Respirer Reports' Analysis of PM 2.5 levels in November for the past five years

Data Analysis: Respirer Reports, Respirer Living Sciences
Data Source: Central Pollution Control Board (CPCB)
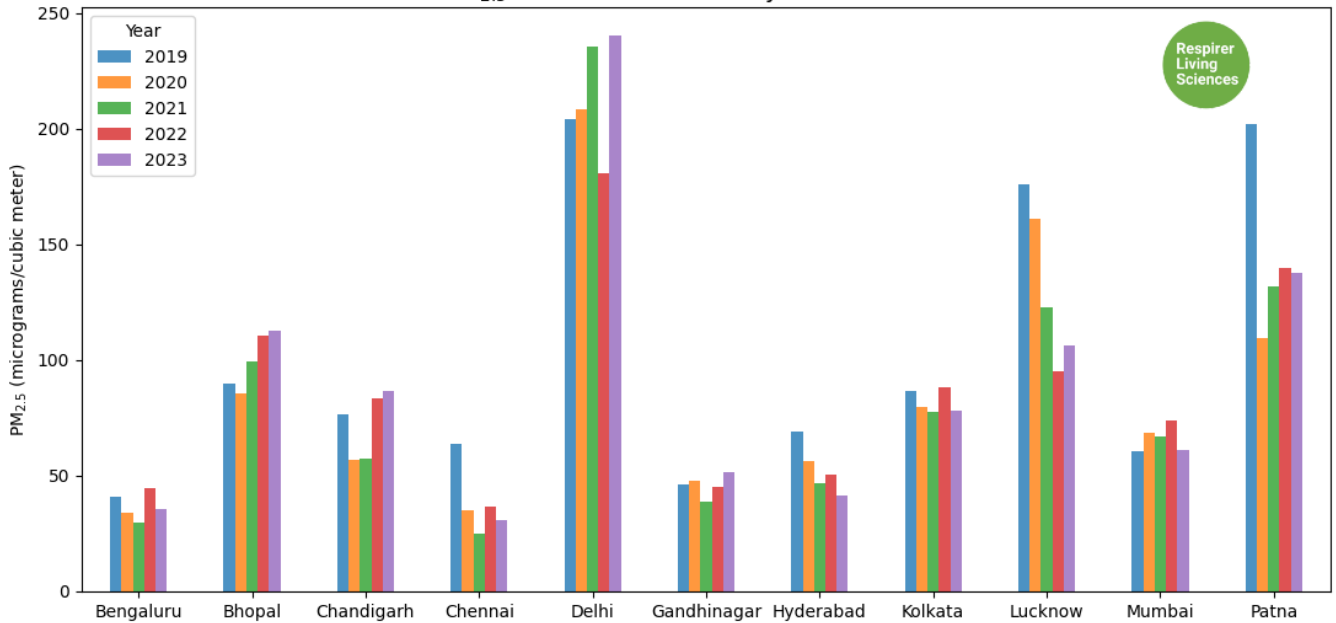
Headlines

1. This November was the most polluted November in 5 years (2019-2023) in Delhi, Bhopal, Chandigarh and Gandhinagar.

2. PM 2.5 (fine particulate matter) levels in November 2023 were satisfactory in Bengaluru, Chennai, Gandhinagar and Hyderabad, moderate in Chandigarh, Kolkata and Mumbai, poor in Bhopal and Lucknow, and very poor in Delhi and Patna.

3. From 2019 to 2023, Hyderabad and Lucknow showed a downward trend in November PM 2.5 levels out of the 11 state capitals analysed.

4. Chennai had the lowest PM 2.5 level in November 2023 – 31 micrograms/cubic metre (µg/m3), 15.3% better than a year ago.

5. Delhi was the most polluted of the 11 cities analysed – its PM 2.5 averaged over 240 µg/m3 in November 2023, more than 48 times the WHO long-term 'safe' limit (5 µg/m3).

6. Delhi's PM 2.5 level in November 2023 was 17.8% worse than in November 2019 and 32.9% worse than last November.

7. The biggest jump in PM 2.5 levels in November 2023 compared to November 2019 was in Bhopal, where they shot up by 25.3%.

8. The maximum improvement in PM 2.5 in November 2023 compared to November 2019 was in Chennai, where it fell by 51.3%.

9. Top 3 cities with worsening PM 2.5 levels in November 2023 compared to November 2022: Delhi (by 32.9%), Gandhinagar (15%) and Lucknow (11.9%).

10. Top 3 cities with improving PM 2.5 levels in November 2023 compared to November 2022: Bengaluru (by 20.5%), Hyderabad (17.4%) and Mumbai (17.2%).

11. Mumbai's November 2023 second best after 2019; better than November last year.

Note:
The data for November 2023 is till 10 am on 30.11.2023.
All figures for PM 2.5 levels in the month of November are monthly averages.

PM$_{2.5}$ in November for the years 2019-2023

City	Nov 2019	Nov 2020	% Change (2019-20)	Nov 2021	% Change (2020-21)	Nov 2022	% Change (2021-22)	Nov 2023	% Change (2022-23)	% Change (2019-23)
Bengaluru	40.7	33.8	-16.9%	29.6	-12.6%	44.7	51.2%	35.5	-20.5%	-12.8
Bhopal	89.8	85.4	-4.9%	99.3	16.3%	110.3	11.1%	112.5	2%	25.3
Chandigarh	76.7	56.7	-26.1%	57.4	1.3%	83.7	45.7%	86.8	3.7%	13.2
Chennai	63.6	34.9	-45.1%	25.1	-28.3%	36.6	46.0%	31	-15.3%	-51.3
Delhi	204	208.4	2.1%	235.5	13.0%	180.9	-23.2%	240.4	32.9%	17.8
Gandhinagar	46.5	47.9	3.2%	39	-18.7%	45	15.4%	51.7	15%	11.3
Hyderabad	69	56.2	-18.6%	46.5	-17.1%	50.5	8.5%	41.7	-17.4%	-39.6
Kolkata	86.9	79.9	-8.0%	77.4	-3.2%	88.2	13.9%	78.2	-11.3%	-9.9
Lucknow	176	161.1	-8.4%	122.7	-23.8%	95.0	-22.6%	106.3	11.9%	-39.6
Mumbai	60.6	68.9	13.5%	67.2	-2.4%	73.7	9.8%	61.1	-17.2%	0.7
Patna	202	109.4	-45.8%	131.9	20.6%	139.7	5.9%	137.5	-1.6%	-31.9

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