, the air quality deteriorated but remained in the "very poor" category.

While Ghaziabad's AQI at 326 was the highest in the past 12 days, in Noida it was recorded at 314. In Greater Noida, the AQI stood at 308 points (on a scale of 500), up from Wednesday's 300.



**Ghaziabad's AQI at 326 was the highest in the past 12 days**

The System of Air Quality and Weather Forecasting and Research (SAFAR) has forecast a mild improvement in AQI for Noida for Friday but said it will hover in the lower end of the “very poor” category.

Pollution levels in Delhi, too, continued

to be in the “very poor” category for the fourth day in a row on Thursday, even as improvement is predicted over the next two days. A few areas of the capital, including Anand Vihar, Ashok Vihar, Jahangirpuri, Major Dhyan Chand National Stadium, Mundka, Nehru Nagar and Shadipur, remained in the “severe” air quality zone.

Meanwhile, the Commission for Air Quality Management (CAQM) in NCR on Thursday allowed some relaxations to milk and dairy units engaged in the manufacture of life-saving medical equipment or devices, drugs and medicines from the restrictions imposed by it on December 2, subject to strict compliance of the prescribed emission norms. Industries related to paddy, paper and pulp processing, distilleries and captive thermal power plants, textiles, garments and apparel including dyeing processes, have been allowed to schedule operations without restrictions for five days a week. Such industries will now remain shut for two days a week.

## **City's air quality plummets to 'poor', south Mumbai most polluted**

*Date:-18-December-2021, Source: hindustantimes.com*

Mumbai: On Friday, the city's Air Quality Index (AQI) slipped to 'poor' category with a value of 262, marking the highest level of air pollution observed this month. South Mumbai's Mazagaon and Colaba were the most polluted locations with AQIs of 358 and 346 respectively, in the 'very poor' category, according to System of Air Quality and Weather Forecasting and Research (SAFAR).



### **City's air quality plummets to 'poor', south Mumbai most polluted**

Friday's AQI was up from 120 (moderate) the previous day, as per SAFAR's network of 10 air quality monitors in Mumbai and Navi Mumbai. Of these, six recorded either 'poor' or 'very poor' air on Friday, indicating a widespread deterioration in air quality. Mumbai had previously seen such high pollution levels on November 16, when the AQI touched a season high of 268.

Officials attributed Friday's pollution spike to a sudden slowing down of winds. "From almost 16kmph on Thursday, the wind speeds on Friday were less than 8kmph in most parts of the city. As a result, particulate matter could have accumulated. Since temperatures are also low, the pollutants are settling closer to the ground. Slowing of winds could also indicate that colder conditions will set in over the next day or two," said a meteorologist with the India Meteorological Department's regional forecasting centre in Mumbai.

While Navi Mumbai, recorded a 'poor' AQI of 300, Andheri, Malad and Chembur clocked 'poor' AQIs of 266, 242 and 228 respectively.

The daytime maximum temperature on Friday stood at 29.9 degrees Celsius (three degrees below normal) while the minimum temperature stood at 19.6 (two degrees below normal). Mumbai has reported lower than normal temperatures since Tuesday this week, after the temporary onset of cooling,

north-easterly winds. As per IMD's seven-day forecast for the city, there will be a gradual decrease in temperature over the next week. The daytime maximum is expected to settle around 28 degrees Celsius by December 23, while the minimum is expected to dip more sharply, touching 16 degrees Celsius by December 23.

## **Construction curbs likely to be eased in Delhi as air quality improves: Report**

*Date:-19-December-2021, Source: hindustantimes.com*



### **The CAQM on Friday stayed the ban on construction and demolition works in Delhi-NCR, barring those in selective sectors**

The Commission for Air Quality Management (CAQM) is expected to give more relaxations to construction and demolition activities in Delhi and the National Capital Region (NCR) in wake of the air quality index (AQI) improving over the last few days, an official told news agency PTI on Sunday.

The CAQM on Friday stayed curbs on construction works across Delhi-NCR, allowing only the ones associated with healthcare, public utilities, railways, Metro, airports, national security, highways, roads, power transmission and defence, among others.

The commission also permitted offline classes in schools to resume in a phased manner. Physical classes for students of Class 6 and above were allowed to reopen on Saturday, while the same for those up to Class 5, will resume on December 27.

Classes have, however, been directed to be conducted in a hybrid nature with both online and offline teaching sessions.

Notably, schools in the national capital were scheduled to reopen on November 29, but environment minister Gopal Rai announced on December 2 that they will remain shut till further orders owing to the sharp rise in Delhi's AQI.

Delhi's air quality remained in the 'poor' category on Sunday with an overall AQI of 290, news agency ANI reported. However, as per the latest data by the Central Pollution Control Board (CPCB), several areas of the capital continue to have 'very poor' air quality. The AQI in Anand Vihar was at 328 at 3pm, in ITO at 308, in Mundka at 303, in Nehru Nagar at 317 and in Punjabi Bagh at 303, among others.

According to CPCB, an AQI between zero and 50 falls in the 'good' category, between 51 and 100 in the 'satisfactory' category, between 101 and 200 in the 'moderate' category, between 201 and 300 in the 'poor' category, between 301 and 400 in the 'very poor' category, and between 401 and 500 in the 'severe' category.

### **Delhi pollution: Construction ban over but dust control a priority, says Rai**

*Date:-20-December-2021, Source: hindustantimes.com*

New Delhi: Following directions from the Commission for Air Quality Management (CAQM) in NCR, Delhi environment minister Gopal Rai on Monday said the government has issued a notification to immediately lift the ban on construction and demolition activities and entry of trucks into the city, but added that firms need to strictly adhere to 14-point dust guidelines issued by the Delhi government.

Rai also said that the government's campaigns against dust pollution and open burning will continue, and teams will further undertake night patrolling to ensure dust norms are being followed in the Capital.

The 14-point guidelines include measures such as setting up anti-smog gun for sites measuring over 20,000 square metres, sprinkling water to settle dust,



covering construction material with tarpaulin, and cleaning up after the entry and exit of supply trucks, among others.



**The Commission for Air Quality Management (CAQM) on Monday lifted restrictions on constructions in Delhi-NCR imposed in view of the rising air pollution**

“If a construction company is found violating any of the 14 rules, firm action will be taken against the company and the site in question will also be sealed if needed. Hence, it is my appeal to all agencies involved in C&D (construction and demolition) work to not take unfair advantage or be careless now that the ban has been lifted,” said Rai on Monday.

He further asked people to report any violations on the Green Delhi app.

“Pollution levels in Delhi had increased considerably post-Diwali and we were recording ‘severe’ air. Keeping this in mind, all construction and demolition (C&D) works were banned in Delhi, with only activities of national importance allowed to continue. All trucks entering Delhi, barring those involved in essential services, were also banned, but with Delhi’s AQI not touching severe in the last 10 days, these bans have been lifted immediately,” said Rai on Monday.



Rai added the government's anti-dust campaign and its anti-open burning campaign are still in place, with agencies such as the PWD, the corporations, and the fire brigade continuing sprinkling of water.

"These campaigns and drives are continuing and it is my appeal to the people of Delhi that while some of the emergency measures we had taken to tackle pollution are now being relaxed, we still have to work towards improving the air quality in Delhi for which we need everyone's cooperation," he said.

### **Delhi to see shallow fog; Capital's air quality in 'very poor' zone**

*Date:-21-December-2021, Source: hindustantimes.com*



#### **The India Gate is barely visible due to smog in New Delhi on Monday**

NEW DELHI: Delhi is likely to see shallow fog on Tuesday, according to the India Meteorological Department's (IMD) forecast, while the Capital's air quality was in the "very poor" zone.

The minimum temperature on Tuesday is likely to be 8 degrees Celsius, while maximum is predicted to reach 21 degrees Celsius. The minimum temperature on Monday was 7 degrees Celsius, while the maximum was 22 degrees Celsius.

On the pollution front, data from the Central Pollution Control Board (CPCB) showed that the hourly air quality index (AQI) at 7am was 363. On Monday,

the average 24-hour AQI was 332, which is in the middle of the “very poor” category.

The CPCB classifies an AQI of zero to 50 as “good”, 51-100 as “satisfactory”, 101-200 as “moderate”, 201-300 as “poor”, 301-400 as “very poor” and above 401 as “severe”.

On Tuesday, the Union ministry of earth science’s air quality monitoring centre, System of Air Quality and Weather Forecasting and Research (SAFAR), said, “The AQI today indicates ‘very poor’ air quality. It will degrade further but remain in ‘very poor’ category due to cold wave conditions and moderate wind speed.”

### **AQI 'very poor' in Delhi, slips to 'critical' in Noida: Check details**

*Date:-22-December-2021, Source: hindustantimes.com*



**A truck mounted with an anti-smog gun is being used to spray water droplets to curb air pollution in New Delhi**

On Tuesday, Delhi’s air quality deteriorated to 402, in the severe zone. On Monday, the average 24-hour AQI was 332, in the ‘very poor’ category. Senior

IMD scientists said that with a western disturbance expected to impact Delhi and its neighbouring states from December 22.

Delhi continued to experience a high level of pollution as its air quality index (AQI) remained in the 'very poor' category on Wednesday morning. According to System of Air Quality and Weather Forecasting And Research (SAFAR), the national capital's AQI was 385.

Noida, meanwhile, saw its air quality slipping to 'critical' category, with an AQI of 507, according to SAFAR. Other cities in the National Capital Region (NCR) also felt the experience of pollution, with Gurugram recording an AQI of 319 - categorised as 'very poor' according to SAFAR.

On Tuesday, Delhi's air quality deteriorated to 402, in the severe zone. On Monday, the average 24-hour AQI was 332, in the 'very poor' category.

As per the government agencies, an AQI between zero and 50 is considered 'good', 51 and 100 'satisfactory', 101 and 200 'moderate', 201 and 300 'poor', 301 and 400 'very poor', and 401 and 500 'severe'.

Delhi environment minister Gopal Rai on Saturday informed that separate night patrols teams have been set up for each of the 11 districts of the national capital to monitor compliance to pollution control norms for construction-related activities.

The physical classes in Delhi school will resume for Class 5 and below from December 27 after being shut down for nearly a month because of air pollution.

The Commission for Air Quality Management (CAQM) in Delhi-NCR and adjoining areas had on Friday allowed schools and other educational institutions to be reopened in a phased manner.

The decision was welcomed by school principals, parents and experts, who have rued how the long break in physical classes due to the Covid-19 pandemic, and the frequent closures after that because of pollution have not just impacted learning levels but even led to complaints of mental health problems among children.

### **94% in Chandrapur feel pollution taking toll on health: Study**

*Date:-23-December-2021, Source: timesofindia.indiatimes.com*

Chandrapur: Pollution in Chandrapur has reached an alarming level and it has adversely affected people's health, feel 94.2 % of citizens who responded to a

sample survey carried out by a group of medical practitioners and environmentalists.

While 75.1% people have attributed the cause of their ailment to high pollution, 60% citizens feel that they are irritated by high air and noise pollution leading to early exhaustion, sleeplessness, lack of focus on work, spark of anger and headaches.

Environmentalist Dr Yogeshwar Dudhpachare along with medical practitioner Dr Ashok Wasalwar and Dr Saurav Rajurkar conducted this online survey with the help of 22 point questionnaire to understand the effects of pollution, especially air pollution, on people's health. "The survey received responses from 430 persons. Of them, 64% people feel that their life span has decreased by some years due to pollution," said Dr Wasalwar and added that even those who don't smoke have the effect of smoking 10 cigarettes a day on their lungs in Chandrapur.

As per the study findings, 67.3% people claimed they are suffering from one or other skin diseases and high acidity while 29.5% said they have at least one patient and 20% said they have got 2 patients with skin diseases at home.

Those suffering from cold, frequent sneezing and runny noses constituted 77%. Contracting a disease due to high water pollution is a concern for 83% respondents. Investing in real estate would give returns in the negative, feel 69% people. In fact, 70% agreed to leave Chandrapur for better opportunities elsewhere.

Pulmonologist Dr Saurabh Rajurkar said high pollution responsible for higher cases of respiratory disorders and heart and lungs ailments in children as well as adults. "There are a high number of patients with asthma or chronic obstructive pulmonary disease. The number of heart failure patients too is rising," he said and added that there is high number of newborn to 12 years of age children with asthma or some pollution related allergy in Chandrapur.

Dr Dudhpachare claimed that they are going to publish a research paper based on the outcome of the survey and apprise the state government, people's representatives, Maharashtra Pollution Control Board of their analytical findings.

## **Rise in air pollution increases COPD cases in Pune**

*Date:-24-December-2021, Source: hindustantimes.com*



**Along with Shivajinagar, Nigdi and Bhosari also reported poor air quality on Friday. Lohegaon, Alandi, Kothrud, Katraj, Hadapsar and Bhumkar chowk in Wakad reported moderate air quality. Pashan reported satisfactory air quality on Friday**

Pune: As cooler winds continue in the city, many areas report poor air quality during the day. As a result, there is a rise in asthmatic and chronic obstructive pulmonary disease (COPD) complaints. Shivajinagar, Bhosari, Alandi and other parts of Pune city reported poor air quality during morning hours. The air quality index (AQI) worsens by evening with more road traffic.

As per data furnished by System of Air Quality and Weather Forecasting and Research (SAFAR), the air quality for Pune city on Friday evening was moderate.

However, Shivajinagar reported poor air quality with PM2.5 particles at 201 and the air quality for December 25 is likely to remain poor as forecasted by Safar.

Along with Shivajinagar, Nigdi and Bhosari also reported poor air quality on Friday. Lohegaon, Alandi, Kothrud, Katraj, Hadapsar and Bhumkar chowk in

Wakad reported moderate air quality. Pashan reported satisfactory air quality on Friday.

Speaking about the rise in cases of asthma and COPD, Dr Sushrut Ganpule, consultant pulmonologist with Jupiter Hospital in Pune, said there are about 20 per cent more cases of asthma and bronchospasm.

“During winter there is an increase in cases of asthma and COPD due to reduction in day and night temperatures and other reasons and conditions lead to enhanced symptoms of asthma and COPD. Winter is also the flowering season because of which it is more likely to affect asthma patients. Temperature and other factors can act as triggers for patients and lead some of them to have induced attacks,” said Dr Ganpule.

He said that because of low day and night temperatures, the air quality is also poor which may affect patients.

“The air has more PM 2.5 particles and they affect patients as air quality deteriorates. Smog can also affect asthma and COPD patients a lot,” said Dr Ganpule.

Speaking about the relation between cold and poor air quality, scientist from Indian Institute of Tropical Meteorology (IITM) said that as night temperature drops the pollution particles start settling down.

“As they settle at lower levels of the atmosphere along with the pollution generated by vehicles, it overall affects the air quality further. This is a normal phenomenon during winter,” said officials from IITM.

As per the India Meteorological Department (IMD), the day and night temperature are likely to see a rise in the next few days.

### **Lung installation to check pollution**

To spread awareness about air pollution and its impact on health, Pune Municipal Corporation (PMC) in collaboration with NGO Parisar will install a replica of lungs at Sambhaji Garden on December 27. The replica will be installed with sensors to measure the pollution and its impact. Depending on air quality and pollution, the lungs will turn black with passage of time.



## **Delhi's air quality improves slightly from 'severe' to 'very poor,' AQI at 398**

*Date:-25-December-2021, Source: zeenews.india.com*



**The air quality in the national capital slightly improved from `severe` to `very poor` category today**

New Delhi: The air quality in Delhi slightly improved from `severe` to `very poor` category on Saturday (December 25, 2021) morning. According to the System of Air Quality and Weather Forecasting And Research (SAFAR), the overall Air Quality Index (AQI) in the national capital stands at 398.

Meanwhile, the air quality of the NCR region, like Noida and Gurugram, remains in the `severe` and in the `very poor` category respectively. While Noida's AQI stands at 491, Gurugram is at 365. AQI in Delhi's Mathura road stands at 425 with severe category.

As per the government agencies, and AQI between zero and 50 is considered `good`, 51 and 100 `satisfactory`, 101 and 200 `moderate`, 201 and 300 `poor`, 301 and 400 `very poor`, and 401 and 500 `severe`.

Notably, the city has recorded 22 "severe" air quality days this year so far. In November, it recorded 11 such days, the highest in the month since the Central Pollution Control Board started maintaining air quality data in 2015.

The city's 24-hour average air quality index read 415 at 4 pm on Friday. It was 423 on Thursday, 407 on Wednesday and 402 on Tuesday.

The India Meteorological Department (IMD) said the humidity levels oscillated between 51 percent and 97 percent.

Under the influence of the western disturbance, light rain is likely in the plains in north India between December 26 and December 29 which may improve the air quality a bit.

Meanwhile, Delhi's minimum temperature increased to 6.9 degrees Celsius. The maximum temperature settled at 22.9 degrees Celsius, a notch above normal.

### **Gurugram: Air 'very poor', may improve tomorrow**

*Date:-26-December-2021, Source: timesofindia.indiatimes.com*



GURUGRAM: The city saw 'very poor' air for the fifth consecutive day on Christmas, with the air quality index (AQI) recorded at 349. The India Meteorological Department (IMD) said there is likely to be some improvement in AQI from Monday.

Saturday's AQI was marginally higher than Friday's 334. Unfavourable meteorological conditions, including slow wind speed and poor ventilation are causing a spike in air pollution levels, IMD said. But with rain forecasted in the week ahead, the pollutants in the air should settle down.

"Our teams are keeping a regular vigil across the city to prevent activities which are likely to contribute to air pollution. Other measures such as water sprinkling, mechanised sweeping, anti-smog guns at construction sites are

already in place to help in settling the localised dust particles,” said Kuldeep Singh, regional officer of Haryana State Pollution Control Board.

Three of the four monitoring stations – Gwalpahari, Sector 51 and Teri Gram recorded the AQI in the ‘very poor’ category with the reading at 353, 356 and 344, respectively. The AQI at Vikas Sadan was not available due to insufficient data.

### **Air pollution in several parts of north, west India up during pandemic**

*Date:-27-December-2021, Source: socialnews.xyz*



New Delhi, Dec 27 Reduced economic activities during the pandemic-related lockdown had resulted in decrease of air pollution in most parts of India, but, contrary to the general trend, satellite observations show that parts of central-western India and north India showed an increase.

Based on state of the art satellite observations, scientists have identified that regions in the central-western part of India and north India are prone to higher air pollution exposure and hence, are exposed to greater risk of respiratory problems.

With multi-satellite remote sensing of air pollutants having evolved dramatically over the last decade, synergic measurements of satellite and in-situ observation provide a more comprehensive understanding of air pollution episodes. In 2020, a complete nationwide lockdown was imposed over India to impede the spread of coronavirus disease. This enormously disrupted the economy with a single positive side effect, a short-term improvement in the air quality near the surface.

The satellite-based observation of toxic trace gases - ozone, NO<sub>2</sub>, and carbon monoxide - near the surface and in the free troposphere mostly showed reduction of the pollutants over India.

"However, over some regions like western-central India, some parts of northern India, and remote Himalayas, an increase of ozone and other toxic gases was observed. This could have aggravated respiratory health risks around those regions during the pandemic," the scientists said.

Scientists at the Aryabhata Research Institute of Observational Sciences (ARIES), an autonomous institute under the Department of Science and Technology (DST), utilised the EUMETSAT and NASA satellite observations for the years 2018, 2019, and 2020, and investigated the influence of significant cut off of anthropogenic activities on the changes in the vertical and columnar distribution of ozone, CO, and NO<sub>2</sub> during the lockdown period.

Published in 'Environmental Science and Pollution Research', the study led by senior research fellow at ARIES, Nainital, Prajjwal Rawat along with his research supervisor Dr Manish Naja, showed that ozone, carbon monoxide, and NO<sub>2</sub> showed an increase of about 15 per cent over the central-western part of India, a release from the Ministry said.

According to the results, carbon monoxide showed a consistent increase (as high as 31 per cent) of concentration at higher heights during the lockdown. The long-range transport and downward transport from the stratosphere significantly increased ozone concentrations over north India during the lockdown, and remote regions like the Himalayas and coastal cities showed the bare minimum influence of lockdown in air quality, with a tendency to increase in criteria air pollutants.

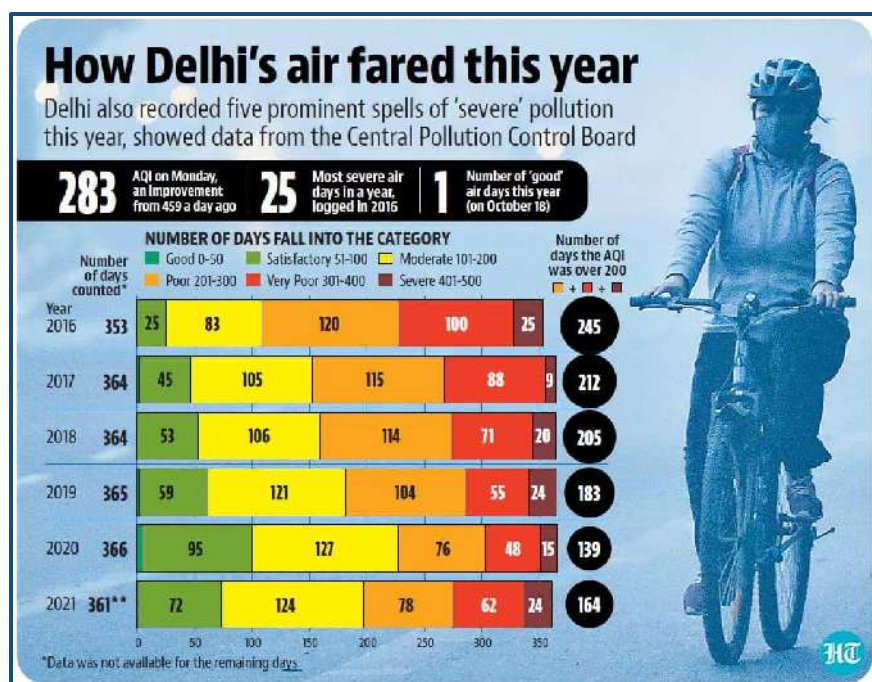
The ARIES team said that ozone production and loss are constrained through the complex photochemistry involving its precursor gases like NO<sub>x</sub> and volatile organic chemicals (VOCs). A decrease in its precursor gases could also lead to enhancement of ozone, depending upon the chemical environment. Moreover,

ozone concentrations are also altered via ambient meteorology and dynamics, including the downward transport of ozone-rich air from the stratosphere to the troposphere. According to the ARIES team, this study helped to identify the regions prone to higher air pollution exposure, hence can identify areas at a greater health risk.

The team previously, with scientists from the ISRO, had showed INSAT-3D as a valuable Indian geostationary satellite to study ozone pollutants over India; however, for other criteria air pollutants (i.e., NO<sub>2</sub>, SO<sub>2</sub>, CO, VOCs, etc.), India is lacking in space-based observations and need air quality monitoring indigenous satellite in orbit, the release added.

## Best of times, worst of times: Delhi's air see-sawed in 2021

*Date:-28-December-2021, Source: hindustantimes.com*



Delhi recorded 197 days this year when the AQI was 200 or lower – the highest count of such days from 2016 -- bettered only by last year (227 days), when air quality was at its cleanest due to long spells under a lockdown. However, Delhi also recorded 24 “severe” air days so far this year, same as 2019 and only one less than 2016 (25),

which was the worst year in terms of winter pollution, Central Pollution Control Board data shows.

The trend indicates that while the city may have got some measure of control on its air quality in the non-winter months, the Capital is still unable to control smog build-up that plunges it into a public health emergency between November and January.

Till December 27 this year, Delhi witnessed a combined 164 days of poor, very poor and severe air, which, while being higher than 2020 (139), was lower --

and following a consistent trend -- when compared with 2019 (183 days), 2018 (205 days), 2017 (212 days) and 2016 (245 days).

However, Delhi recorded five prominent spells of “severe” air pollution this year. The first was between January 14 and 16 when three consecutive days of severe air led to the AQI touching 460 on January 15. Three spells were then recorded in November, the first occurred from November 5 till November 7, with the AQI peaking at 461; then from November 11 to November 13 with the AQI peaking at 471; and a four-day long spell from November 25 till November 28. The fifth prominent spell, and also the longest occurred in December this week, with six consecutive days of severe air recorded between December 21 and December 26.

While six severe days were recorded in January, 11 were recorded in November, and 7 have been recorded so far in December.

An AQI between 0 and 50 is “good”, between 51 and 100 is “satisfactory”, between 101 and 200 is “moderate”, between 201 and 300 is “poor”, between 301 and 400 is “very poor” and over 400 is “severe”, according to the per CPCB index.

Delhi recorded its cleanest air day – the only day of “good” air this year, on October 18, with rain bringing down the AQI to 46. The total number of good, satisfactory and moderate air days doubled since 2016 (108), with 197 such days recorded so far this year, the highest after last year, which was impacted by lockdowns due to Covid-19.

Anumita Roychowdhury, executive director, research and advocacy says the long-term trend is good, with the total number of good, satisfactory and moderate air days increasing in Delhi. However, in winter, the smog build-up continues to remain prominent with prolonged spells being recorded in NCR. “What we are seeing is that air is becoming cleaner throughout the year, but we are still unable to control the smog build-up that happens from November onwards. While this is happening across all of northern India, it is lasting longer in NCR,” says Roychowdhury, attributing this year’s spell of 11 severe days in November to a late start in the stubble burning season, along with a delayed monsoon.

“Stubble burning which generally picks up pace from October 15 was pushed to a narrow window in early November as the withdrawal of the monsoon was quite delayed. This has made November more severe. However, December’s



intense spell shows background emissions are high even without Diwali and stubble burning,” she said.

This year, October was the cleanest in the last seven years, with an average AQI of just 173. In comparison, November was the worst November in the last seven years, with an average AQI of 376 for the month.

Santosh Harish, Fellow at the Centre for Policy Research (CPR) says sustained efforts to switch to cleaner fuels and to eliminate or reduce certain sources of pollution are clearly showing up in the long-term trend, but even they are not enough to control winter’s pollution spikes. “While it is encouraging, data clearly shows we are unable to get rid of the winter smog. We have been unable to make any progress in terms of stubble burning in the region and it still feels we are reinventing the wheel in sectors such as vehicular pollution, construction and burning of waste,” says Harish.

### **Deadly ‘pollutant from beyond Bengal’ has engulfed Kolkata, rest of state: IIT Delhi study**

*Date:-29-December-2021, Source: telegraphindia.com*



**A bus in Kolkata spews black smoke. Emission from vehicles is a major cause of air pollution in the city**

More than half the total load of PM 2.5, a deadly air pollutant, in Bengal's air comes from beyond its border, according to a study by IIT Delhi.

PM 2.5 are ultrafine particles that can enter deep inside the lungs and cause a range of critical diseases, including cancer.

"About 51 per cent of the overall pollutant load (of PM 2.5) in the state comes from beyond its border, including 21 per cent from Bangladesh. We are working on the contribution of transboundary pollutants in Kolkata," Kalyan Rudra, chairman of the state pollution control board, said on Tuesday evening.

The IIT study, whose figures Rudra quoted, was commissioned by the board.

"Through modeling analysis we have found so far that a major part of the PM 2.5 entering Bengal has been coming from the Indo-Gangetic plains, particularly Uttar Pradesh, Bihar and Jharkhand, followed by Bangladesh," said Sagnik De, of IIT Delhi, who led the study.

Earlier in the day, Rudra formally inaugurated a network of 70 sensor-based air quality and noise monitoring machines installed across Bengal, including Kolkata.

The IIT team used data from the machines, which started functioning a few weeks ago, and other sources to assess the contribution of transboundary pollutants to Bengal's air pollution.

The machines automatically measure around the clock the levels of PM 10, PM 2.5, sulphur dioxide and nitrogen oxides, as well as temperature, relative humidity, wind speed and noise pollution. The figures are displayed 24 hours, said PCB sources.

Rudra said another 80 such sensors will be installed soon. Once they are functional, he said, Bengal's air pollution measuring network will be the most extensive in the country. These machines are in addition to the existing network of 14 automatic and 79 manually operated air pollution measuring stations.

Rudra and police commissioner Somen Mitra distributed gas cylinders and ovens to nearly 50 people who run roadside eateries and ironing units. They were running their units with coal or wood-lit fire, which is a major source of air pollution.

“Climate change and global warming are posing an enormous challenge and Kolkata is no exception,” Mitra said.

“We have geo-tagged the cylinders to ascertain whether they are being used properly,” said a PCB official.

### **25% of PM 2.5 load in Kolkata from outside, says study**

*Date:-30-December-2021, Source: telegraphindia.com*



Close to one-fourth of the load of the most toxic pollutant in the city’s air, PM 2.5, comes from beyond Bengal’s border, according to a recent study by scientists at Bose Institute.

The results of the study, titled “Sources of poor air quality and long-term variability over Kolkata”, carried out from 2004 to 2018, has been published in an Elsevier publication called Asian Atmospheric Pollution.

The Telegraph on Wednesday reported about an IIT Delhi study that has found that more than half of the overall PM 2.5 load in Bengal’s air comes from outside its border.

Bose Institute’s findings point out that during the duration of their study, the overall load of PM 2.5 in the city increased by about 50 per cent.

PM 2.5 particulates — 0.5 to 1 micron in diameter — constitute about 80 per cent of the total load. While PM 2.5 can enter into the lungs, finer particles can enter even deeper and cause more serious damage.

“According to our findings, about 20 to 25 per cent of the overall PM 2.5 load in Kolkata comes from beyond its border. About half of that is from Uttar Pradesh, Bihar and Jharkhand, while major part of the rest comes from Bangladesh, Nepal and states like Assam and Meghalaya,” Abhijit Chatterjee, an associate professor of Bose Institute, said on Wednesday.

He pointed out that in early March, a sizable proportion of PM 2.5 comes from Odisha and Andhra Pradesh. “The pollutant traverses to the city from Odisha and Andhra Pradesh through the Bay of Bengal and the Sunderbans, almost following the route of cyclones,” he said.

The study shows that extremely toxic and carcinogenic polycyclic aromatic hydrocarbon (PAH) dominates the PM 2.5 coming from the Eastern Ghats.

The study has also found that over the years, waste burning and construction have become major contributors to PM 2.5 in the city, replacing pollution generated by vehicles.

“Earlier, from 2004 to 2009, pollution caused by vehicles used to contribute about 45 to 55 per cent of total PM 2.5 content in the city. Now, waste burning has turned into a major source of PM 2.5, accounting for 40 to 45 per cent of the load, followed by construction, which is responsible for 20 to 25 per cent of the pollutants. Vehicles come third with 15 to 20 per cent contribution. The gross pollution from vehicles has not reduced,” said Chatterjee.

“The IIT Delhi and Bose Institute studies both underline the importance of looking at transboundary and regional pollution for cities like Calcutta, rather than our conventional model of looking at the city in a standalone way,” pointed out Anumita Roy Choudhury, air pollution expert from the environment think-tank, Centre for Science and Environment.

### **Vehicular pollution bigger factor than dust in Vasco air, finds IIT-Bombay**

*Date:-31-December-2021, Source: timesofindia.indiatimes.com*

PANAJI: The Goa State Pollution Control Board (GSPCB) on Thursday accepted the report submitted by IIT-Bombay which has revealed that not only the coal handling activities but marine aerosols, vehicle re-suspended dust, biomass

and solid waste burning as well as road dust are the causes of air pollution in Vasco.



**Not only coal handling but marine aerosols, vehicle re-suspended dust, biomass and solid waste burning as well as road dust cause air pollution**

“We will submit the report to the high court,” GSPCB chairman Ganesh Shetgaonkar said. The board held a special meeting to finalise the report.

GSPCB had appointed IIT-Bombay to pinpoint the cause of air pollution in the port town following several agitations to stop the coal handling at Mormugao Port Trust (MPT). Agitators had claimed that there is coal pollution in the town.

IIT-B suggested to prepare an environmental management plan to control the air pollution. However, the study also said that the marine aerosols cannot be controlled as Vasco is a coastal town.

From the result of source apportionment study, it was observed that the contribution of vehicular pollution was found to be higher than dust pollution in the port town.

The contribution of marine aerosols (tiny suspended particles above the sea) was also found to be higher than dust pollution at all locations.

The major source affecting air quality at Khariwada is marine aerosols since the least impact of port-related activities and biomass burning is observed at this site.

The results of source apportionment point to a 20-30% range of contributions from each of these four key sources including vehicular emissions, marine aerosols, port-related activities, and biomass burning and road dust.

The elemental carbon-organic carbon (EC-OC) analyses which point to the contribution of coal handling activities is seen in the form of all other activities, whether it is the port or the main town areas affected by vehicles, re-suspended dust, biomass and solid-waste burning, and road sweeping.

The source apportionment study was carried out on representative samples collected at five locations during the sampling period. For identifying the source of pollutants, 100 trial runs were carried out for all cases and from within these, the best possible solution from 3 to 7 factors was determined.

The first phase of the report had stated that coal was not the only mineral responsible for the air pollution in the area.





# ***CLIMATE ACTION***

# ***CALENDAR 2022***



Get the Calendar

**Indian Institute of Tropical Meteorology**  
Dr. Homi Bhabha Road, Pashan, Pune - 411 008, India  
Telephone: +91-20-2590-4212  
E-mail: [iitm-env@nic.in](mailto:iitm-env@nic.in)  
Website: [www.iitmenvvis.nic.in](http://www.iitmenvvis.nic.in)