

# Health Advisory on Air Pollution

## 9 November 2017

Different areas of National Capital Region (NCR) are recording ambient levels of air pollution that are rated as severe, exceeding the safety limits for key air pollutants that pose health risks to people. On several occasions, these levels have been very poor and reached exceptionally severe levels such as during “Diwali” on 19 October 2017 and also from 7 November 2017 onwards. This health advisory provides a general advice on measures that could be taken to reduce personal exposure to high levels of air pollution and, in particular, if levels reach very poor or severe levels based on Air Quality Index (Annexure 1).

Particulate matter is the main public health threat from air pollution. The health impacts of particulate matter depend on the level of exposure (frequently expressed in ug/m<sup>3</sup>) and the duration of exposure (short term, between 8 or 24 hours, or long term). Individual sensitivity to the health impacts of particulate matter can vary and depend upon age, health status, pregnant women, socio-economic status, occupational exposures and smoking habits of the person exposed. .

The WHO air quality guidelines offer global guidance on thresholds and limits for key air pollutants that pose health risks. The guidelines indicate that reducing air pollution (particularly that of fine particulate matter - PM 2.5), can achieve significant health benefits.

### 1. Advisory for the workplace

Proper building operations and routine maintenance are critical to ensuring healthy indoor air quality of workplaces. Some preventive measures to reduce the health impact of air pollution in the workplace include:

- Maintaining the building heating, ventilation, and air conditioning (HVAC) system
- Routinely cleaning office spaces and common areas by a vacuum cleaner with High-Efficiency Particulate Air (HEPA) filter
- Properly storing cleaning materials and chemicals that are used in the workplace
- Maintaining the air purifiers and ensuring regular cleaning and replacement of filters
- Air curtains installed at main entry/exit doors of the building to prevent entry of outside air when outside doors are open
- Silicon sealing of all window gaps and installation of door dust brush underneath the doors, to prevent dust from coming into the building
- Installation of air pollution monitoring devices for improved, regular monitoring of the indoor air quality
- Air purifier installation in all official vehicles
- Reduction in the electricity usage

In the prevailing conditions of severe levels, the following measures by staff are encouraged:

1. Use of N95 masks especially for those working outdoors and travelling for long hours. For the intended benefits, the proper procedure to wear the masks and replacement of masks after usage for certain period should be followed
2. Use of air purifiers at the office and at home. Use of air conditioners may also help to reduce the concentration of particulate in the indoor environment
3. Avoid prolonged or heavy exertion outside
4. Individuals with specific health concerns are advised to consult their physicians for advice
5. At the discretion of each Agency Head, a recommendation for staff to work from home under special conditions can be considered in accordance with the Human Resource policies of each agency as well as its operational requirements in New Delhi.

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### 2. Public Health Advisory

In order to minimize the impact on those exposed to high concentrations of air pollutants, WHO advises the following measures:

- **Remain indoors as much as possible.** During high-pollution episodes, everyone, particularly those more vulnerable, such as children, pregnant women and older people, or those with pre-existing illness, should stay indoors as much as possible and avoid roads with heavy traffic. External doors and windows should remain closed to reduce the penetration of pollution from outside. Keep washing your eyes with running water regularly and do regular gargles with warm water.
- **Limit driving cars, scooters and other motorized vehicles.** Share a ride or take public transportation to work and postpone errands until another day. This will not only prevent additional personal exposure but will prevent adding to the existing high levels of pollution.
- **Prevent additional sources of indoor air pollution.** Avoid using wood burning stoves, candles and incense inside the home. Do not smoke tobacco products.
- **Keep rooms inside homes clean:**
  - Wet mopping and dusting is preferable to sweeping or vacuuming, as sweeping and vacuuming can stir up additional dusts and particles. However, vacuums with a High-Efficiency Particulate Air (HEPA) filter can be used.
  - Various types of air purifiers exist, including HEPA filters, and electronic air cleaners, such as electrostatic precipitators. All air purifiers need to be used according to manufacturers' guidelines. Avoid using an air purifier that works by generating ozone, as this will increase the pollution levels.
  - If the room has windows, keep them closed during high air pollution episodes. Run an air conditioner or central air conditioning system if you are certain that the air conditioner does not draw air from outdoors and has an appropriate filter.
  - Prioritize the cleaning of rooms used for sleeping, particularly for vulnerable groups. This could mean more regular cleaning, assigning an air purifier to these rooms, sealing windows to prevent outdoor air coming inside.
- **Use respiratory protection masks if required for further protection.** Disposable masks known as N95 may help, if people must be outdoors for a long period of time. N95 masks can filter most of the PM2.5 particles, but sensitive persons can consider using N99 version, which can filter more than 99% of airborne particles. If masks are used, they must be fitted properly with a tight seal around the users' mouth and nose. Paper "comfort" or "dust" masks are designed to trap large particles only, such as sawdust. These masks will not protect the lungs from small particles such as PM2.5. Scarves or bandanas are not helpful.
- **Do not burn leaves, garbage, crop residue or other materials.**
- **Please visit the nearest hospital/dispensary** in case of any breathlessness, giddiness, chest pain, chest constriction, and irritation in eyes. Persons who are taking medications to help manage existing illness should take care not to miss their medication.
- Check the advice from Central and Delhi Government to guide your planned activities.

For further information, please

visit:[http://www.searo.who.int/india/topics/air\\_pollution/en/](http://www.searo.who.int/india/topics/air_pollution/en/);[http://www.who.int/topics/air\\_pollution/en/](http://www.who.int/topics/air_pollution/en/);  
[http://cpcb.nic.in/AQI\\_new.php](http://cpcb.nic.in/AQI_new.php)

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### Annex 1: Air Quality Index Scale and Health Risks for Air Quality Index Categories

**Table 1: Air Quality Index Scale** (Units:  $\mu\text{g}/\text{m}^3$  unless mentioned otherwise)

AQI Category (Range)	PM <sub>10</sub> 24-hr	PM <sub>2.5</sub> 24-hr	NO <sub>2</sub> 24-hr	O <sub>3</sub> 8-hr	CO 8-hr (mg/m <sup>3</sup> )	SO <sub>2</sub> 24-hr	NH <sub>3</sub> 24-hr	Pb 24-hr
Good (0-50)	0-50	0-30	0-40	0-50	0-1.0	0-40	0-200	0-0.5
Satisfactory (51-100)	51-100	31-60	41-80	51-100	1.1-2.0	41-80	201-400	0.6 –1.0
Moderate (101-200)	101-250	61-90	81-180	101-168	2.1- 10	81-380	401-800	1.1-2.0
Poor (201-300)	251-350	91-120	181-280	169-208	10.1-17	381-800	801-1200	2.1-3.0
Very poor (301-400)	351-430	121-250	281-400	209-748*	17.1-34	801-1600	1201-1800	3.1-3.5
Severe (401-500)	430 +	250+	400+	748+*	34+	1600+	1800+	3.5+

*\*One hourly monitoring (for mathematical calculation only)*

Source: Central Pollution Control Board 2015, accessed from [http://cpcb.nic.in/FINAL-REPORT\\_AQI\\_.pdf](http://cpcb.nic.in/FINAL-REPORT_AQI_.pdf)

**Table 2: Health Risks for Air Quality Index Categories**

AQI	Associated Health Impacts
Good (0-50)	Minimal Impact
Satisfactory (51-100)	May cause minor breathing discomfort to sensitive people
Moderate (101-200)	May cause breathing discomfort to the people with lung disease such as asthma and discomfort to people with heart disease, children and older adults
Poor (201-300)	May cause breathing discomfort to people on prolonged exposure and discomfort to people with heart disease with short exposure
Very Poor (301-400)	May cause respiratory illness to the people on prolonged exposure. Effect may be more pronounced in people with lung and heart diseases
Severe (401-500)	May cause respiratory effects even on healthy people and serious health impacts on people with lung/heart diseases. The health impacts may be experienced even during light physical activity

Source: Central Pollution Control Board 2015, accessed from [http://cpcb.nic.in/FINAL-REPORT\\_AQI\\_.pdf](http://cpcb.nic.in/FINAL-REPORT_AQI_.pdf)

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