

# CREA

Centre for Research on Energy and Clean Air

## Monthly ambient air quality snapshot for India

*June 2024*

Legend Very Poor Poor Moderate Satisfactory Good

# Key highlights

- Four new continuous ambient air quality monitoring stations (CAAQMS) were installed in June 2024: one in Pune, two in Asansol, and one in Howrah. This increased the national total to 545 stations.
- In June 2024, [228 out of 251 cities](#) with more than 80% of the days with CAAQMS data recorded  $PM_{2.5}$  concentrations below India's daily National Ambient Air Quality Standards (NAAQS) of  $60 \mu g/m^3$ . Only 33 cities complied with the World Health Organization's daily safe guideline concentration of  $15 \mu g/m^3$ .
  - In June 2024, the monthly average  $PM_{2.5}$  levels in 88 National Clean Air Programme (NCAP) cities (out of 96 cities with more than 80% days with data) surpassed the WHO's daily guideline for  $PM_{2.5}$ , while 89 cities met India's daily National Ambient Air Quality Standards (NAAQS).
  - Among the 155 non-NCAP cities with over 80% of days with CAAQMS data, 25 cities reported monthly average  $PM_{2.5}$  levels below the WHO daily guideline. 139 cities adhered to the daily NAAQS, while the air quality in the remaining 16 cities was poorer than the NAAQS.
- June 2024 experienced a considerable improvement in air quality, with 130 cities falling under the 'Good' category, a stark contrast to May's 98 cities. May 2024 witnessed 114 cities classified as 'Satisfactory' and 31 as 'Moderate', while June saw a slight decline to 98 and 20, respectively. In June, only three cities fell into the 'Poor' category, a significant decrease from the 11 cities in May.
- Rohtak in Haryana ranked as the most polluted city in India in June 2024, recording a monthly average  $PM_{2.5}$  concentration of  $116 \mu g/m^3$ , surpassing the daily NAAQS 100% of the days in the month. Among India's top 10 polluted cities, five were located in Haryana, two in Rajasthan, while Punjab, Assam, and Bihar each had one.
- Ranking as India's 22nd most polluted city in June 2024, Delhi's  $PM_{2.5}$  pollution levels exceeded the NAAQS and were about four times the WHO daily guideline levels at  $63 \mu g/m^3$ .
- Other megacities, such as Chennai, Mumbai, and Bangalore, had  $PM_{2.5}$  concentrations below the NAAQS, with all days in June falling within the 'Good' category ( $0-30 \mu g/m^3$ ).
- A total of 60 cities were featured in the daily most polluted cities list in June 2024. Of this, 23 made an appearance at least five times over the 30-day period, topped by Rohtak in Haryana, which featured the most times (28 days), followed by Mandi Gobindgarh (17 days), Charkhi Dadri (16 days), Panchkula (16 days), Byrnihat (14 days), Ludhiana (13 days), Bhiwadi (12 days), and Ballabgarh (11 days).
- In June 2024, the cities featured in the daily top 10 most polluted cities list in India were spread across 12 states and union territories (UT), showing how widespread and severe toxic air is across the country.
- Only 14 out of the 60 cities featured in the daily top 10 most polluted cities list during June 2024 are part of the NCAP. The remaining 46 are devoid of any action plan to reduce hazardous air pollution concentrations.
- Among the eighteen million-plus cities in the Indo-Gangetic Plain with CAAQMS data for more than 80% of the days, five cities—Faridabad, Ludhiana, Asansol, Amritsar, and Delhi—exceeded the NAAQS.

# Real-time ambient air quality monitoring in India using Continuous Ambient Air Quality Monitoring Stations (CAAQMS) – June 2024

Total number (#) of CAAQMS installed in India	# of operational CAAQMS with >80% of the days with data in June 2024	# of CAAQMS with <80% but >1% of the days with data in June 2024	# of non-operational CAAQMS with no data in June 2024
545	464	34	47
Total number (#) of cities covered by CAAQMS	# of cities with >80% of the days in June with CAAQMS data in June 2024	# of cities with <80% but >1% of the days with CAAQMS data in June 2024	# of cities with CAAQMS installed but no available data in June 2024
281	251	17	13

CAAQMS and cities coverage	
# of stations in May 2024	541
# of stations in June 2024	545
# of cities covered by CAAQMS in May 2024	281
# of cities covered by CAAQMS in June 2024	281

New stations installed: one in Pune, two in Asansol, and one in Howrah

Total number (#) of NCAP cities	131	NCAP cities with CAAQMS	101
		NCAP cities without CAAQMS	30

NCAP cities with CAAQMS			Non-NCAP cities with CAAQMS		
101			180		
# of NCAP cities with >80% of the days with CAAQMS data	# of NCAP cities with <80% of the days with CAAQMS	# 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	# of Non-NCAP cities with CAAQMS installed but no available data
96	3	2	155	14	11

# Compliance of PM<sub>2.5</sub> concentration across Indian cities with NAAQS and WHO guidelines – June 2024

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

251

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

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

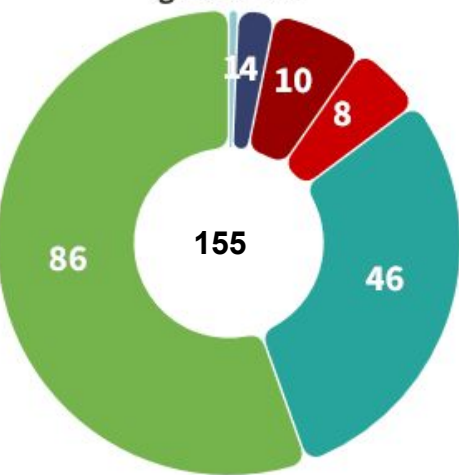
96

155

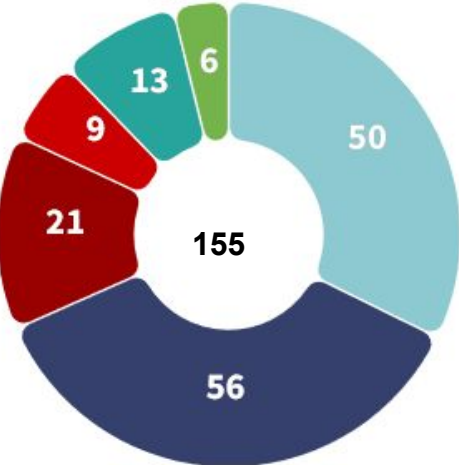
# of NCAP cities with monthly average PM <sub>2.5</sub> concentration complying with WHO daily guideline levels	# of NCAP cities with monthly average PM <sub>2.5</sub> concentration > WHO daily guideline levels	# of NCAP cities with monthly average PM <sub>2.5</sub> concentration complying with the daily NAAQS	# of NCAP cities with monthly average PM <sub>2.5</sub> concentration > the daily NAAQS	# of NCAP cities with monthly average PM <sub>2.5</sub> concentration > 2 times the daily NAAQS	# of non-NCAP cities with monthly average PM <sub>2.5</sub> concentration complying with WHO daily guideline levels	# of non-NCAP cities with monthly average PM <sub>2.5</sub> concentration > WHO daily guideline levels	# of non-NCAP cities with monthly average PM <sub>2.5</sub> concentration complying with the daily NAAQS	# of non-NCAP cities with monthly average PM <sub>2.5</sub> concentration > the daily NAAQS	# of non-NCAP cities with monthly average PM <sub>2.5</sub> concentration > 2 times the daily NAAQS
8	88	89	7	0	25	130	139	16	0

# Number of cities vs frequency of days with PM<sub>2.5</sub> concentration above NAAQS and WHO guidelines – June 2024

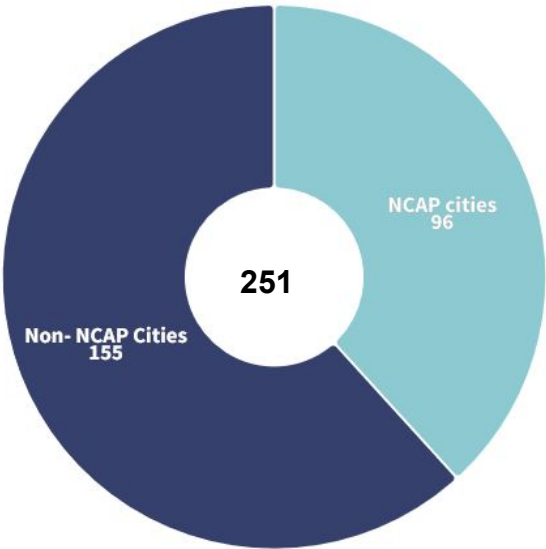
Categorisation of Non-NCAP cities against compliance to NAAQS guidelines



Categorisation of Non-NCAP cities against compliance to WHO guidelines

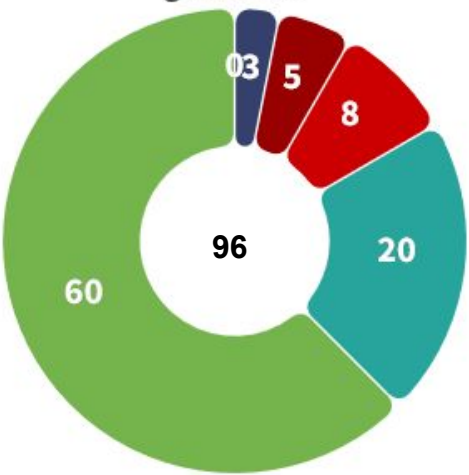


Total # of cities with >80% of the days with CAAQMS data

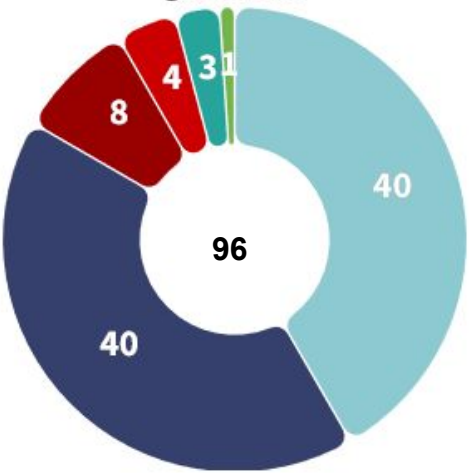


- Legends**
- 100% of the days >NAAQS
  - 75%-99% of the days >NAAQS
  - 50%-74% of the days >NAAQS
  - 25%-49% of the days >NAAQS
  - 1%-24% of the days >NAAQS
  - 100% of the days < NAAQS

Categorisation of NCAP cities against compliance to NAAQS guidelines

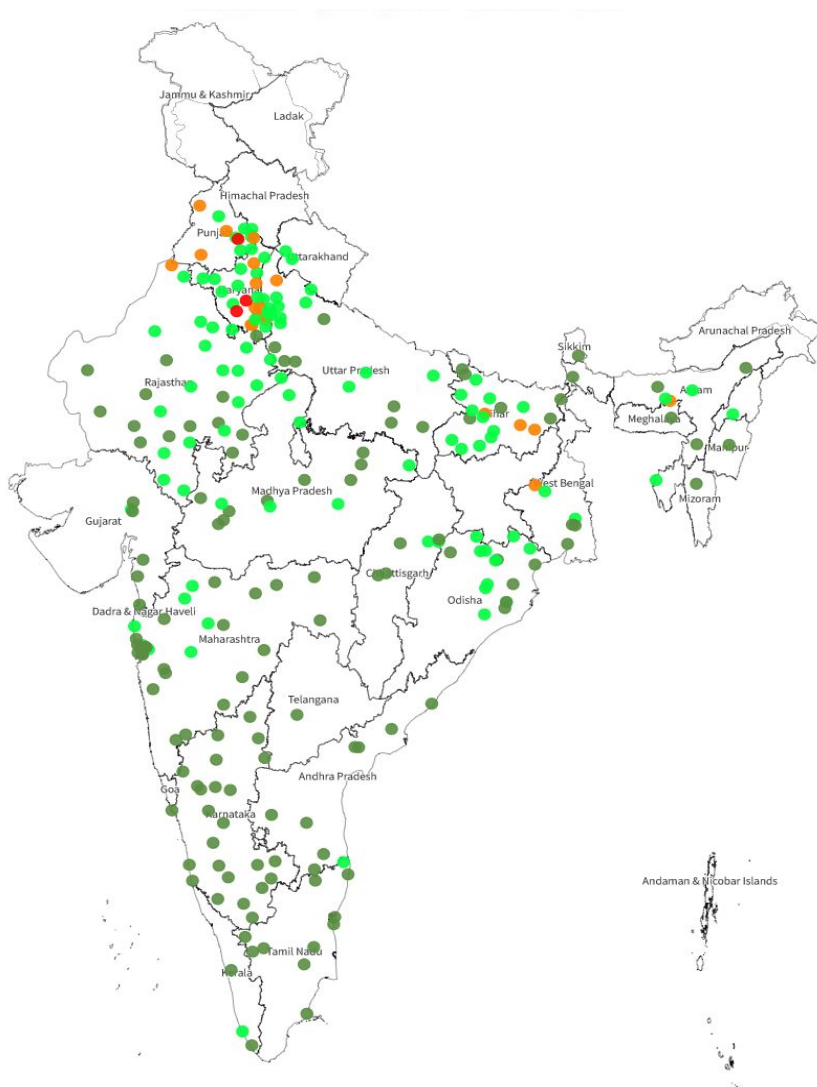


Categorisation of NCAP cities against compliance to WHO guidelines





# Distribution of cities by Graded Response Action Plan (GRAP) categorisation based on monthly average PM<sub>2.5</sub> concentrations – June 2024



Legend: Very Poor (dark red), Poor (red), Moderate (orange), Satisfactory (green), Good (dark green)

Source: CPCB

Note: Note: Cities that have data coverage for at least 80% of the days in a month are considered for analysis

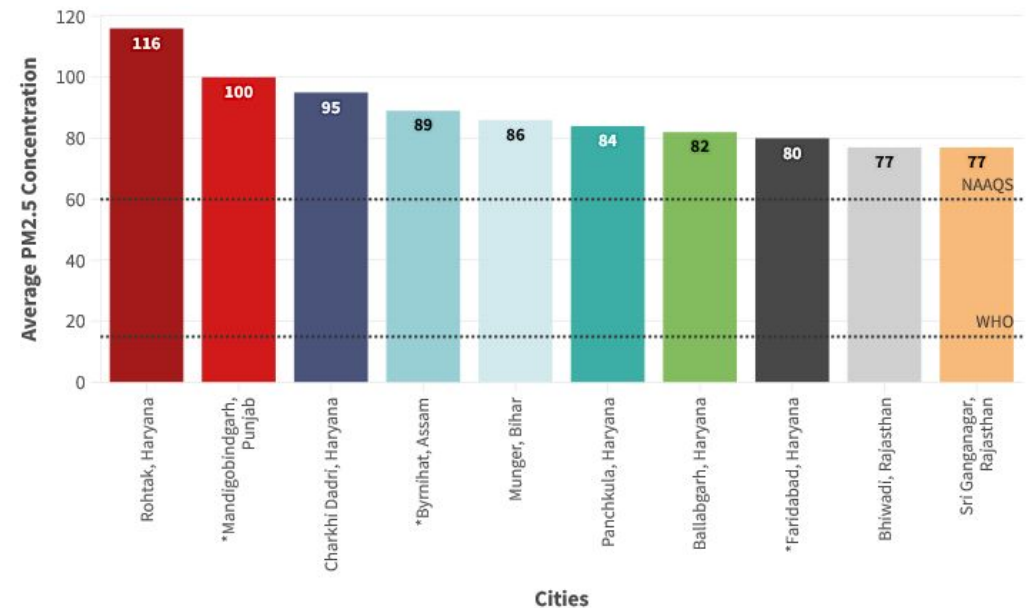
State/UT	Number of cities in AQI category (PM <sub>2.5</sub> µg/m <sup>3</sup> )				
	Good (0-30)	Satisfactory (31-60)	Moderate (61-90)	Poor (91-120)	Very Poor (121-250)
Andhra Pradesh	8	0	0	0	0
Assam	3	2	1	0	0
Bihar	6	11	3	0	0
Chandigarh	0	1	0	0	0
Chhattisgarh	4	2	0	0	0
Gujarat	5	1	0	0	0
Haryana	1	13	8	2	0
Himachal Pradesh	0	1	0	0	0
Karnataka	25	0	0	0	0
Kerala	2	1	0	0	0
Madhya Pradesh	9	5	0	0	0
Maharashtra	23	7	0	0	0
Manipur	1	0	0	0	0
Meghalaya	1	0	0	0	0
Mizoram	1	0	0	0	0
Nagaland	0	1	0	0	0
NCT of Delhi	0	0	1	0	0
Odisha	6	10	0	0	0
Puducherry	1	0	0	0	0
Punjab	0	4	3	1	0
Rajasthan	13	19	2	0	0
Sikkim	1	0	0	0	0
Tamil Nadu	9	1	0	0	0
Telangana	1	0	0	0	0
Tripura	0	1	0	0	0
Uttar Pradesh	6	13	1	0	0
Uttarakhand	0	3	0	0	0
West Bengal	4	2	1	0	0

# Top 10 most polluted cities in India by PM<sub>2.5</sub> concentration – June 2024

Days in respective AQI categories based on PM<sub>2.5</sub> (µg/m<sup>3</sup>) – June 2024

City	Monitored days	%Days > NAAQS	Good (0-30)	Satisfactory (31-60)	Moderate (61-90)	Poor (91-120)	Very poor (121-250)	Severe (>250)
Rohtak	30	100	0	0	5	14	11	0
Mandi Gobindgarh	29	76	0	7	4	10	8	0
Charkhi Dadri	28	79	0	6	9	8	5	0
Byrnihat	29	62	3	8	4	4	10	0
Munger	29	38	9	9	4	0	5	2
Panchkula	27	85	0	4	12	8	3	0
Ballabgarh	29	83	0	5	14	9	1	0
Faridabad	30	77	0	7	14	7	2	0
Bhiwadi	30	70	1	8	15	4	2	0
Sri Ganganagar	29	69	0	9	10	8	2	0

Top 10 most polluted cities in India by PM<sub>2.5</sub> concentrations (µg/m<sup>3</sup>) - June 2024

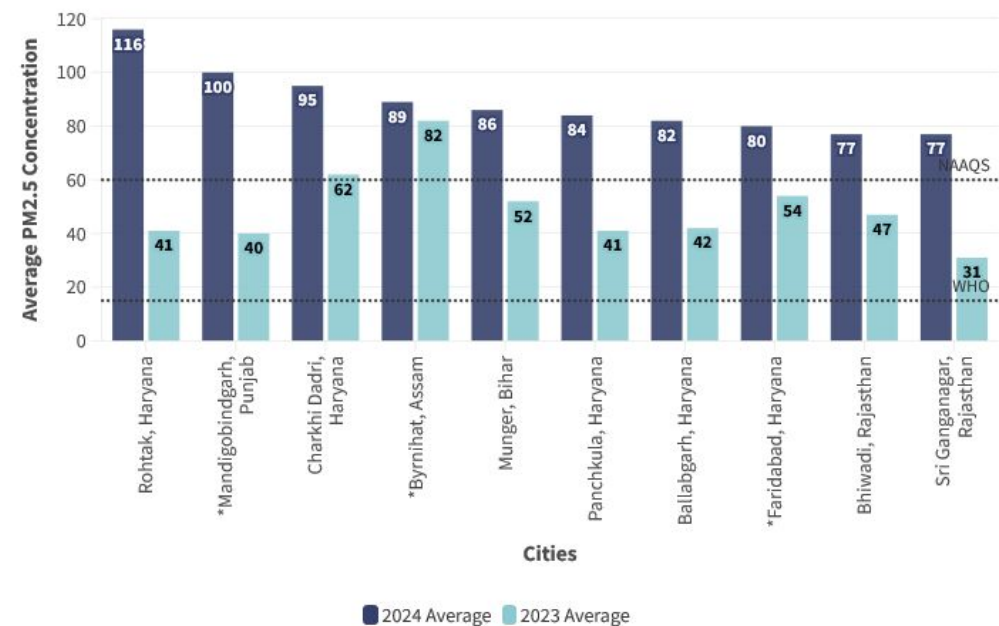


Source: CCR  
\* NCAP cities

# Status of PM<sub>2.5</sub> concentration in June 2023 for top 10 most polluted cities in June 2024 across India

Days in respective AQI categories based on PM <sub>2.5</sub> (µg/m <sup>3</sup> ) – June 2023								
City	Monitored days	Days > NAAQS	Good (0-30)	Satisfactory (31-60)	Moderate (61-90)	Poor (91-120)	Very poor (121-250)	Severe (>250)
Rohtak	29	5	4	20	5	0	0	0
Mandi Gobindgarh	30	4	10	16	4	0	0	0
Charkhi Dadri	30	11	2	17	5	5	1	0
Byrnihat	28	17	5	6	5	7	5	0
Munger	23	6	5	12	5	0	1	0
Panchkula	21	3	5	13	3	0	0	0
Ballabgarh	29	5	7	17	5	0	0	0
Faridabad	30	8	1	21	7	1	0	0
Bhiwadi	30	8	5	17	8	0	0	0
Sri Ganganagar	30	3	19	8	3	0	0	0

Top 10 most polluted cities in India by PM2.5 concentrations (µg/m3) - June 2024 Vs June 2023

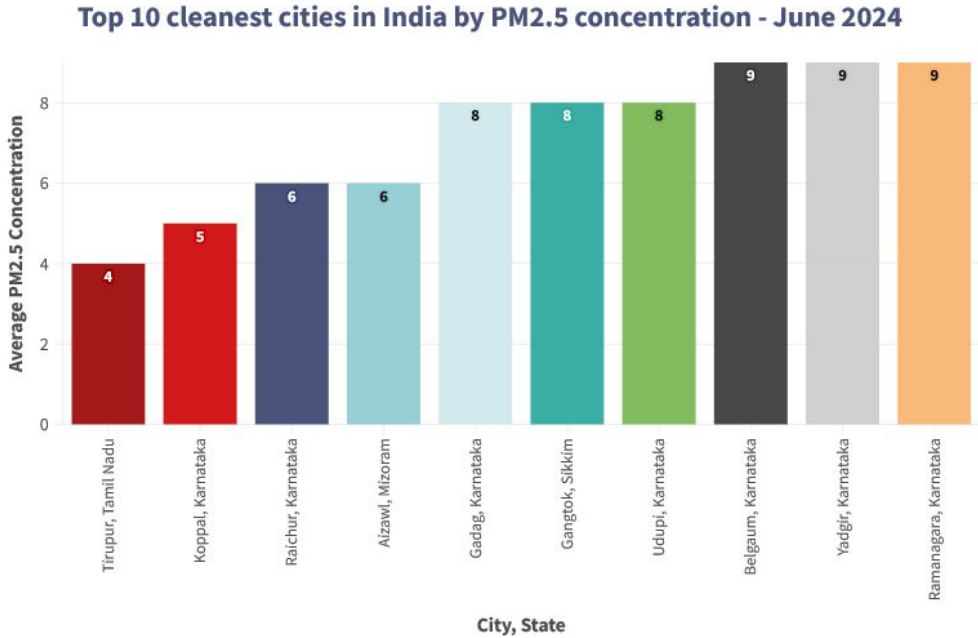


Source: CCR  
\* NCAP cities



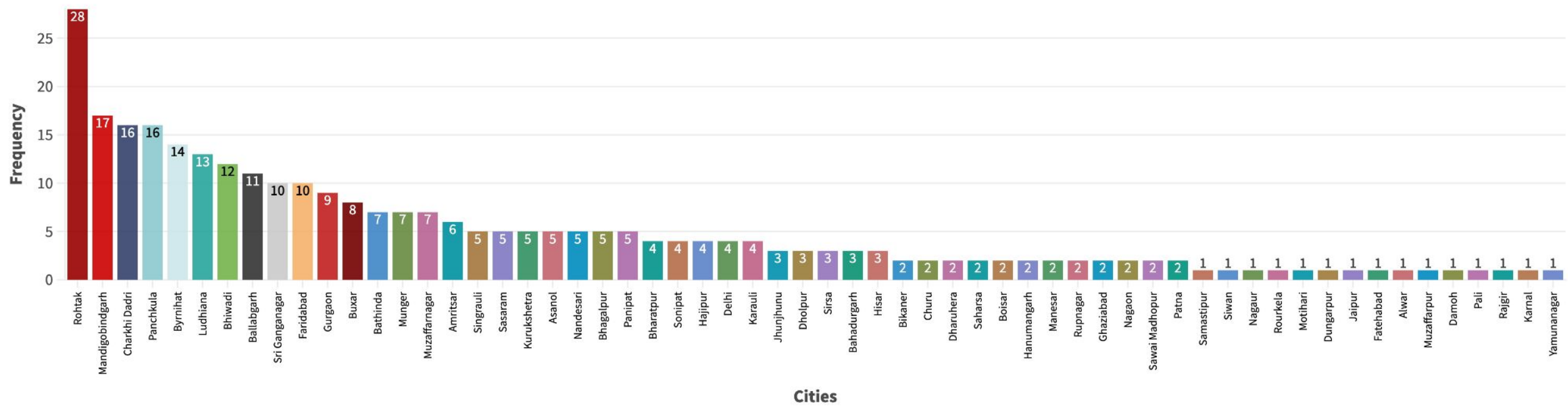
# Status of PM<sub>2.5</sub> concentration in June 2023 for top 10 cleanest cities in June 2024 across India

Days in respective AQI categories based on PM <sub>2.5</sub> (µg/m3) – June 2024								
City	Monitored days	%Days > NAAQS	Good (0-30)	Satisfactory (31-60)	Moderate (61-90)	Poor (91-120)	Very poor (121-250)	Severe (>250)
Tirupur	30	0	30	0	0	0	0	0
Koppal	26	0	26	0	0	0	0	0
Raichur	29	0	29	0	0	0	0	0
Aizawl	30	0	30	0	0	0	0	0
Gadag	30	0	30	0	0	0	0	0
Gangtok	26	0	26	0	0	0	0	0
Udupi	30	0	30	0	0	0	0	0
Belgaum	27	0	27	0	0	0	0	0
Yadgir	30	0	30	0	0	0	0	0
Ramanagara	30	0	30	0	0	0	0	0



Source: [CCR](#)

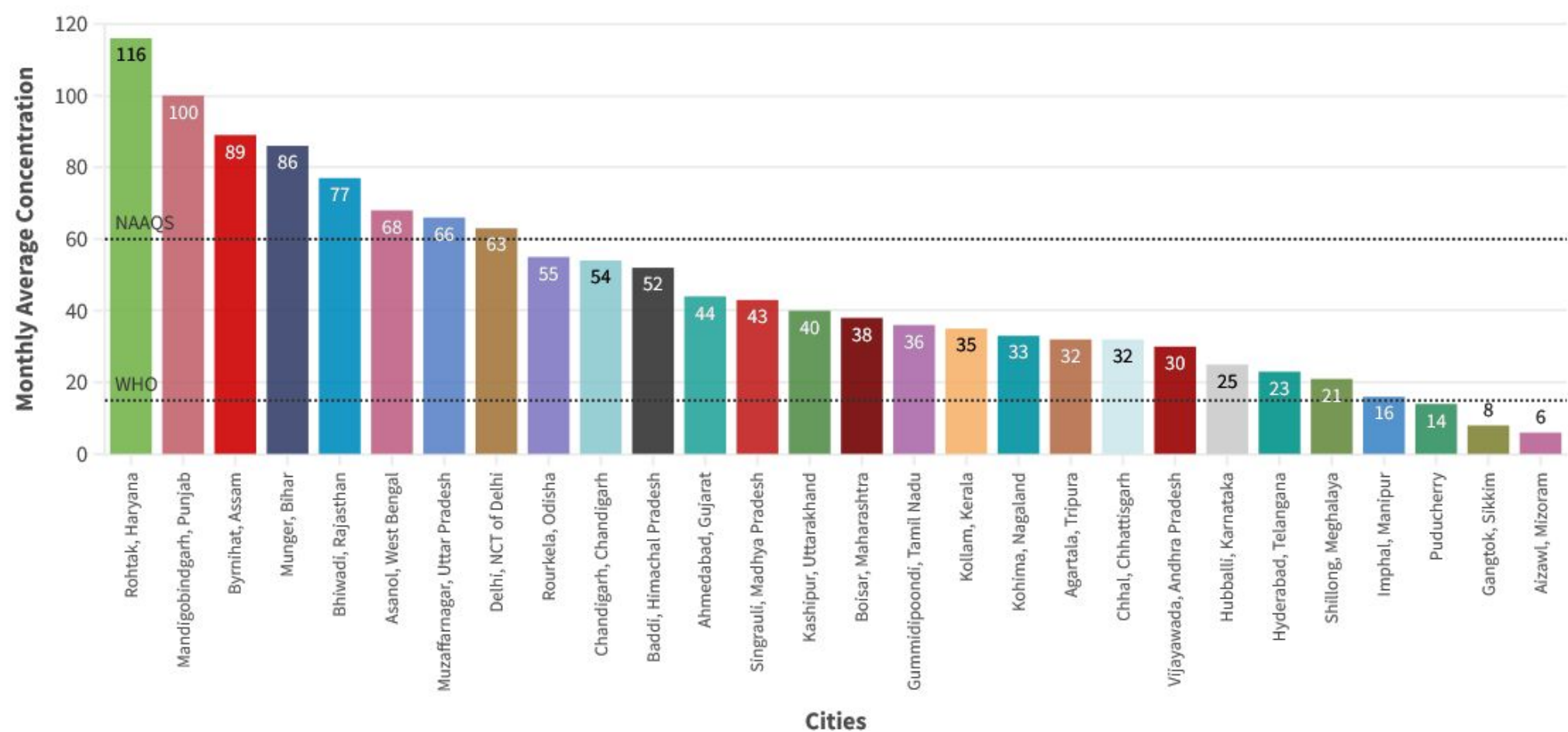
# Frequency of appearance of respective cities in top 10 most polluted cities in India list by PM<sub>2.5</sub> concentration – June 2024



Source: CCR



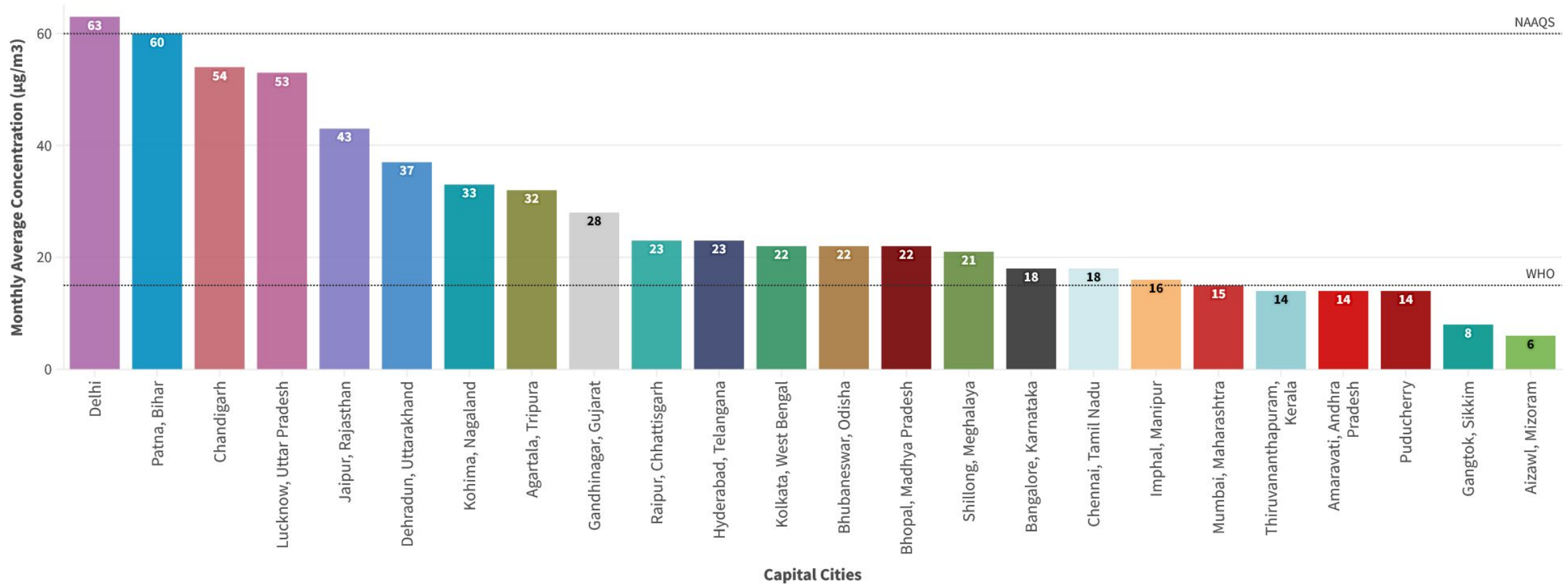
# State-wise most polluted cities (PM<sub>2.5</sub>, µg/m<sup>3</sup>) in India – June 2024



Source: [CCR](#)



# PM<sub>2.5</sub> concentrations across state/provincial capital cities in India – June 2024

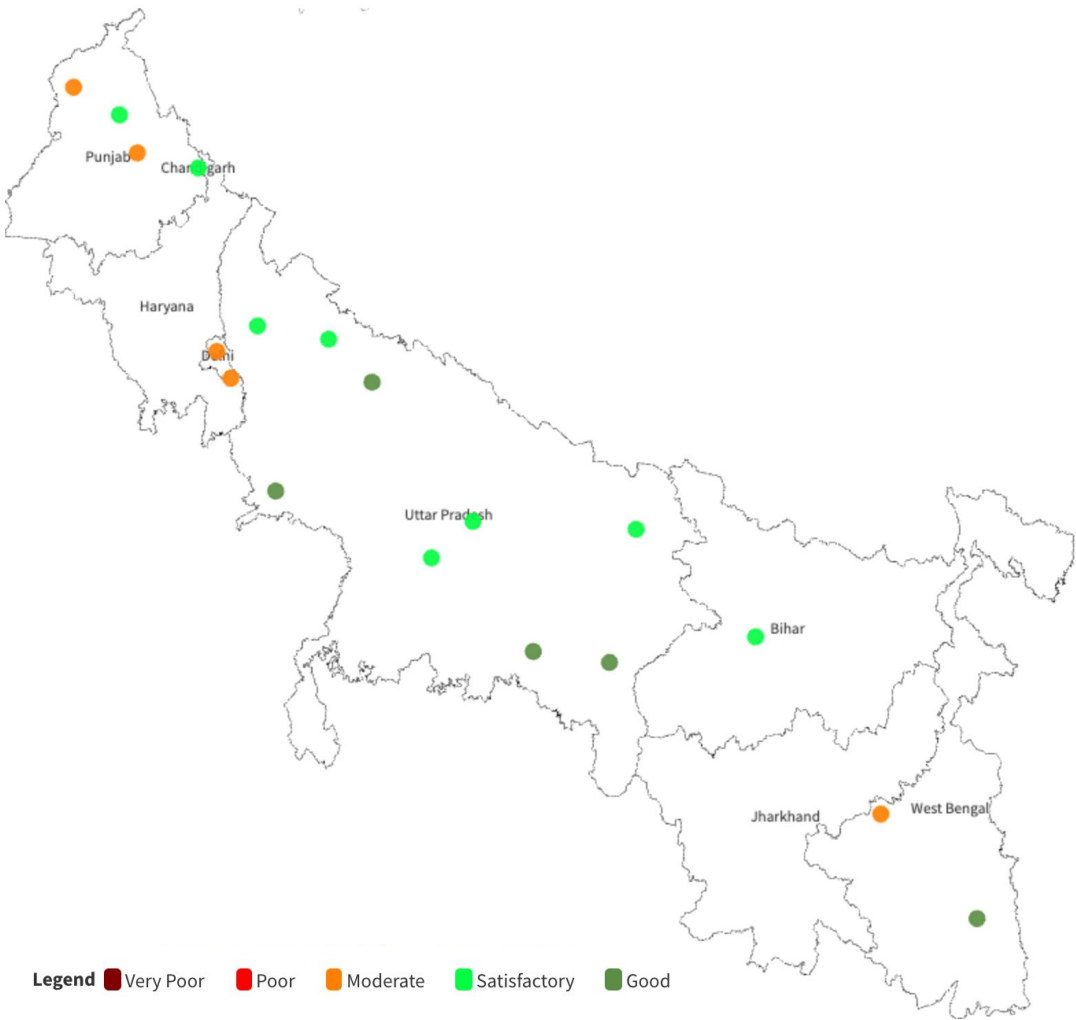


Source: [CCR](#)

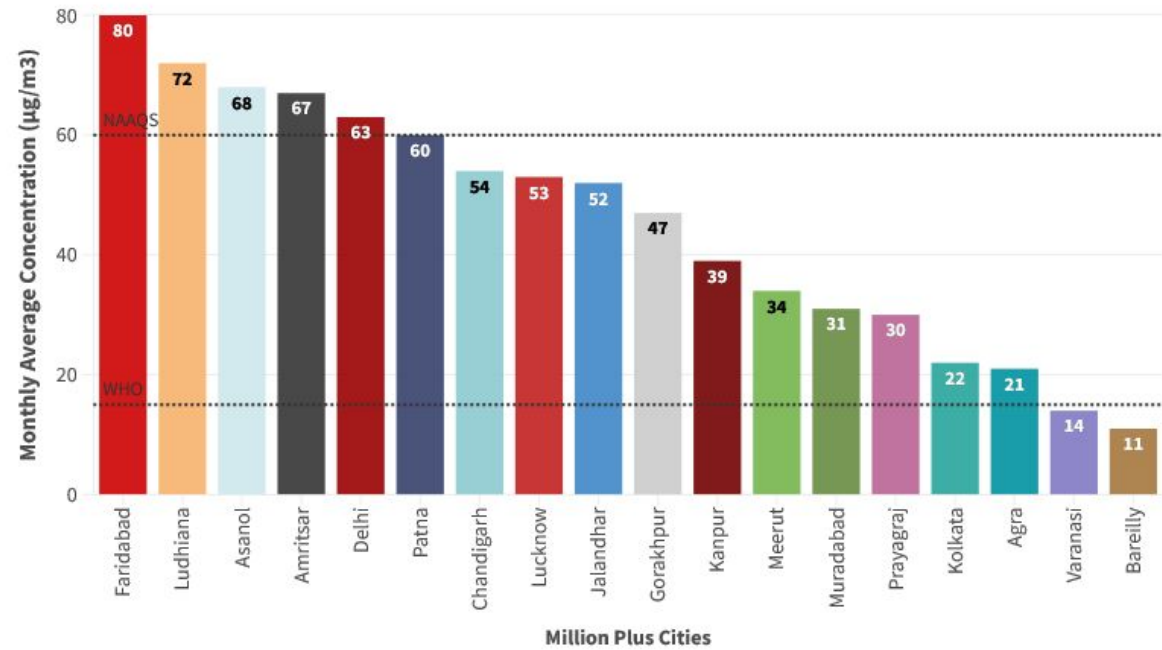


Itanagar (Arunachal Pradesh); Dispur (Assam); Panaji (Goa); Shimla (Himachal Pradesh); Ranchi (Jharkhand); Port Blair (Andaman and Nicobar Islands); Daman (Dadra and Nagar Haveli and Daman & Diu); Leh (Ladakh); and Kavaratti (Lakshadweep) don't have an operational CAAQMS. Srinagar (Jammu and Kashmir) and Gangtok (Sikkim) don't have >80% data.

# PM<sub>2.5</sub> concentrations across million plus cities in Indo-Gangetic Plain in India (with CAAQMS) – June 2024



PM<sub>2.5</sub> Concentrations Across Million Plus Cities of Indo-Gangetic Plain in India- June 2024



Source: CCR



# Ambient air quality status in Delhi – June 2024

## (PM<sub>2.5</sub> concentration, µg/m<sup>3</sup>)

Delhi Daily PM<sub>2.5</sub> Concentration (µg m<sup>-3</sup>)



Year	June-16	June-17	June-18	June-19	June-20	June-21	June-22	June-23	June-24
Monitored days	30	30	30	30	30	30	30	30	30
Average (µg/m <sup>3</sup> )	85	66	79	64	47	53	62	45	63
Days > NAAQS	29	19	19	17	4	11	15	4	17
% days > NAAQS	97	63	63	57	13	37	50	13	57
Days in AQI Scale (PM <sub>2.5</sub> in µg/m <sup>3</sup> )									
Good (0-30)	0	0	1	1	1	3	1	3	0
Satisfactory (31-60)	1	11	10	12	25	16	14	23	13
Moderate (61-90)	21	15	14	14	4	11	13	4	16
Poor (91-120)	5	4	0	3	0	0	2	0	1
Very Poor (121-250)	3	0	5	0	0	0	0	0	0
Severe (>250)	0	0	0	0	0	0	0	0	0



# Ambient air quality status in Mumbai – June 2024

## (PM<sub>2.5</sub> concentration, µg/m<sup>3</sup>)

Mumbai Daily PM<sub>2.5</sub> Concentration (µg m<sup>-3</sup>)



Year	June-18	June-19	June-20	June-21	June-22	June-23	June-24
Monitored days	30	30	30	30	30	30	30
Average (µg/m3)	18	15	10	23	18	19	15
Days > NAAQS	0	0	0	0	0	0	0
% days > NAAQS	0	0	0	0	0	0	0
Days in AQI Scale (PM2.5 in µg/m3)							
Good (0-30)	30	30	30	25	28	30	30
Satisfactory (31-60)	0	0	0	5	2	0	0
Moderate (61-90)	0	0	0	0	0	0	0
Poor (91-120)	0	0	0	0	0	0	0
Very Poor (121-250)	0	0	0	0	0	0	0
Severe (>250)	0	0	0	0	0	0	0

# Ambient air quality status in Chennai – June 2024 (PM<sub>2.5</sub> concentration, µg/m<sup>3</sup>)

Chennai Daily PM<sub>2.5</sub> Concentration (µg m<sup>-3</sup>)



Year	June-16	June-17	June-18	June-19	June-20	June-21	June-22	June-23	June-24
Monitored days	18	30	30	30	30	30	30	30	30
Average (µg/m <sup>3</sup> )	50	53	67	40	23	22	22	26	18
Days > NAAQS	2	7	10	0	0	0	0	0	0
% days > NAAQS	11	23	33	0	0	0	0	0	0
Days in AQI Scale (PM <sub>2.5</sub> in µg/m <sup>3</sup> )									
Good (0-30)	0	0	0	1	28	24	29	25	30
Satisfactory (31-60)	16	23	20	29	2	6	1	5	0
Moderate (61-90)	1	7	8	0	0	0	0	0	0
Poor (91-120)	0	0	0	0	0	0	0	0	0
Very Poor (121-250)	1	0	1	0	0	0	0	0	0
Severe (>250)	0	0	1	0	0	0	0	0	0

# Ambient air quality status in Bangalore – June 2024 (PM<sub>2.5</sub> concentration, µg/m<sup>3</sup>)

Bangalore Daily PM<sub>2.5</sub> Concentration (µg m<sup>-3</sup>)



Year	June-16	June-17	June-18	June-19	June-20	June-21	June-22	June-23	June-24
Monitored days	16	30	30	30	30	30	30	30	30
Average (µg/m <sup>3</sup> )	22	21	22	23	17	20	23	20	18
Days > NAAQS	0	0	0	0	0	0	0	0	0
% days > NAAQS	0	0	0	0	0	0	0	0	0
Days in AQI Scale (PM <sub>2.5</sub> in µg/m <sup>3</sup> )									
Good (0-30)	14	30	26	27	30	24	27	27	30
Satisfactory (31-60)	2	0	4	3	0	6	3	2	0
Moderate (61-90)	0	0	0	0	0	0	0	1	0
Poor (91-120)	0	0	0	0	0	0	0	0	0
Very Poor (121-250)	0	0	0	0	0	0	0	0	0
Severe (>250)	0	0	0	0	0	0	0	0	0



# Ambient air quality status in Kolkata – June 2024 (PM<sub>2.5</sub> concentration, µg/m<sup>3</sup>)

Kolkata Daily PM<sub>2.5</sub> Concentration (µg m<sup>-3</sup>)



Year	June-18	June-19	June-20	June-21	June-22	June-23	June-24
Monitored days	18	30	30	30	30	30	30
Average (µg/m3)	29	32	14	25	24	24	22
Days > NAAQS	0	0	0	0	0	0	0
% days > NAAQS	0	0	0	0	0	0	0
Days in AQI Scale (PM2.5 in µg/m3)							
Good (0-30)	11	12	30	25	23	22	27
Satisfactory (31-60)	7	18	0	5	7	8	3
Moderate (61-90)	0	0	0	0	0	0	0
Poor (91-120)	0	0	0	0	0	0	0
Very Poor (121-250)	0	0	0	0	0	0	0
Severe (>250)	0	0	0	0	0	0	0