

Legend Very Poor Poor Moderate Satisfactory Good



CREA

Centre for Research on Energy and Clean Air

Monthly ambient air quality snapshot for India

November 2024

Key highlights

- **Compliance:** In November 2024, [109 out of 268 cities](#) with more than 80% of the days with continuous ambient air quality monitoring stations (CAAQMS) data available recorded PM_{2.5} concentrations below India's National Ambient Air Quality Standards (NAAQS) of 60 µg/m³. Only one city complied with the World Health Organization's (WHO) daily safe guideline concentration of 15 µg/m³.
 - **NCAP cities:** The monthly average PM_{2.5} levels in 64 National Clean Air Programme (NCAP) cities (out of 99 cities with more than 80% of days with data) surpassed India's daily NAAQS for PM_{2.5}, while all 99 cities exceeded the WHO's daily guideline.
 - **Non-NCAP cities:** Among the 169 non-NCAP cities with over 80% of days with CAAQMS data, 168 cities reported monthly average PM_{2.5} levels above the WHO daily guideline. 95 cities exceeded the daily NAAQS.
- **AOI category:** In November 2024, the number of cities with 'Good' (0-30 µg/m³) air quality dropped significantly to 32, compared to 79 in October. Meanwhile, cities with 'Satisfactory' (31-60 µg/m³) air quality decreased from 135 in October to 77 in November. **The number of cities experiencing 'Moderate' (61-90 µg/m³) air quality rose to 86 in November, up from 44 in October. There was also a notable increase in cities with 'Poor' (91-120 µg/m³) air quality, rising from 5 in October to 50 in November, and 23 cities recorded 'Very Poor' (121-250 µg/m³) air quality, compared to 0 in the previous month.**
- **Most polluted city:** **Delhi ranked as the most polluted city in India in November 2024**, recording a monthly average PM_{2.5} concentration of 249 µg/m³, surpassing the daily NAAQS limit of 60 µg/m³ 100% of the days in the month.
 - Delhi recorded 20 days in the 'Very Poor' (121-250 µg/m³) category and 10 days in 'Severe' (>250 µg/m³) category.
 - **The November average is 2.2 times higher than the October average of 111 µg/m³**, when there were 5 days in the 'Satisfactory' category, 8 days in the 'Moderate' category, 4 days in the 'Poor' (91-120 µg/m³) category, and 14 days in the 'Very Poor' (121-250 µg/m³) category.

- **Although stubble burning contributed an average of 19% to PM_{2.5} levels in Delhi in November, the elevated PM2.5 concentrations point to significant year-round sources.** This emphasises the need for a comprehensive long-term strategy that targets pollution at its roots, rather than relying solely on short-term winter measures.
- **Haryana accounted for four of India's top 10 most polluted cities, followed by three cities from Uttar Pradesh, and one each from Bihar, Assam, and Delhi.**
- **Cleanest city:** Aizawl, in the state of Mizoram, was the cleanest city in India during November, with a monthly average PM2.5 of 3 µg/m³.
 - The top 10 cleanest cities comprise five cities from Karnataka, three from Tamil Nadu, and one each from Mizoram and Madhya Pradesh.
- **Frequency in top 10 polluted cities:** **A total of 67 cities were featured in the daily top 10 most polluted cities list in November 2024.** Of these, 22 cities made an appearance at least five times over the 30-day period, topped by Delhi, which featured the most times (29 days), followed by Hajipur (18 days), Ghaziabad (17 days), Byrnihat (14 days), Bahadurgarh (13 days), Hapur (11 days) and Noida (11 days).
- **NCAP:** **Only 23 out of the 67 cities featured in the daily top 10 most polluted cities list during November 2024 are part of the National Clean Air Programme (NCAP).** The remaining 44 cities have no action plan to reduce hazardous air pollution concentrations.
- **Megacities:** With the exception of Chennai and Bangalore, all other megacities, such as, Delhi, Mumbai, and Kolkata saw all their monthly averages in November exceeding the NAAQS.
- **Monitoring infrastructure:** There are 558 continuous ambient air quality monitoring stations (CAAQMS) that cover 289 cities. In November 2024, **one CAAQMS in New Moti Bagh, Delhi was removed from the list of installed monitoring stations.**

Real-time ambient air quality monitoring in India using continuous ambient air quality monitoring stations (CAAQMS) – November 2024

Total number (#) of CAAQMS installed in India	# of operational CAAQMS with >80% of the days with data in November 2024	# of CAAQMS with <80% but >1% of the days with data in November 2024	# of non-operational CAAQMS with no data in November 2024
558	499	28	31
Total number (#) of cities covered by CAAQMS	# of cities with >80% of the days in November with CAAQMS data in November 2024	# of cities with <80% but >1% of the days with CAAQMS data in November 2024	# of cities with CAAQMS installed but no available data in November 2024
289	268	12	9

CAAQMS and cities coverage	
# of stations in October 2024	559
# of stations in November 2024	558*
# of cities covered by CAAQMS in October 2024	289
# of cities covered by CAAQMS in November 2024	289

*One station removed from list: New Moti Bagh, Delhi - MHUA

Total number (#) of NCAP cities	131	NCAP cities with CAAQMS	102
		NCAP cities without CAAQMS	29

NCAP cities with CAAQMS			Non-NCAP cities with CAAQMS		
102			187		
# of NCAP cities with >80% of the days with CAAQMS data	# of NCAP cities with <80% of the days with CAAQMS data	# of NCAP cities with CAAQMS installed but no available data	# of Non-NCAP cities with >80% of the days with CAAQMS data	# of Non-NCAP cities with <80% of the days with CAAQMS data	# of Non-NCAP cities with CAAQMS installed but no available data
99	2	1	169	10	8

Compliance of PM_{2.5} concentration across Indian cities with NAAQS and WHO guidelines – November 2024

Total # of cities with >80% of the days with CAAQMS data

268

of NCAP cities with >80% of the days with CAAQMS data

of non-NCAP cities with >80% of the days with CAAQMS data

99

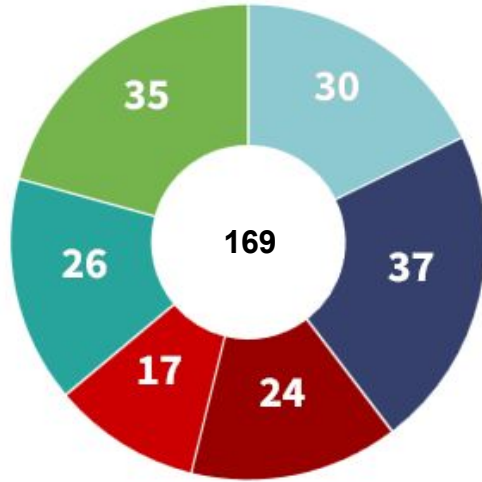
169

# of NCAP cities with monthly average PM _{2.5} concentration complying with WHO daily guideline levels	# of NCAP cities with monthly average PM _{2.5} concentration > WHO daily guideline levels	# of NCAP cities with monthly average PM _{2.5} concentration complying with the daily NAAQS	# of NCAP cities with monthly average PM _{2.5} concentration > the daily NAAQS	# of NCAP cities with monthly average PM _{2.5} concentration > 2 times daily NAAQS	# of non-NCAP cities with monthly average PM _{2.5} concentration complying with WHO daily guideline levels	# of non-NCAP cities with monthly average PM _{2.5} concentration > WHO daily guideline levels	# of non-NCAP cities with monthly average PM _{2.5} concentration complying with the daily NAAQS	# of non-NCAP cities with monthly average PM _{2.5} concentration > the daily NAAQS	# of non-NCAP cities with monthly average PM _{2.5} concentration > 2 times the daily NAAQS
0	99	35	64	7	1	168	74	95	19

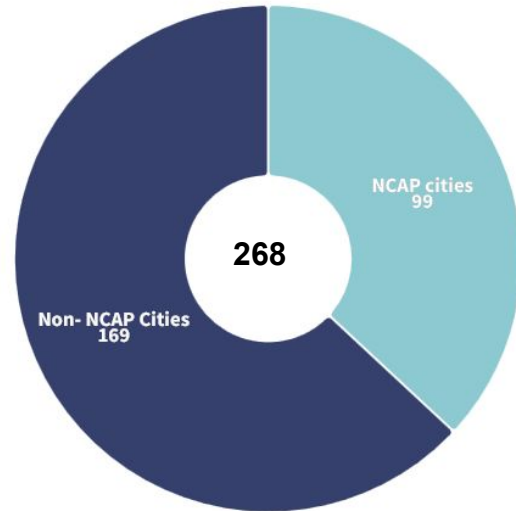
Number of cities vs frequency of days

with PM_{2.5} concentration above NAAQS and WHO guidelines – November 2024

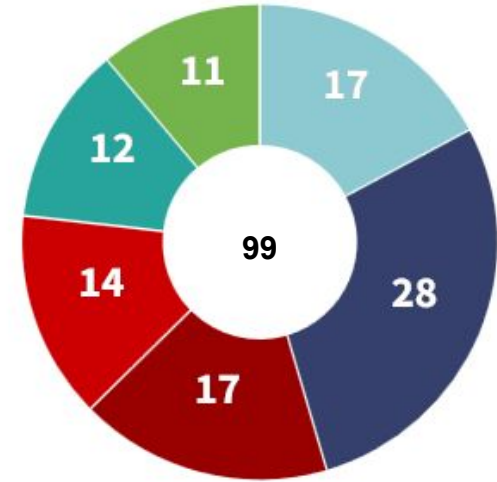
Categorisation of Non-NCAP cities against compliance to NAAQS guidelines



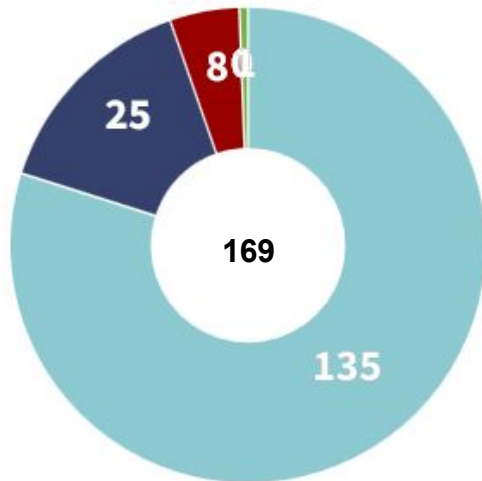
Total # of cities with >80% of the days with CAAQMS data



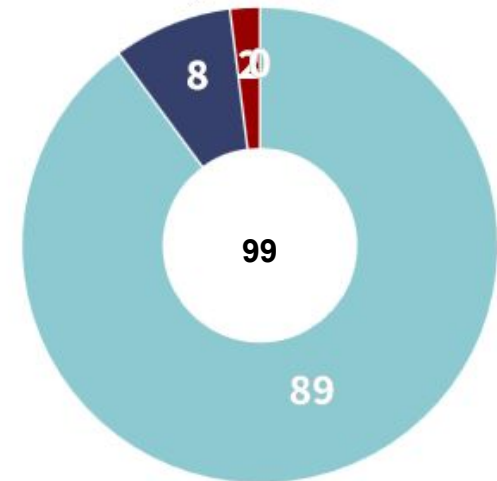
Categorisation of NCAP cities against compliance to NAAQS guidelines



Categorisation of Non-NCAP cities against compliance to WHO guidelines



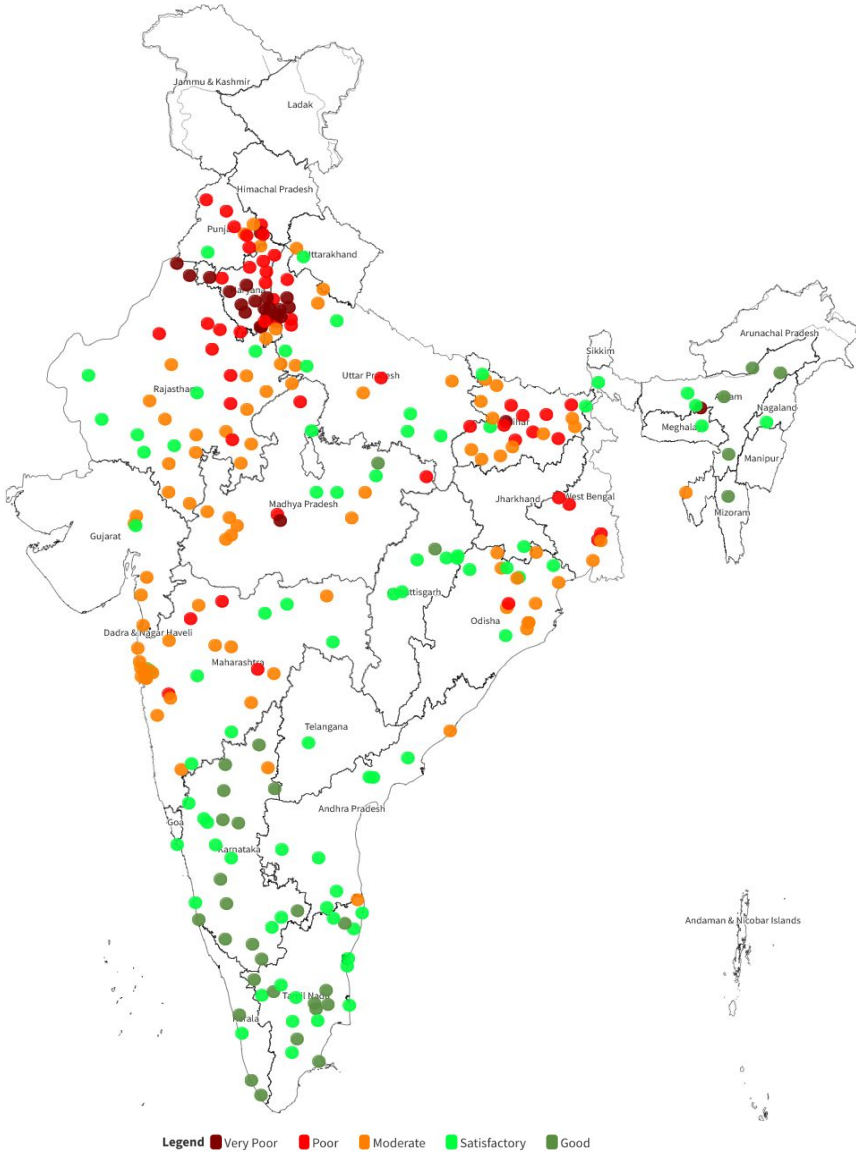
Categorisation of NCAP cities against compliance to WHO guidelines



Legends

- 100% of the days > Standard
- 75%-99% of the days > Standard
- 50%-74% of the days > Standard
- 25%-49% of the days > Standard
- 1%-24% of the days > Standard
- 100% of the days < Standard

Distribution of cities by Graded Response Action Plan (GRAP) categorisation based on monthly average PM_{2.5} concentrations – November 2024



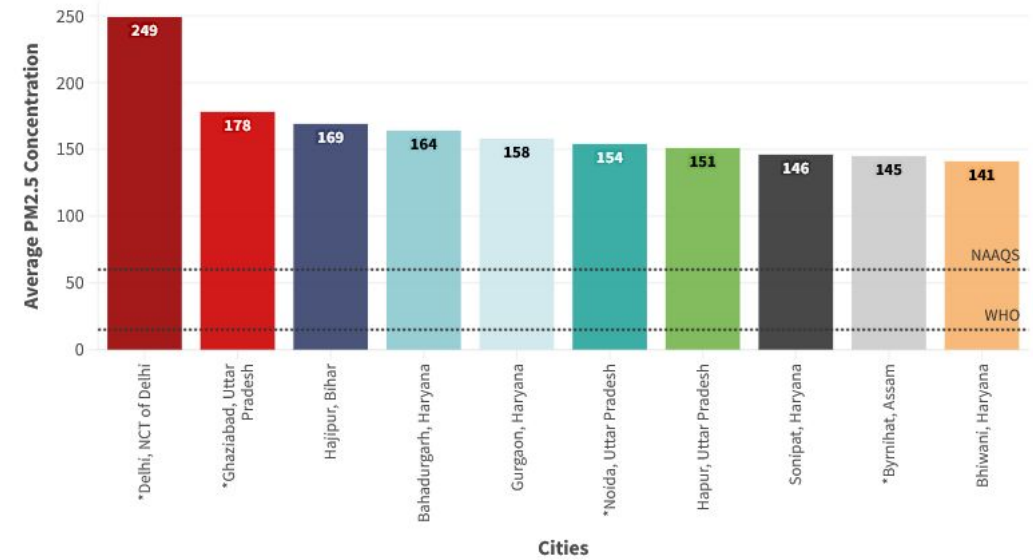
State/UT	Number of cities in AQI category (PM _{2.5} µg/m ³)				
	Good (0-30)	Satisfactory (31-60)	Moderate (61-90)	Poor (91-120)	Very Poor (121-250)
Andhra Pradesh	0	7	1	0	0
Arunachal Pradesh	1	0	0	0	0
Assam	3	2	0	0	1
Bihar	0	3	11	9	1
Chandigarh	0	0	0	0	1
Chhattisgarh	1	6	0	0	0
Gujarat	0	1	5	0	0
Haryana	0	0	3	11	10
Himachal Pradesh	0	0	0	1	0
Jharkhand	0	1	0	0	0
Karnataka	13	9	1	0	0
Kerala	3	1	0	0	0
Madhya Pradesh	1	3	7	3	1
Maharashtra	0	7	20	4	0
Meghalaya	0	1	0	0	0
Mizoram	1	0	0	0	0
Nagaland	0	1	0	0	0
NCT of Delhi	0	0	0	0	1
Odisha	0	5	10	1	0
Puducherry	0	1	0	0	0
Punjab	0	1	2	5	0
Rajasthan	0	8	16	7	3
Tamil Nadu	9	11	1	0	0
Telangana	0	1	0	0	0
Tripura	0	0	1	0	0
Uttar Pradesh	0	6	4	5	5
Uttarakhand	0	1	2	0	0
West Bengal	0	1	2	4	0

Top 10 most polluted cities in India by PM_{2.5} concentration – November 2024

Days in respective AQI categories based on PM_{2.5} (µg/m³) – November 2024

City	Monitored days	%Days > NAAQS	Good (0-30)	Satisfactory (31-60)	Moderate (61-90)	Poor (91-120)	Very poor (121-250)	Severe (>250)
Delhi	30	100	0	0	0	0	20	10
Ghaziabad	30	100	0	0	0	7	18	5
Hajipur	30	90	1	2	3	2	18	4
Bahadurgarh	30	100	0	0	0	11	14	5
Gurgaon	30	100	0	0	1	7	20	2
Noida	30	100	0	0	1	6	22	1
Hapur	30	100	0	0	4	9	16	1
Sonipat	30	100	0	0	3	8	17	1
Byrnihat	30	97	0	1	4	3	22	0
Bhiwani	30	100	0	0	3	12	14	1

Top 10 most polluted cities in India by PM_{2.5} concentrations (µg/m³) - November 2024



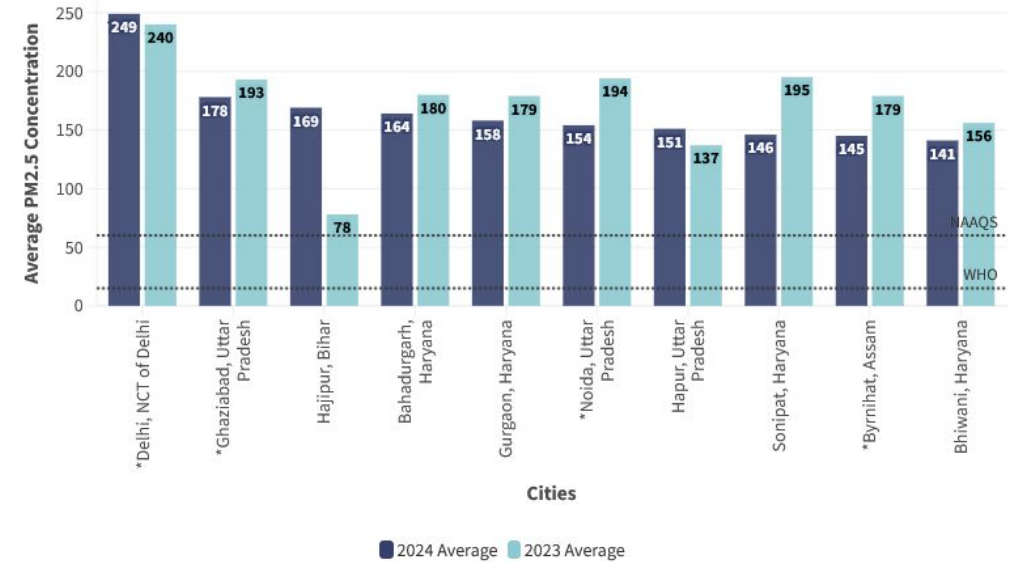
Source: CCR
* NCAAP cities



Status of PM_{2.5} concentration in November 2023 for top 10 most polluted cities in November 2024 across India

Days in respective AQI categories based on PM_{2.5} (µg/m³) – November 2023

City	Monitored days	Days > NAAQS	Good (0-30)	Satisfactory (31-60)	Moderate (61-90)	Poor (91-120)	Very poor (121-250)	Severe (>250)
Delhi	30	30	0	0	0	1	14	15
Ghaziabad	30	30	0	0	1	4	20	5
Hajipur	30	20	0	10	11	7	2	0
Bahadurgarh	30	30	0	0	2	2	22	4
Gurgaon	30	30	0	0	2	3	19	6
Noida	30	30	0	0	1	2	21	6
Hapur	30	29	0	1	4	5	20	0
Sonipat	30	26	0	1	1	0	20	5
Byrnihat	30	29	0	1	1	1	26	1
Bhiwani	30	29	0	1	2	3	23	1



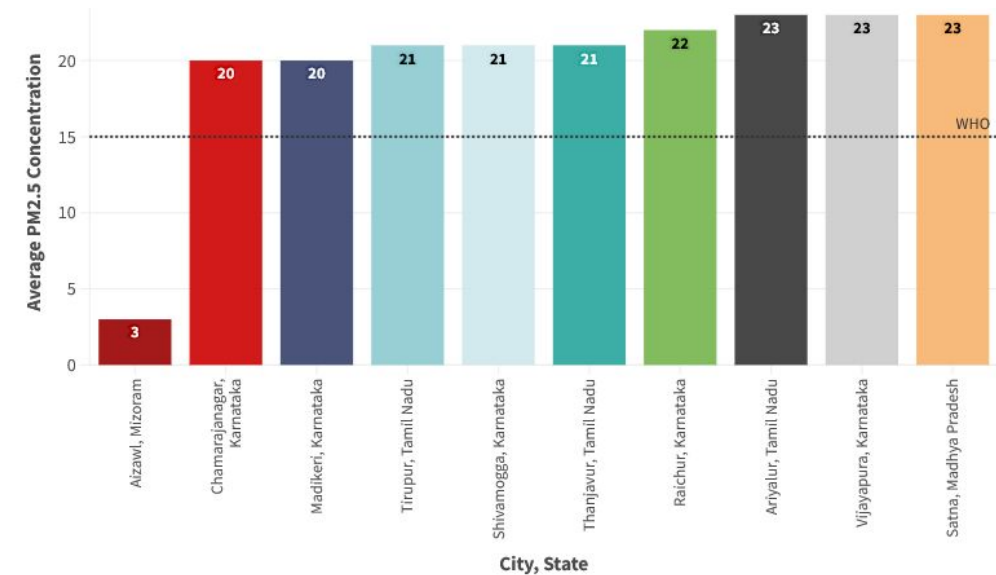
Source: CCR
* NCAP cities



Status of PM_{2.5} concentration in November 2023 for top 10 cleanest cities in November 2024 across India

Days in respective AQI categories based on PM_{2.5} (µg/m³) – November 2024

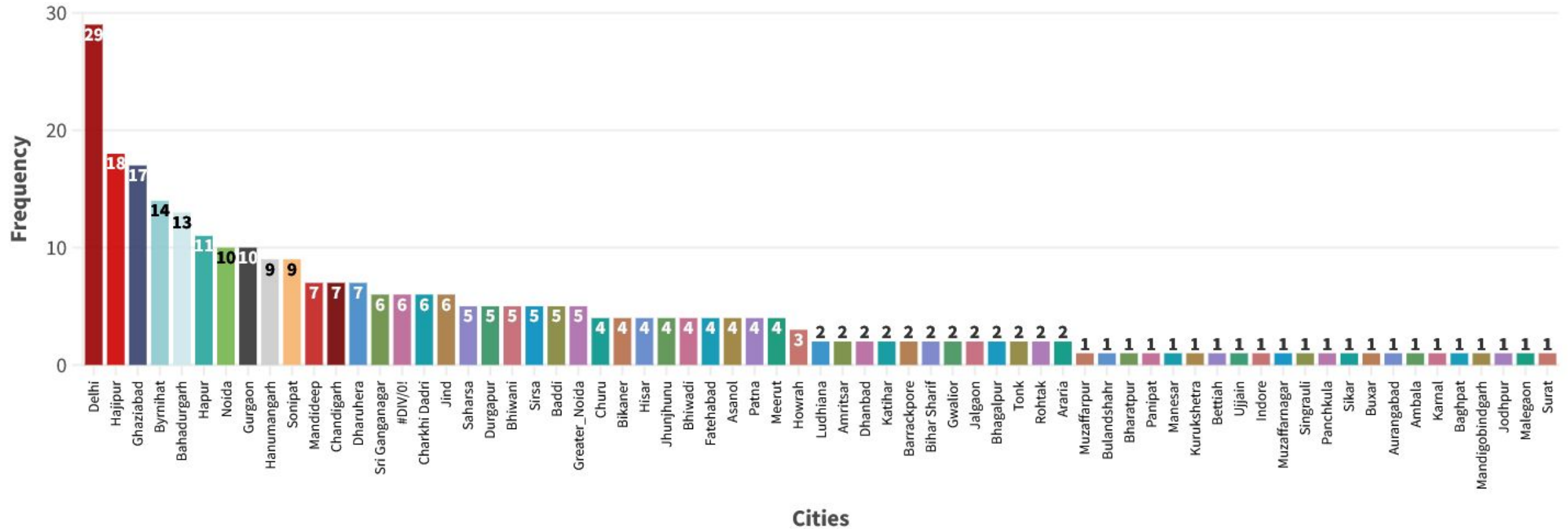
City	Monitored days	%Days > NAAQS	Good (0-30)	Satisfactory (31-60)	Moderate (61-90)	Poor (91-120)	Very poor (121-250)	Severe (>250)
Aizawl	28	0	28	0	0	0	0	0
Chamarajanagar	30	0	30	0	0	0	0	0
Madikeri	30	0	24	6	0	0	0	0
Tirupur	30	0	21	9	0	0	0	0
Shivamogga	30	0	30	0	0	0	0	0
Thanjavur	30	0	28	1	0	0	0	0
Raichur	27	0	25	2	0	0	0	0
Ariyalur	28	0	18	10	0	0	0	0
Vijayapura	30	0	28	2	0	0	0	0
Satna	30	0	26	4	0	0	0	0



Source: CCR

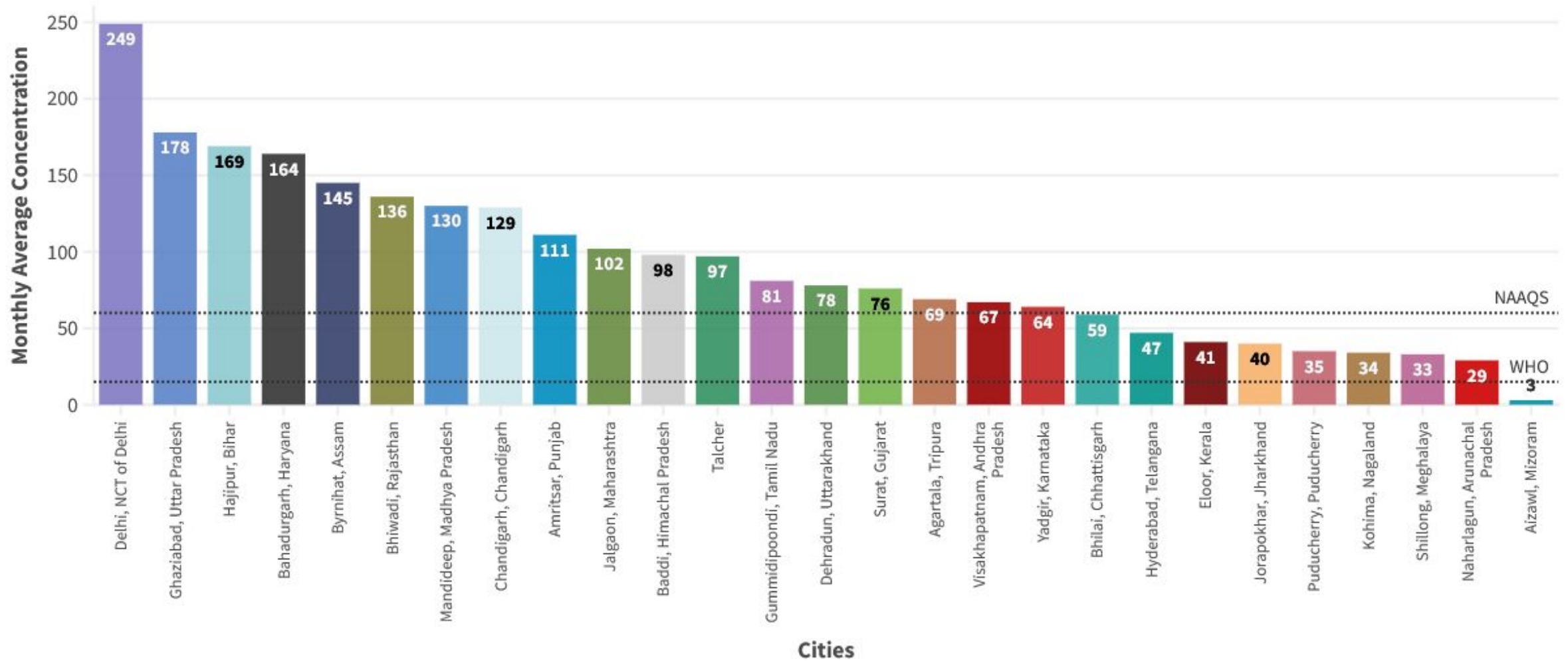


Frequency of appearance of respective cities in top 10 most polluted cities in India list by PM_{2.5} concentration – November 2024



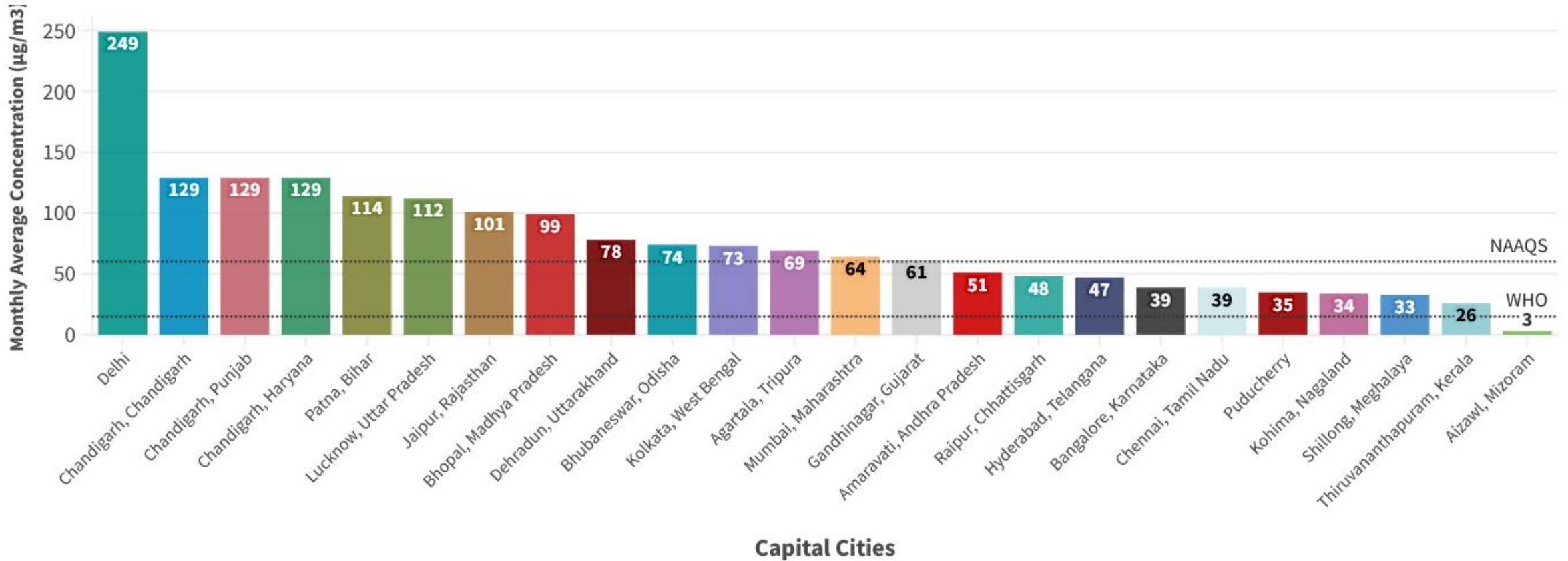
Source: [CCR](#)

State-wise most polluted cities (PM_{2.5}, µg/m³) in India – November 2024



Source: [CCR](#)

PM_{2.5} concentrations across state/provincial capital cities in India – November 2024



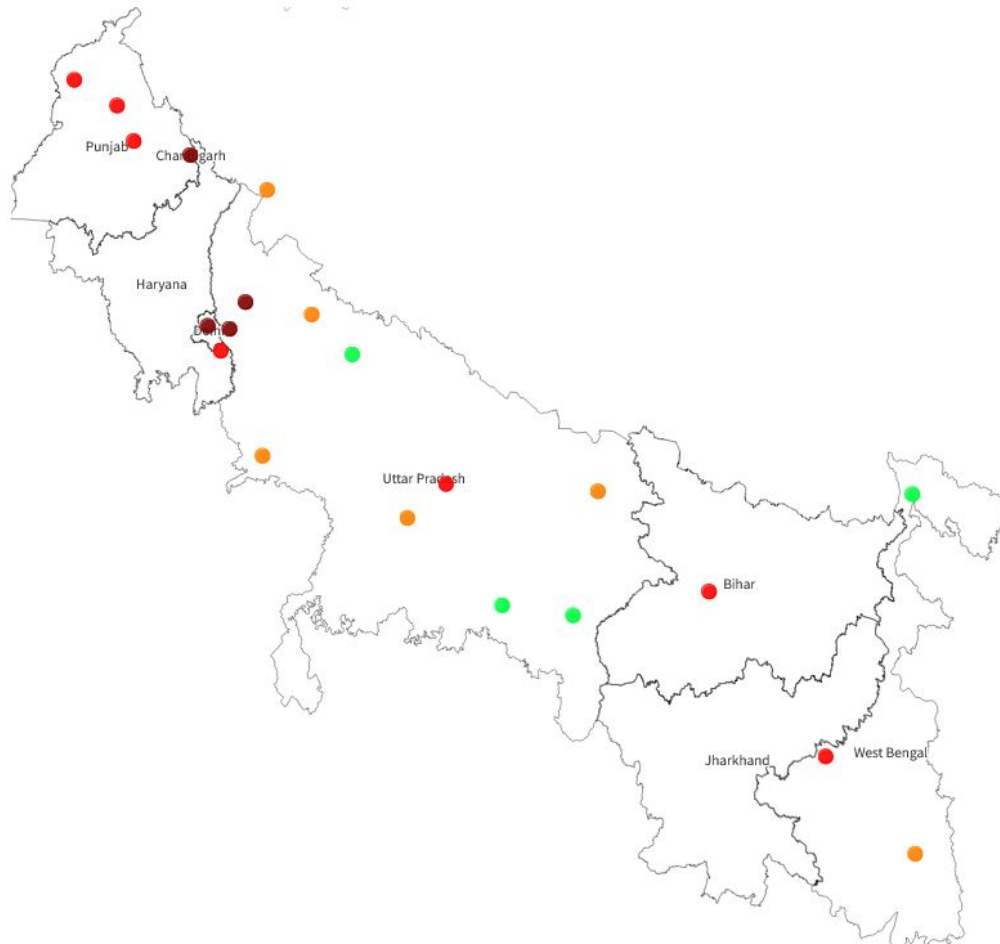
Source: [CCR](#)



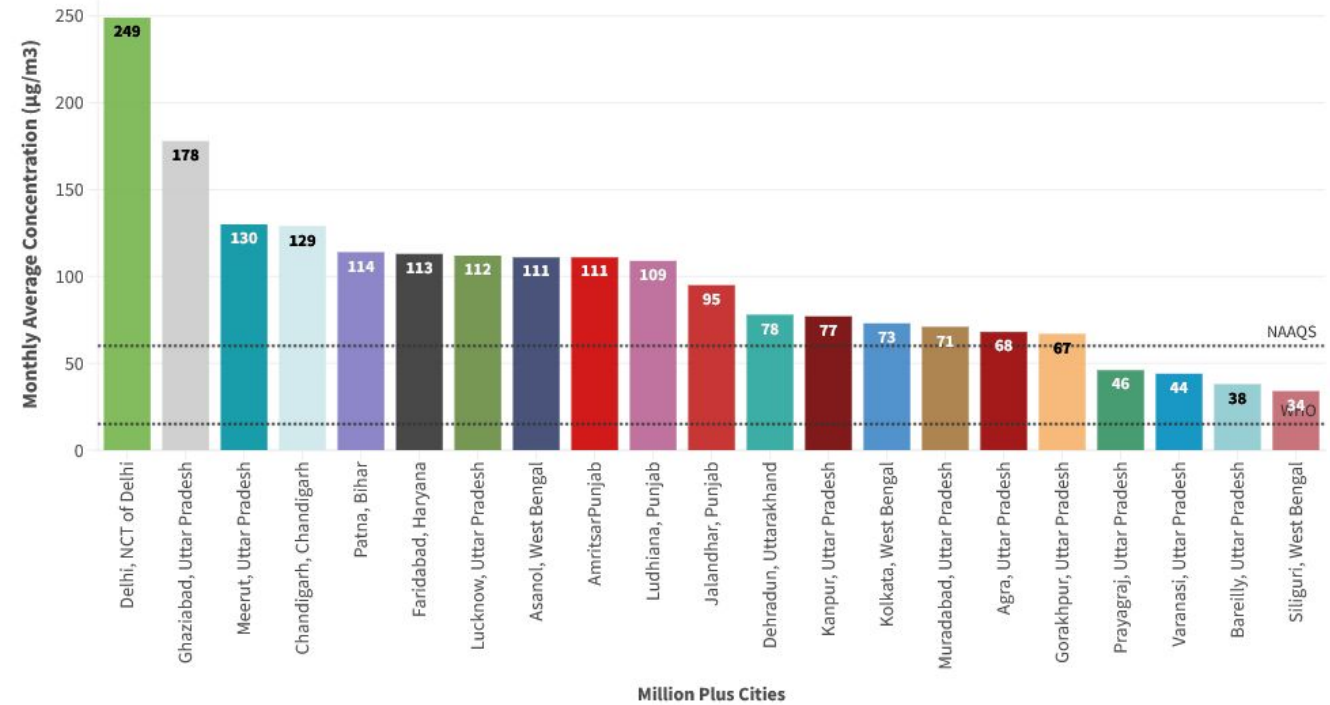
Itanagar (Arunachal Pradesh); Dispur (Assam); Panaji (Goa); Shimla (Himachal Pradesh); Ranchi (Jharkhand); Port Blair (Andaman and Nicobar Islands); Daman (Dadra and Nagar Haveli and Daman & Diu); Leh (Ladakh); and Kavaratti (Lakshadweep) don't have an operational CAAQMS.

PM_{2.5} concentrations across million plus cities in Indo-Gangetic Plain in India (with CAAQMS) – November 2024

Legend ■ Very Poor ■ Poor ■ Moderate ■ Satisfactory ■ Good



PM2.5 Concentrations Across Million Plus Cities of Indo-Gangetic Plain in India- November 2024

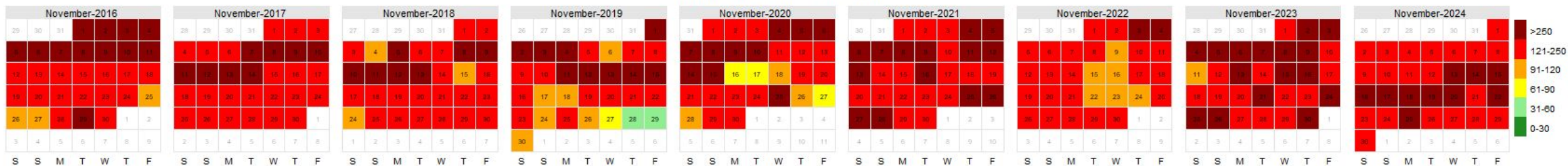


Source: CCR



Ambient air quality status in Delhi – November 2024 (PM_{2.5} concentration, µg/m³)

Delhi Daily PM_{2.5} Concentration (µg m⁻³)



Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	
Monitored Days	30	30	30	30	30	30	30	30	30	
Average	254	248	200	204	214	238	181	241	249	
Days > NAAQS	30	30	30	28	30	30	30	30	30	
% days > NAAQS	100	100	100	93	100	100	100	100	100	
Days in AQI Scale (PM _{2.5} in µg/m ³)	Good (0-30)	0	0	0	0	0	0	0	0	
	Satisfactory (31-60)	0	0	0	2	0	0	0	0	
	Moderate (61-90)	0	0	0	1	3	0	0	0	
	Poor (91-120)	3	0	3	6	3	0	6	1	0
	Very Poor (121-250)	15	22	20	12	14	16	22	13	20
	Severe (>250)	12	8	7	9	10	14	2	16	10

Ambient air quality status in Mumbai – November 2024 (PM_{2.5} concentration, µg/m³)

Mumbai Daily PM_{2.5} Concentration (µg m⁻³)



Year	2018	2019	2020	2021	2022	2023	2024
Monitored Days	28	30	30	30	30	30	30
Average	60	61	68	67	75	59	64
Days > NAAQS	10	19	23	20	26	14	17
% days > NAAQS	36	63	77	67	87	47	57
Days in AQI Scale (PM _{2.5} in µg/m ³)	Good (0-30)	0	7	0	3	0	0
	Satisfactory (31-60)	18	4	7	7	4	14
	Moderate (61-90)	7	16	21	15	22	14
	Poor (91-120)	3	3	2	5	4	0
	Very Poor (121-250)	0	0	0	0	0	0
	Severe (>250)	0	0	0	0	0	0

Ambient air quality status in Chennai – November 2024 (PM_{2.5} concentration, µg/m³)

Chennai Daily PM_{2.5} Concentration (µg m⁻³)



Year	2016	2017	2018	2019	2020	2021	2022	2023	2024
Monitored Days	30	30	30	30	30	30	30	30	30
Average	74	43	54	55	34	22	38	29	39
Days > NAAQS	23	6	11	9	1	0	5	3	3
% days > NAAQS	77	20	37	30	3	0	17	10	10
Days in AQI Scale (PM _{2.5} in µg/m ³)	Good (0-30)	2	11	8	7	17	11	22	9
	Satisfactory (31-60)	5	13	11	14	12	6	14	18
	Moderate (61-90)	14	6	7	2	1	0	5	1
	Poor (91-120)	9	0	3	5	0	0	0	0
	Very Poor (121-250)	0	0	1	2	0	0	0	0
	Severe (>250)	0	0	0	0	0	0	0	0

Ambient air quality status in Bangalore – November 2024 (PM_{2.5} concentration, µg/m³)

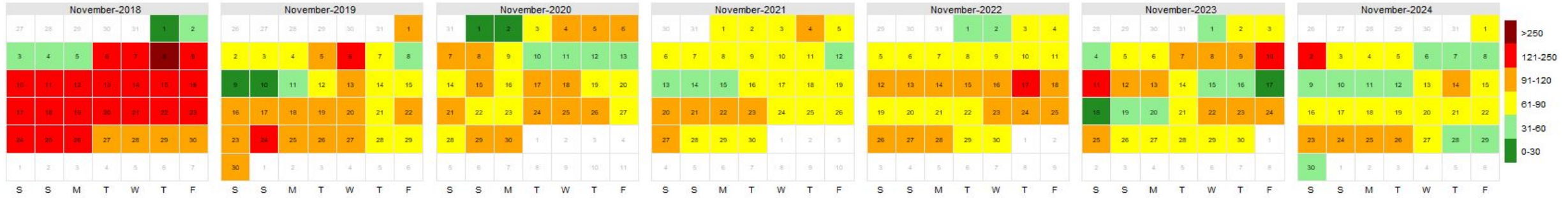
Bangalore Daily PM_{2.5} Concentration (µg m⁻³)



Year	2016	2017	2018	2019	2020	2021	2022	2023	2024
Monitored Days	30	30	30	30	30	30	30	30	30
Average	46	30	42	39	32	30	47	34	39
Days > NAAQS	1	0	6	5	1	0	10	4	1
% days > NAAQS	3	0	20	17	3	0	33	13	3
Days in AQI Scale (PM _{2.5} in µg/m ³)	Good (0-30)	1	13	10	12	17	9	17	6
	Satisfactory (31-60)	28	17	14	13	12	11	9	23
	Moderate (61-90)	1	0	6	5	1	10	4	1
	Poor (91-120)	0	0	0	0	0	0	0	0
	Very Poor (121-250)	0	0	0	0	0	0	0	0
	Severe (>250)	0	0	0	0	0	0	0	0

Ambient air quality status in Kolkata – November 2024 (PM_{2.5} concentration, µg/m³)

Kolkata Daily PM_{2.5} Concentration (µg m⁻³)



Year	2018	2019	2020	2021	2022	2023	2024	
Monitored Days	30	30	30	30	30	30	30	
Average	143	87	81	78	88	78	73	
Days > NAAQS	25	26	24	26	28	22	20	
% days > NAAQS	83	87	80	87	93	73	67	
Days in AQI Scale (PM _{2.5} in µg/m ³)	Good (0-30)	1	2	2	0	2	0	
	Satisfactory (31-60)	4	2	4	4	2	10	
	Moderate (61-90)	0	10	10	20	15	11	14
	Poor (91-120)	4	14	14	6	12	9	5
	Very Poor (121-250)	20	2	0	0	1	2	1
	Severe (>250)	1	0	0	0	0	0	0

Data sources

Ambient air quality data recorded by Continuous Ambient Air Quality Monitoring Stations (CAAQMS) is downloaded from the '[Central Control Room for Air Quality Management - All India](#)' dashboard operated by the Central Pollution Control Board (CPCB).

Resources

To subscribe to these monthly air quality snapshots and to access the graphs and web version of this snapshot on our website here- [India monthly ambient air quality snapshot](#)