Delhi's Persistent Air Quality Crisis

Why in News?

Delhi's average air quality in October was in the very poor category at 356 — the worst in the country, as per the Central Pollution Control Board.

What are the major contributors to Delhi air pollution?

> *The most polluted months in the year are generally November, December and January, according to the data on monthly AQI averages.*

Particulate Matter Sources	PM10	PM2.5
Road Dust	56%	38%
Transport Sector	9%	20%
Industrial Emissions	10%	11%
Domestic Fuel Burning	11%	12%

- **Construction Dust** - Dust from construction sites contributes 20-30% of all air pollution emitting large amounts of PM_{10} and $PM_{2.5}$ into the atmosphere.
- **Cold Air Traps** – During winter cold air retains this particulate matter for longer period and thus most polluted months in the year are generally November, December and January.
- **Stubble Burning** – Coinciding of Diwali festivities and stubble-burning season in Punjab , Haryana, Uttar Pradesh.

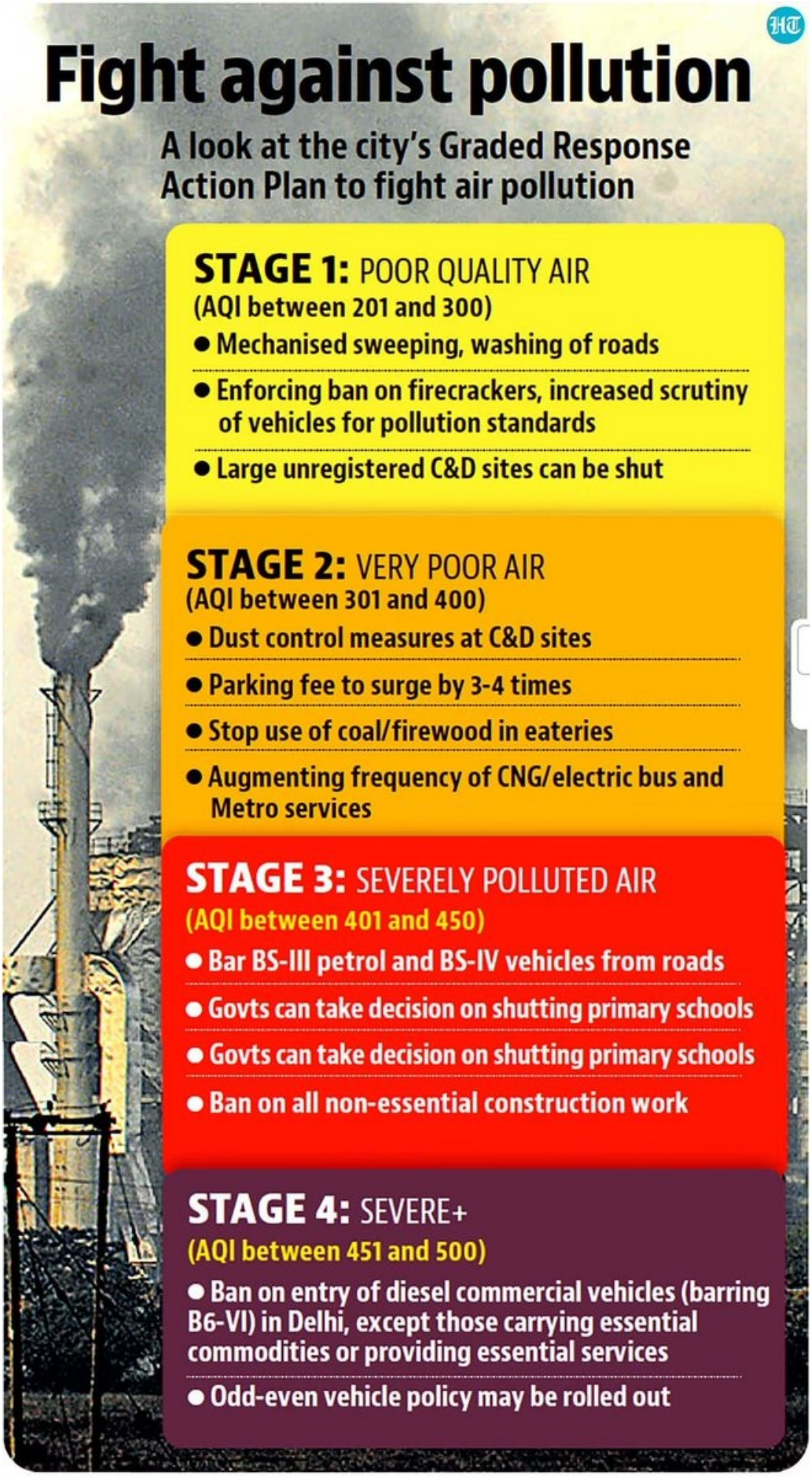
> *World Health Organisation suggest that daily average PM 2.5 levels should not exceed 15 µg/m3 and for PM 10 levels, the limit is set at 45 µg/m3. Recent data from the Delhi Pollution Control Committee (DPCC), the PM 2.5 and PM 10 levels reached up to 445 µg/m3 and 1,566 µg/m3.*

What are the measures taken to combat air pollution?

- **Graded Response Action Plan (GRAP)** – Commission for Air Quality and Management (CAQM) activates various measures under GRAP plan depending on Air Quality Index levels.
- It has four stages, each with different restrictions based on the air quality.

Fight against pollution

A look at the city's Graded Response Action Plan to fight air pollution



STAGE 1: POOR QUALITY AIR
(AQI between 201 and 300)

- Mechanised sweeping, washing of roads
- Enforcing ban on firecrackers, increased scrutiny of vehicles for pollution standards
- Large unregistered C&D sites can be shut

STAGE 2: VERY POOR AIR
(AQI between 301 and 400)

- Dust control measures at C&D sites
- Parking fee to surge by 3-4 times
- Stop use of coal/firewood in eateries
- Augmenting frequency of CNG/electric bus and Metro services

STAGE 3: SEVERELY POLLUTED AIR
(AQI between 401 and 450)

- Bar BS-III petrol and BS-IV vehicles from roads
- Govts can take decision on shutting primary schools
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- Ban on all non-essential construction work

STAGE 4: SEVERE+
(AQI between 451 and 500)

- Ban on entry of diesel commercial vehicles (barring B6-VI) in Delhi, except those carrying essential commodities or providing essential services
- Odd-even vehicle policy may be rolled out

- **Vehicle Restrictions** – Diesel vehicles over ten years old and petrol vehicles over 15 years are restricted from entering Delhi.
- **Disincentivizing Private Transport** - New Delhi Municipal Council (NDMC) hiked parking fees for private 2-wheeler and 4-wheeler vehicles.
- **Cleaner Transportation** - Intercity buses plying to Delhi daily from various cities in Haryana, UP and Rajasthan have been shifted completely to much cleaner BS-VI diesel/CNG/EV mode.
- **Environment Compensation Charges** - RFID (radio-frequency identity) system was implemented by South Delhi Municipal Corporation (SDMC) for collection of tolls and from commercial vehicles entering Delhi.
- **Construction Regulations –** Stringent dust control measures at construction sites, including anti-smog guns and remote monitoring, aim to reduce particulate matter generated by these activities.
- **Stubble Burning Control** – Crop diversification, promoting basmati variety, low straw and early maturing paddy varieties, and direct seeding of rice methods have been planned to reduce paddy straw generation.
- **National Clean Air Programme (NCAP) -** It set targets of ***40% reduction*** in particulate matter concentration, ***by 2026*** in 131 of India's most polluted cities.
- **Artificial Rain -** Cloud seeding to induce rain and reduce pollution is being considered as a potential emergency measure by the Delhi government.
- **Air Pollution Control at Pollution Hotspots -** Identification and mitigation the local sources of air pollution to immediate impact on the improvement in the air quality around these hotspots are being carried out.
- **Ban on Pet Coke and Furnace oil -** Use of pet coke and furnace oil as fuel in NCR States is banned since October 24, 2017.
- **OECMS -** Online Continuous Emission Monitoring System have been installed in red category air polluting industries in Delhi-NCR.

What are the reasons for the ineffectiveness of these measures?

- **Lack of Coordination** - Delhi, Haryana and Punjab are at loggerheads on the issue of stubble burning.
- **Failure to Check Crop Burning** - CAQM has failed its mandate of driving change in the post-harvest practices of farmers in Delhi's neighbourhood.
- **Inadequacy of emergency measures** – They are not to address most other factors that drive NCR's pollution, including vehicular and industrial pollution.
- **Lack of Public Awareness** – Domestic burning of bio masses and not using of private transport are still prevalent among the public.
- **Deficiency in Urban Management** – Greening the city and cleaning the road dust are still lacking.

What needs to be done to improve air quality?

- Implementing advanced forecasting models to anticipate pollution spikes for proactive interventions.
- Reducing waste burning in pockets by better collection and segregation of waste, replacing biomass for cooking in urban slums by providing easier access to LPG.

- Strengthen public transport infrastructure, enhancing dust and vehicle emission controls.
- Replace CNG vehicles with EV buses as the former emits nitrogen oxides which contribute to smog and particulate matter.
- Proactive planning and comprehensive, year-round measures rather than reactive emergency responses.
- Engage in multi-state coordination for stubble burning solutions remain crucial for a healthier future in the capital.

References

1. The Indian Express |Tackling Delhi's Annual Pollution
2. PIB | Pollution Control Measures