

GOVERNMENT OF INDIA  
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

**RAJYA SABHA**  
**UNSTARRED QUESTION NO. 2936**  
TO BE ANSWERED ON 13.08.2026

**Deaths due to PM 2.5 exposure**

2936. SHRI SANJAY YADAV:

Will the Minister of ENVIRONMENT, FOREST AND CLIMATE CHANGE be pleased to state:

- (a) the estimated number of deaths in India attributed to PM 2.5 exposure during each of the last five years;
- (b) the estimated economic losses, in percentage of GDP, attributable to PM 2.5-related mortality and morbidity during the said period;
- (c) the number of cities in which annual average PM 2.5 levels continue to exceed the National Ambient Air Quality Standards (NAAQS) of 40 µg/m<sup>3</sup>, year-wise since 2020; and
- (d) the measures undertaken by Government since 2020 to reduce PM 2.5 concentrations under the National Clean Air Programme (NCAP)?

**ANSWER**

MINISTER OF STATE IN THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE  
(SHRI KIRTI VARDHAN SINGH)

**(a) to (d):** Health is impacted by a number of factors which include food habits, occupational habits, socio-economic status, medical history, immunity, heredity, etc., of the individuals apart from the environment. As per the National Centre for Disease Control (NCDC), Ministry of Health & Family Welfare (MoH&FW), NCDC does not collect information regarding deaths in India attributed to PM 2.5 exposure.

Air pollution is the collective result of multiple anthropogenic factors vehicular and industrial emissions, dust from construction & demolition activities, roads and open areas, burning of biomass and municipal solid waste, landfill fires and other dispersed sources compounded by adverse meteorological conditions.

Government of India has notified the National Ambient Air Quality Standards (NAAQS) for 12 air pollutants including PM10 and PM2.5 to safeguard public health and environment quality. To provide air quality information and associated health implications in an easily understandable manner, Air Quality Index (AQI) was launched by the Government in 2015.

To address air pollution, Ministry of Environment, Forest and Climate Change (MoEFCC) launched National Clean Air Programme (NCAP) to improve air quality in 130 cities (nonattainment cities and Million Plus Cities) in 24 States/UTs through implementation of National, State and City level clean air action plans. It is a multi-sectoral initiative involving the coordinated efforts of the Central and State Governments, Urban Local Bodies (ULBs) and other stakeholders. NCAP emphasizes source specific mitigation measures through city, state, and national-level clean air action plans and it is monitored by various committee constituted at

Central, State and District level. State level Clean Air Action Plans prepared by States/UTs address both PM<sub>10</sub> and PM<sub>2.5</sub> through coordinated approach by implementing various policy and enforcement measures.

Air quality performance based incentive grant of ₹ 16423.56 crore has been released to targeted cities under National Clean Air Programme (NCAP) as a critical gap funding to implement air pollution mitigation measures, during FY 2019-20 till 2025-26.

To address air pollution in Delhi-NCR, Government has established the Commission for Air Quality Management (CAQM) under the Commission for Air Quality Management in NCR and Adjoining Areas Act, 2021 for better coordination, research, identification and resolution of problems of air pollution in Delhi- NCR and adjoining areas. CAQM has been provided powers under the Act to take measures and issue directions to the various agencies in the National Capital Region for protecting and improving air quality.

The Ministry of Environment, Forest and Climate Change (MoEF&CC) enacted the Air (Prevention and Control of Pollution) Act, 1981 and the Environment (Protection) Act, 1986 and notified different Rules and Regulations under the said acts to prevent and control of air pollution.

Actions towards control of industrial pollution are primarily implemented by industries and monitoring & enforcement of industrial emission norms are carried out by the State Pollution Control Boards through Consent mechanism under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.

CPCB and State Pollution Control Boards (SPCB)/Pollution Control Committees (PCCs) monitor the emissions of industries to ensure compliance of the provisions of the Air (Prevention and Control of Pollution) Act, 1981 and the Environment (Protection) Act, 1986.

Details of various steps taken by the Government for air quality improvement are enclosed at **Annexure I**.

The number of cities under NCAP exceeding the National Ambient Air Quality Standards (NAAQS) for annual PM<sub>2.5</sub> concentrations (40 µg/m<sup>3</sup>) was 42 cities in 2020, 58 cities in 2021, 62 cities in 2022, 66 cities in 2023, 61 cities in 2024, and 55 cities in 2025.

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**Measures taken by the Government to address air pollution****1.0 Measures for control of vehicular emissions:**

- Leapfrogging from BS-IV to BS-VI fuel standards from 1st April, 2020 for the rest of the country.
- Introduction of BS VI compliant vehicles across the country since April, 2020.
- Installation of Vapor Recovery System (VRS) in new and existing petrol pumps selling gasoline >100kl per month in million plus cities and those selling >300kl per month in cities with population between 1 lakh to 1 million to control vehicular refuelling emissions.
- Promotion of electric vehicles through Electric Mobility Promotion Scheme 2024 (EMPS 2024) scheme of Ministry of Heavy Industries, Government of India
- Sustainable Alternative Towards Affordable Transportation (SATAT) has been launched as an initiative to set up Compressed Bio-Gas (CBG) production plants and make CBG available in the market for use in automotive fuels.
- Establishment of charging infrastructure for E-vehicles as per guidelines issued by Ministry of Power.
- Synchronization in traffic movements/Introduction of Intelligent Traffic System (ITS) for lane-driving.
- Ministry of Road Transport & Highways (MoRTH) has issued notifications on the establishment of Registered Vehicle Scrapping Facility (RVSFs) and Automated Testing System (ATS) to create an enabling framework for implementation of Vehicle Scrapping Policy.
- Improving and Strengthening of Pollution Under Control (PUC) Certificate System programme across the country by MoRTH

**2.0 Measures for control of industrial emission:**

- MoEF&CC notified “Standards for Emission or Discharge of Environmental Pollutants from various Industries” under Schedule-I of the Environment (Protection) Rules, 1986. So far, more than 79 industrial specific environmental standards have been notified. In respect of the industrial sectors, for which specific standards are not available, general standards as notified under Schedule-VI of the Environment Protection Rules, 1986 are applicable.
- For strengthening monitoring mechanism and effective compliance through self-regulatory mechanism, CPCB directed all 17 categories of highly polluting industries to install Online Continuous Emission Monitoring System (OCEMS).
- CPCB vide direction dated 12.02.2025 classified a total of 419 sectors and sub-sectors in Red (125), Orange (137), Green (61), White (87) and Blue (9).
- The Ministry of Environment Forest and Climate Change (MoEF&CC), Government of India notifies industry specific discharge standards under Schedule-I: ‘Standards for Emission or Discharge of Environmental Pollutants from various Industries’ of Environment Protection Act, 1986. So far, industry specific environmental standards, for 79 industrial sectors (including emission standards for 56 sectors) have been notified. Industrial sectors, for which specific standards are not available, general standards as notified under Schedule-VI of Environment Protection Rules, 1986 shall be applicable.
- Ban on use of imported pet coke in the country since July 26, 2018, with exception for use in permitted processes.

- CPCB has come out with System and Procedure for Emission Compliance Testing of Retro-fit Emission Control Devices (RECD) for Diesel Power Generating Set Engines up to Gross Mechanical Power 800 kW.
- In 2022, CPCB mandated new brick kilns must use zig-zag technology, vertical shaft, or piped natural gas, and adhere to specific standards. Also, Existing kilns must also convert to these technologies or use approved fuels.
- In 2023, CPCB introduced stricter emission standards (CPCB IV+) for diesel generators (DG sets) up to 800 kW, mandating dual-fuel systems (70% gas, 30% diesel) where gas infrastructure is available and requiring Retro-fit Emission Control Devices (RECD) with a minimum PM capturing efficiency of 70%.

### **3.0 Air Quality Monitoring and Network**

- National Air Quality Index (AQI) was launched in 2015. Information is being disseminated to public through daily air quality bulletins.
- Ambient Air Quality Network: The country has a network of 1646 ambient air quality monitoring stations (593 continuous and 1053 manual) covering 603 cities in 28 states and 7 UTs.
- A centralized air quality monitoring portal is operated by Central Pollution Control Board wherein, tracking of various information such as hourly PM concentrations, Live Air Quality Data of Monitoring stations and Live Air Quality Index is being carried out.
- Daily AQI Bulletin is published on CPCB website giving AQI information for cities across India.

### **4.0 C&D Waste & MSW**

- CPCB published following guidelines (available on website of CPCB)
  - i. Environmental Management of Construction & Demolition (C & D) Wastes' in March, 2017
  - ii. 'Guidelines on DUST Mitigation Measures in Handling Construction Material & C&D Wastes' in November 2017.
  - iii. Disposal of legacy waste by bio-mining and bio-remediation to address open burning and landfill fires
- MoEFCC notified the Construction & Demolition Waste Management Rules, 2025, in force from 1st April, 2026. These rules emphasize the roles and accountability of waste generators at source and various stakeholders focusing on segregation, recovery, reuse, and recycling. In the said revised rules, various provisions have been introduced for better management of waste generated by bulk waste generators due to Construction and Demolition activities including Extended Producer Responsibility (EPR) for recycling of such waste generation.
- CPCB has issued direction to all SPCBs/ PCCs for deployment of Anti-Smog Gun and implementation of adequate dust mitigation measures at construction projects/sites having area more than 20,000 sq. meters. CPCB has issued guidelines/mechanism for use of anti-smog guns in Construction and Demolition projects.
- MoEFCC notified the Solid Waste Management (SWM) Rules, 2026, notified under the Environment (Protection) Act, 1986 and effective from April, 2026. The revised rules integrate the principles of Circular Economy and Extended Producer Responsibility, with a specific focus on efficient waste segregation and management. The rules provide for the levy of environmental compensation based on the 'Polluter Pays' principle for non-compliance, including cases of operating

without registration, false reporting, submission of forged documents or improper solid waste management practices.

- CPCB issued directions to all SPCBs/PCCs for enforcement of provision of SWM Rules-2016 regarding bio-mining of legacy waste during Jan-2021.
- CPCB issued directions to all SPCBs/PCCs for implementation of SWM Rules-2016 regarding fire incidents at MSW dumpsites during May 2022.

## **5.0 Measures for control of Crop Residue Burning**

- A Central Sector Scheme on Crop Residue Management has been implemented by Ministry of Agriculture and Farmers Welfare (MoAFW) since 2018-19. Under the scheme, from 2018-19 to 2026-27 (as on 29.07.2026), cumulative amount of Rs. 4550.451 crores have been provided to the concerned States (Punjab – Rs. 2206.28 crores, Haryana – Rs. 1220.42 crores, Uttar Pradesh – Rs. 911.03 crores, Madhya Pradesh – Rs. 90.218 crores, NCT of Delhi – Rs. 7.405 Crores, ICAR– Rs. 107.378 crores & others Rs. 7.7205 Crores). States have distributed more than 3.54 lakh machines to the individual farmers and established more than 43,508 Custom Hiring Centers (CHCs) in these States.
- Ministry of Power has issued a policy for co-firing of biomass in Coal based Thermal Power Plants on 7th November, 2025. The policy mandates Coal based Thermal Power Plants outside the National Capital Region to co-fire 5 per cent (by weight) of biomass pellets or torrefied MSW charcoal from 2025-26.
- A Standard Protocol for Estimation of Crop Residue Burning Fire Events using Satellite Data was developed by ISRO in consultation with State Remote Sensing Centers & Indian Agricultural Research Institute (IARI) and issued by CAQM in August, 2021. The said protocol is used for monitoring crop residue burning fire events and IARI through its CREAMS Laboratory, publishes daily fire event data for the States of Haryana, Delhi, Punjab, Uttar Pradesh, Madhya Pradesh and Rajasthan, based on this protocol during paddy and wheat harvesting seasons.
- CAQM has issued directions for co-firing of 5-10% biomass with coal in thermal power plants located within 300 kms of Delhi, and, in captive power plants of industrial units located in NCR.
- CAQM has issued directions to State Governments of Punjab and Haryana to mandate use of paddy straw-based biomass pellets / briquettes in all brick kilns located in the districts beyond NCR, as one of the means towards elimination of the practice of open paddy stubble burning, aiming for 50 % co-firing of paddy straw based, pellets /briquettes with a target of at least 20 % w.e.f. 01.11.2025, 30 % w.e.f. 01.11.2026, 40% w.e.f. 01.1.2027 and 50 % w.e.f. 01.11.2028.
- Central Pollution Control Board (CPCB) has framed Guidelines for grant of one-time financial support under Environment Protection Charge funds for establishment of pelletization and Torrefaction plants to promote utilisation of paddy straw.
- 32 pelletisation plants have been sanctioned so far (25 in Punjab, 07 in Haryana) at a cost of Rs. 34.72 crore. Total production capacity of 32 sanctioned plants is 137TPH and these are expected to utilise 6.36 lakh tonnes paddy straw annually for production of 4.93lakh tonne pellets.

## **6.0 Regular Stakeholder Consultation, Public & Media Outreach**

- CPCB has developed a mobile app i.e. SAMEER, where Real-time Ambient air quality data of various parameters including AQI is also given. Sameer app also

facilitates the public in lodging of air pollution related complaints in NCR region and such complaints are assigned to various local agencies.

- Dedicated media corner, Twitter and Facebook accounts have also been created for public outreach.
- Complaint redressal on SAMEER app and social media platforms is monitored and redressal status is shared with respective agencies.
- Daily AQI status is shared on social media platforms. Various campaigns as well as informative posts related to air pollution, firecrackers, vehicular pollution, stubble burning, sustainable lifestyle, etc. are also posted regularly on social media platforms.

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