



Winter Action Plan for Air Pollution Control 2024-25

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Winter Action Plan: 2024-25

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1. Executive Summary

Air pollution poses a significant challenge to public health and the environment in Haryana, particularly during the winter months when climatic conditions exacerbate the problem. To address this pressing issue, the Haryana State Pollution Control Board (HSPCB) has developed a comprehensive Winter Action Plan aimed at mitigating air pollution through targeted interventions across multiple sectors. The plan outlines a strategic approach to reducing air pollution in Haryana, focusing on both immediate and long-term measures, grounded in the state's commitment to improving air quality and enhancing the quality of life for its residents.

Haryana is an agriculturally rich state with a rapidly growing industrial sector. However, the state also faces significant environmental challenges, including high levels of particulate matter (PM2.5 and PM10), especially during the winter season. The plan considers the state's geographical and economic profile to develop targeted solutions that are both feasible and impactful. Building on the existing regulatory framework, the plan aligns with national and state-level environmental policies, incorporating guidelines from the Central Pollution Control Board (CPCB) and leveraging state-specific regulations to ensure effective implementation of air quality management strategies.

Haryana's Winter Action Plan integrates various state and national initiatives aimed at curbing air pollution, including the National Clean Air Programme (NCAP), the FAME India scheme, the Haryana Electric Vehicle (EV) Policy, and other relevant state-level interventions. These programs provide a robust foundation for the plan's strategic objectives. The plan details past achievements and outlines future interventions across key sectors such as vehicular emissions, industrial pollution, construction activities, and crop residue management, highlighting the successes and lessons learned from previous efforts and setting clear targets for the upcoming winter season.

Recognizing the importance of a collaborative approach, the idea of stakeholder discussions is to increase the participation from government agencies, private sector players, NGOs, and community groups, ensuring that the plan is comprehensive and inclusive. A clear implementation strategy is outlined, supported by robust governance mechanisms. This includes the formation of a steering committee for regularly reviewing the progress, and public feedback systems, all designed to ensure that the plan is executed effectively and adapts to emerging challenges.

The plan also emphasises information, education, and communication (IEC) activities to raise public awareness and encourage behavioural change, focusing on educating citizens about the sources of air pollution, promoting eco-friendly practices, and involving the community in pollution control efforts.

Citizens are equally responsible for contributing to lowering emissions in the state. Hence, a few activities for citizens have been stated in the plan to involve the public in the broader goal of improving air quality.

The Haryana Clean Air Programme for Sustainable Development (HCAPSD), in collaboration with the World Bank, forms a critical component of the state's vision to curb air pollution. This project aims to strengthen the state's capacity to manage air quality through technical assistance, capacity building, and infrastructure development. The project is currently undergoing approval by the Governing Committee and the State Cabinet members.

Concluding with a roadmap for future actions, the plan emphasises the need for sustained efforts and continuous improvement. It calls for ongoing collaboration among stakeholders, periodic reviews, and the integration of innovative solutions to ensure long-term air quality improvement in Haryana. Through coordinated efforts and strategic interventions, Haryana is committed to achieve cleaner air and a healthier environment for all its residents.

2. Introduction

Rising air pollution has become a major concern in the recent past, particularly in winter months. The health impacts of air pollution are well captured. A 2019 study estimated the exposure to high pollution levels has reduced the lifespan of Indians by 6-9 years and caused premature deaths of 1.7 million Indians.¹ Studies also show that air pollution poses a major risk for people already affected by chronic obstructive pulmonary disease, lung cancer, heart disease, stroke and pneumonia. This is more so for the elderly and children. Therefore, air pollution is as much a public health problem, as it is an environmental problem.

The list of the most polluted countries in the world, with India ranking 3rd globally in terms of PM 2.5 emissions, according to standards set by the World Health Organization (WHO)²:

| PM _{2.5} Emissions (2019-2023) ($\mu\text{g}/\text{m}^3$) | | | | | | | |
|--|--|------|------|------|------|------|---------------|
| Rank | Country | 2023 | 2022 | 2021 | 2020 | 2019 | Population |
| 1 |  Bangladesh | 79.9 | 65.8 | 76.9 | 77.1 | 83.3 | 169,356,251 |
| 2 |  Pakistan | 73.7 | 70.9 | 66.8 | 59 | 65.8 | 231,402,117 |
| 3 |  India | 54.4 | 53.3 | 58.1 | 51.9 | 58.1 | 1,407,563,842 |
| 4 |  Tajikistan | 49 | 46 | 59.4 | 30.9 | -- | 9,750,064 |
| 5 |  Burkina Faso | 46.6 | 63 | -- | -- | -- | 22,100,683 |

As an immediate response, over the years, we have witnessed the closure of schools & educational institutions, and restriction of economic activities due to very high pollution

¹ [Health and economic impact of air pollution in the states of India: Global Burden of Disease Study, 2019](#)

² [World's Most Polluted Countries, IQAir, 2023](#)

levels.^{3,4} Almost all sectors - be it education, health, industries, construction sites, or transport, have been affected by these restrictions. In Delhi NCR area, the construction ban created problems for the many daily wage labour employed in the sector.⁵ post-COVID, disruptions in school learning caused by air pollution present a significant challenge, particularly for students who rely solely on school, lack private tuition, and likely do not have air purifiers at home. All air polluting industries needed to re-structure, and DG sets are also being tightly regulated. In other words, no one is left unaffected.

This is also a culturally active time of the year, with many festivities as well as a largely favourable weather for travel and leisure. Unfortunately, this coincidence further magnifies the threat of air pollution during winters.

As a response to the emerging problem, the central government responded with establishing the Commission for Air Quality Management (CAQM), as a high-powered statutory authority.⁶ The CAQM is India's first experiment with a multi-sectoral air-shed level regulatory body.

Now, with greater understanding, an airshed level approach is also beginning to take shape. It is in the context of the very real consequences of air pollution, that the HSPCB present this Winter Action Plan.

Existing source apportionment studies (TERI 2016, TERI 2018) for Delhi NCR region have found the main contributing sectors to PM₁₀ emissions to be transport, thermal power plants, industries, burning of agro residue, burning of biomass and open waste burning. For PM_{2.5}, the main contributing sectors have been found to be construction dust and road dust.

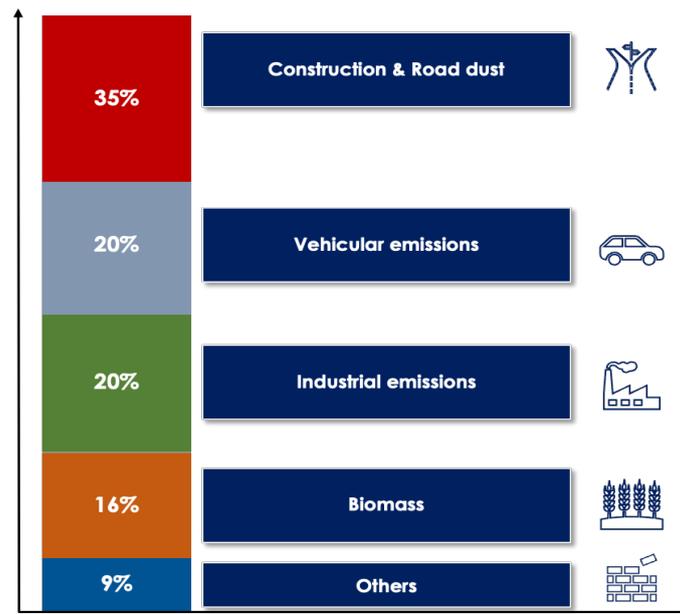
³ [“Delhi primary schools to be closed from tomorrow”, Hindustan Times, November 4, 2022,](#)

⁴ [“Delhi implements GRAP-4 guidelines amid rise in pollution; Here's a list of banned activities”, Livemint.com, November 4, 2022](#)

⁵ [“Wage cut, job loss: A ban too many for construction workers in Delhi NCR”, Times fo India, November 4, 2022](#)

⁶ [Commission for Air Quality Management in National Capital Region and Adjoining Areas Act, 2021](#)

Sector-wise contribution of PM_{2.5} in NCR in 2018



Based on the existing knowledge, Haryana has been taking several steps to prevent emissions from major sources - like vehicles, industries, dust, biomass and agro-residue burning etc. Deteriorating air quality in Delhi- NCR during the winter period triggers implementation of the Graded Response Action Plan (GRAP). GRAP refers to a set of progressive restrictions, which come into force, based on the 3-day air quality forecast.

In this context, Haryana's Winter Action Plan 2024-25 aims to:

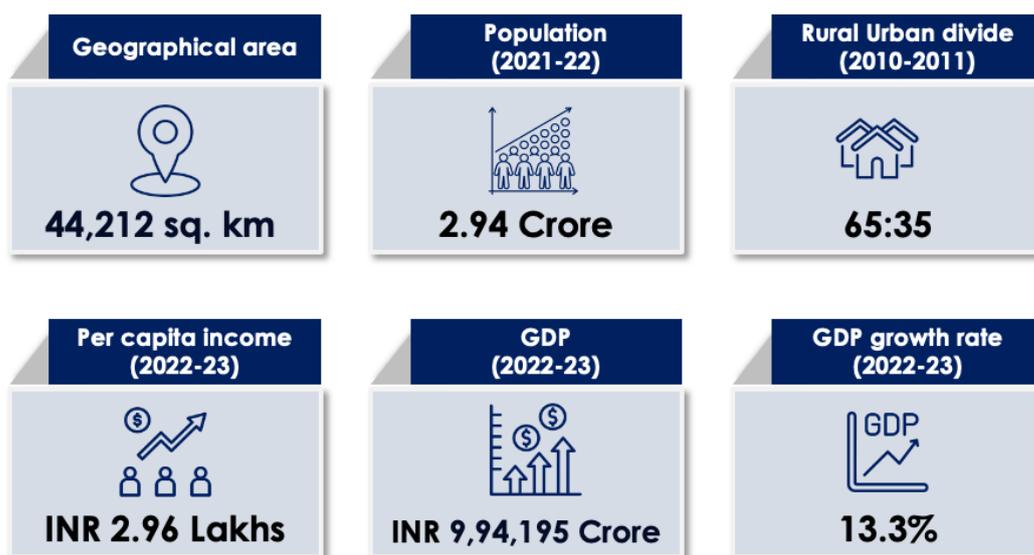
- 1) To the extent possible, reduce the possibility of GRAP being triggered, and
- 2) Reduce the number of days with 'Poor' or worse air quality.

The Winter Action Plan borrows from the success of the ongoing interventions and introduces certain new measures to control emissions.

3. State Profile

3.1 Geographical and demographic landscape

Haryana is an Indian state, located in the north-western part of the country is ranked 21st in terms of area, with less than 1.4% of India's land share. The state capital is Chandigarh, which it shares with the neighbouring state of Punjab. Haryana has 6 administrative divisions, 22 districts, 71 sub-divisions, 93 revenue tehsils, 49 sub-tehsils, 140 blocks, 154 cities and towns, 7,356 villages, and 6,225 villages panchayats.⁷⁸



910

Haryana is located between 27°39' to 30°35' N latitude and between 74°28' and 77°36' E longitude.¹¹ Haryana is a landlocked state, bordered by Punjab and Himachal Pradesh to the north, by Rajasthan to the west and south, while river Yamuna forms its eastern border with Uttar Pradesh. Haryana surrounds the country's capital territory of Delhi on three sides (north, west and south).

The average annual rainfall varies from about 200 mm to 1,400 mm and the average annual temperature ranges between 1°C to 45°C.¹²

⁷ [Revenue and Disaster Management Department, Government of Haryana](#)

⁸ 'About' section, [Government of Haryana](#)

⁹ [National Health Systems Resource Centre, Haryana, 2021](#)

¹⁰ [Haryana Budget Analysis, PRS Legislative Research, 2023](#)

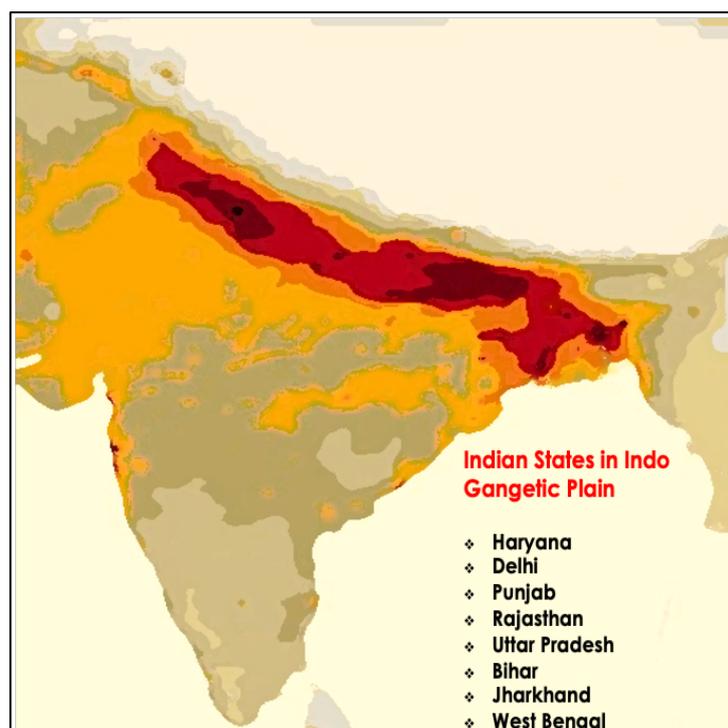
¹¹ 'About Us', [Directorate of Census Operations, Haryana](#)

¹² [Haryana Forest Department, Government of Haryana](#)

3.2 Presence in the Indo Gangetic Plain

Haryana is located in the Indo-Gangetic plain, a contiguous airshed home to more than 40% of India's population. This airshed is part of the airshed extending all the way from Pakistan in the West to Bangladesh in the East.¹³

This means that all the pollution being measured within the state may not originate from within state boundaries but may have reached there due to prevalent meteorological conditions. As part of the World Bank study (2020), nearly 30% of Haryana's PM levels are from outside Haryana, while nearly 15% is from outside India (exclusive of the 30% outside Haryana).¹⁴



PM2.5 in Indo Gangetic Plain in 2015

3.3 Presence in the National Capital Region

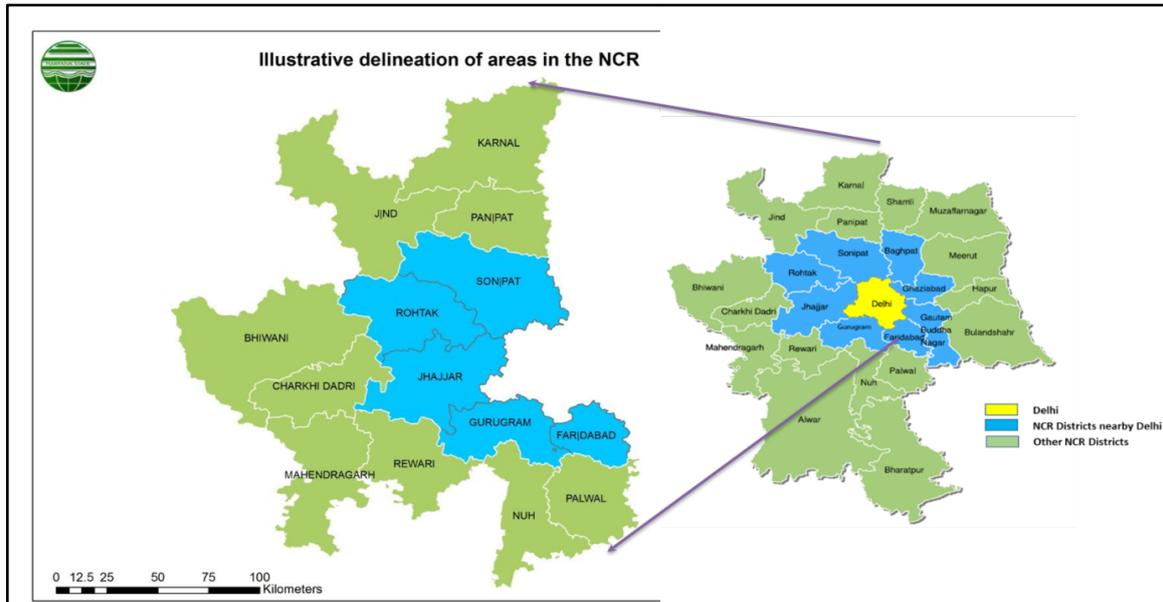
A large area of Haryana state is included in the economically important NCR of India for the purposes of planning and development. 14 districts of Haryana are part of the NCR. This makes the state's air quality significantly dependent on the policies and directions of the Commission for Air Quality Management (CAQM) in Delhi and NCR, and their effective

¹³ ["Urgent Action needed in South Asia to curb deadly air pollution", World Bank](#)

¹⁴ [Striving for Clean Air: Air Pollution and Public Health in South Asia, World Bank, 2022](#)

implementation within Haryana, as well as the neighbouring states of Delhi, Uttar Pradesh and Rajasthan.

NCR region in Haryana

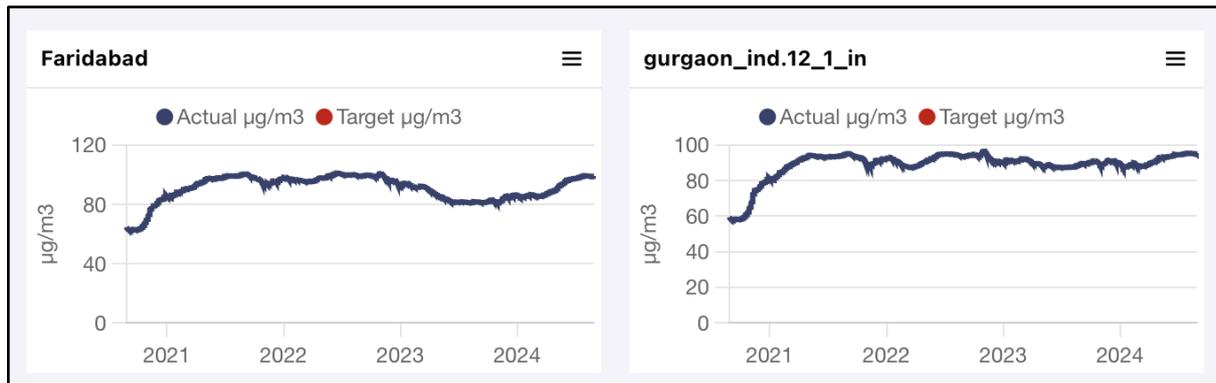


3.4 Air Quality in Haryana (2021-2024)

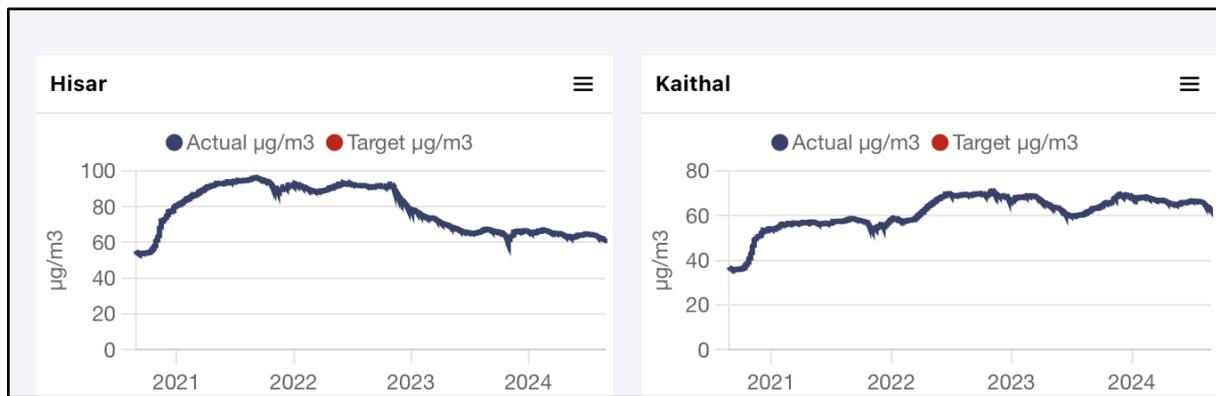
While devising the winter action plan, it is important to understand the base level of pollution and then set targets accordingly. As per the international best practices, such as the method used by the US Environmental Protection Agency (USEPA), an annual average of the previous three years is taken to define the base pollution level and, accordingly, targets for pollution reductions are set to guide action and prepare action plans. Trend analysis helps to understand the impact of action on long-term ambient concentration.

Air in urban areas has numerous pollutants (of these 12 are regulated under the National Ambient Air Quality Standards [NAAQS]). However, in Haryana, over the past few years, PM_{2.5} and PM₁₀ have emerged as the major pollutants. The trend of these concentrations, across the regions and years is shown in figure 1 and figure 2 below:

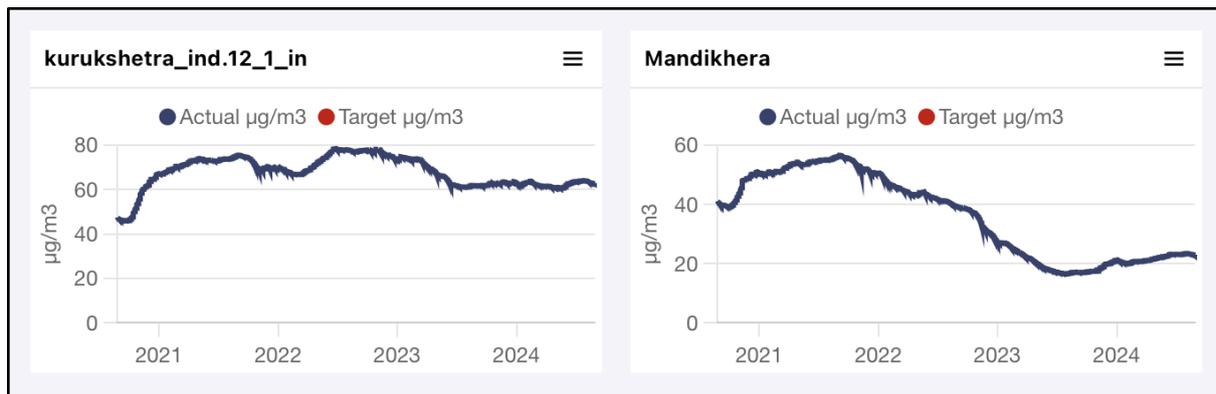
Figure 1: Trend of PM_{2.5} in Haryana (2020-2024); [NAAQS - 40 µg/m³]



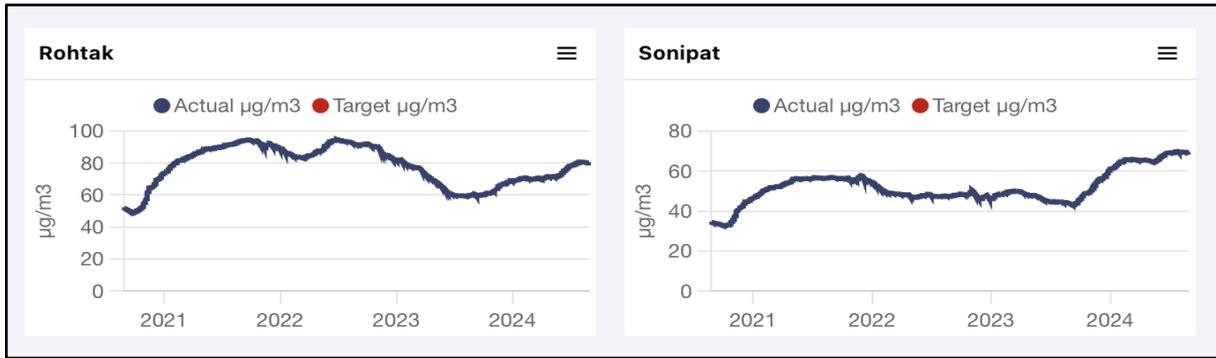
Faridabad & Gurugram



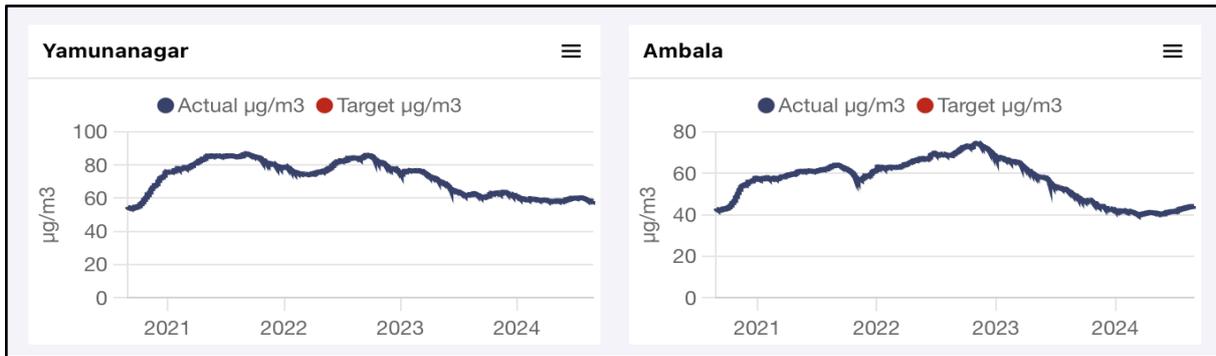
Hisar & Kaithal



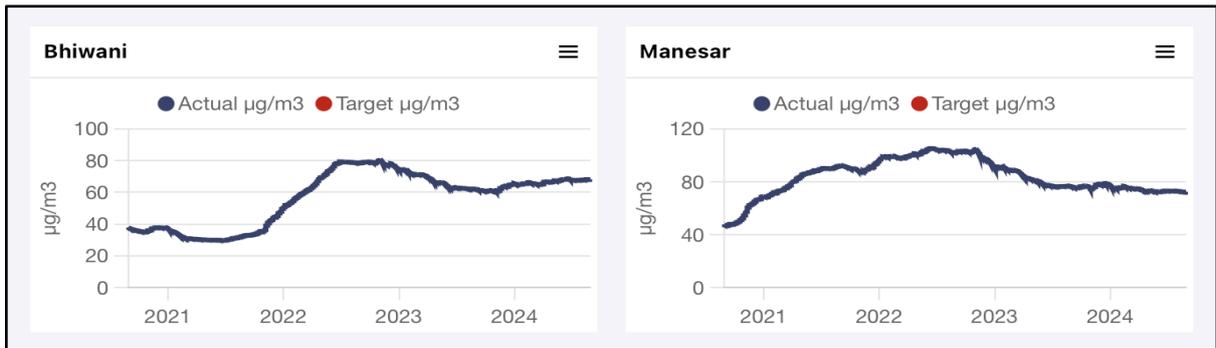
Kurukshetra & Mandikhera



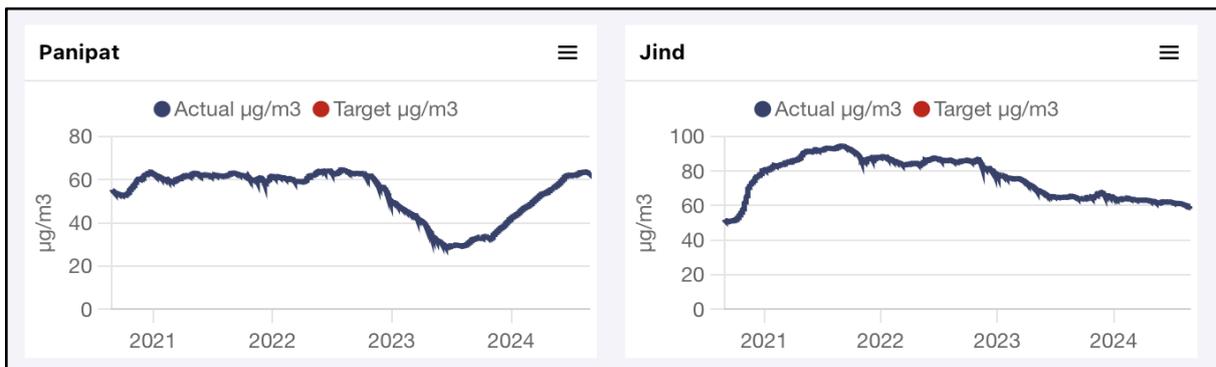
Rohtak & Sonipat



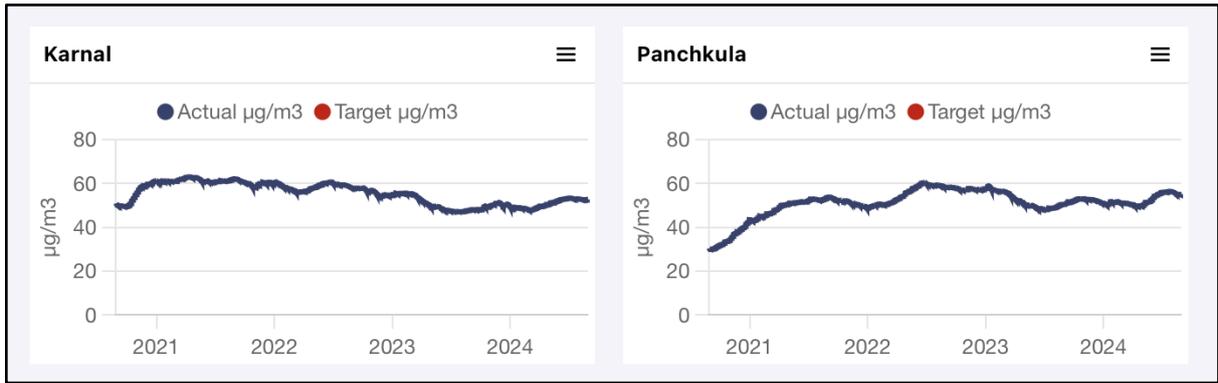
Yamuna Nagar & Ambala



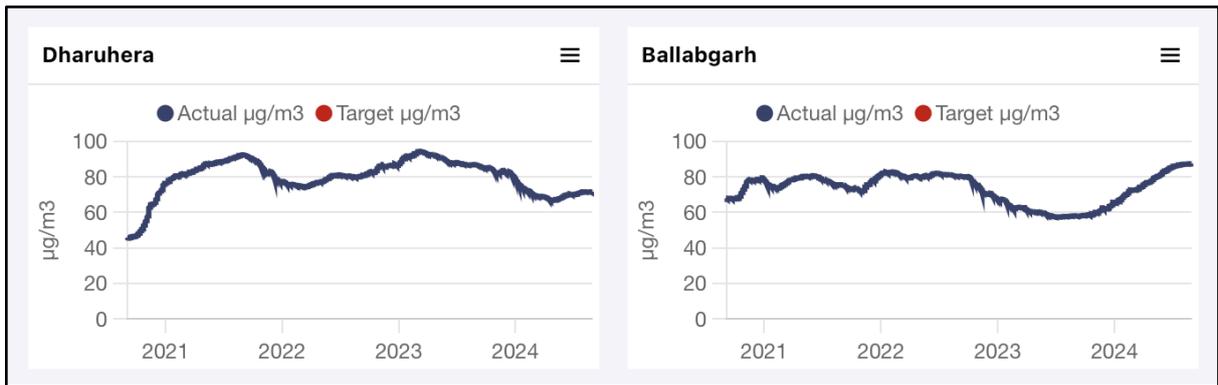
Bhiwani & Manesar



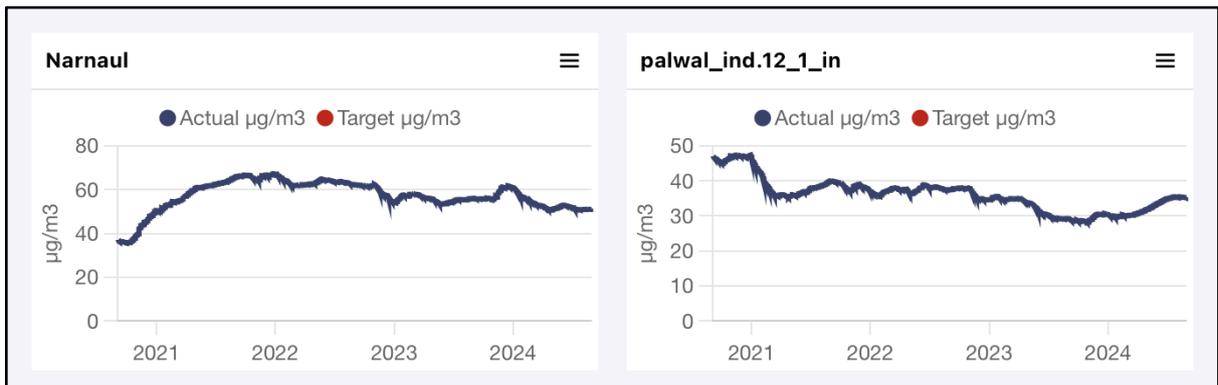
Panipat & Jind



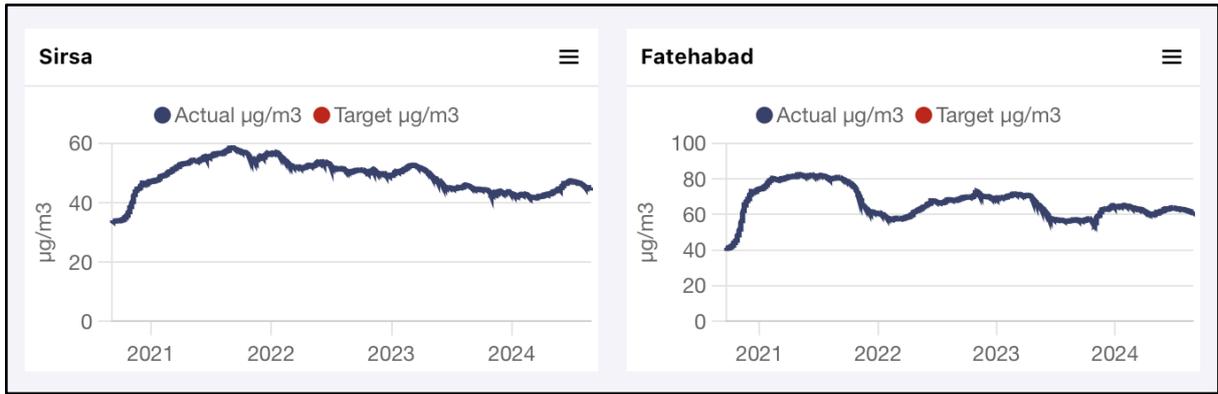
Karnal & Panchkula



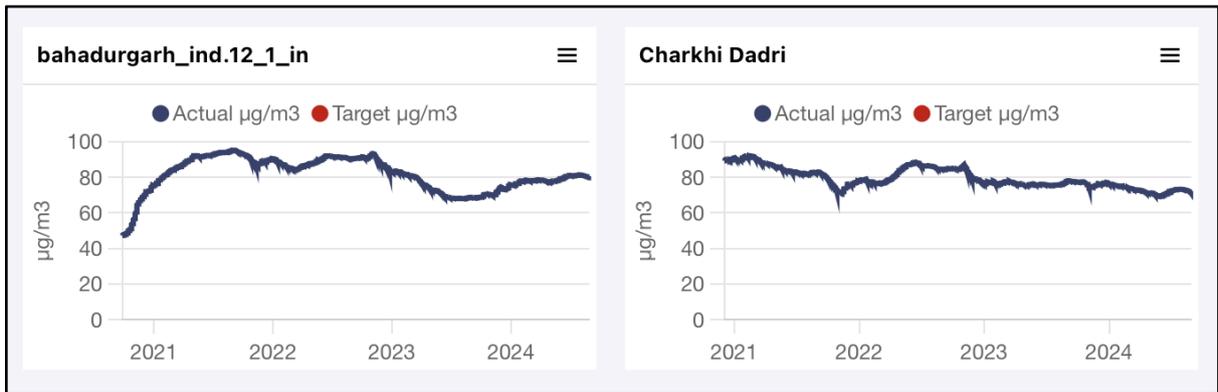
Dharuhera & Ballabgarh



Narnaul & Palwal

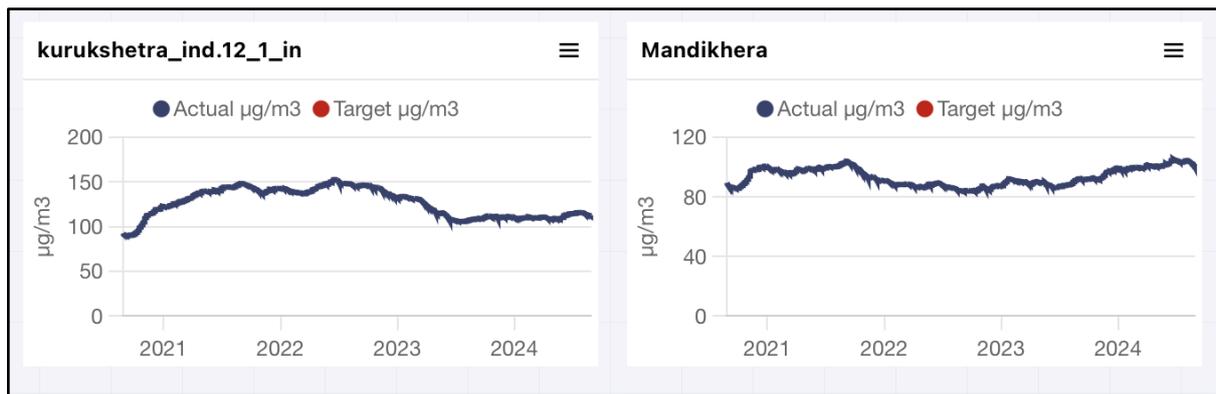


Sirsa & Fatehabad

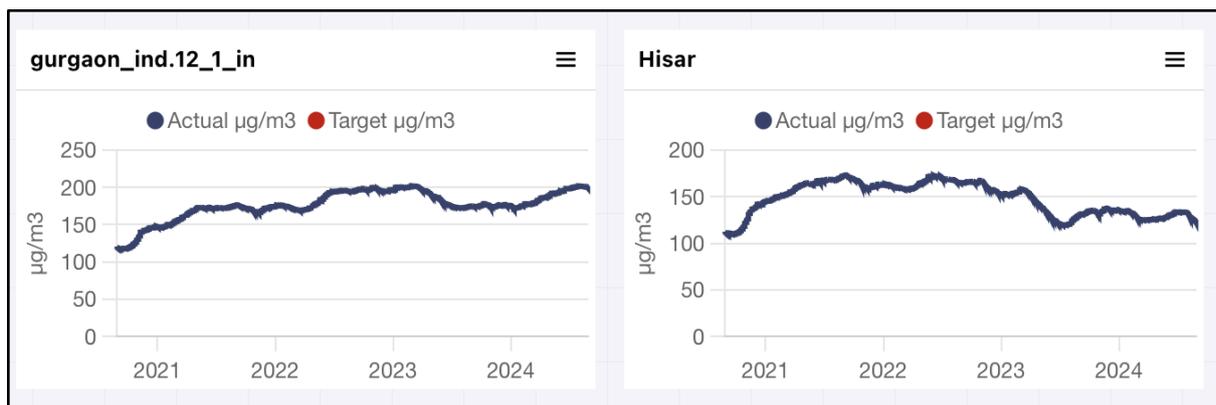


Bahadurgarh & Charkhi Dadri

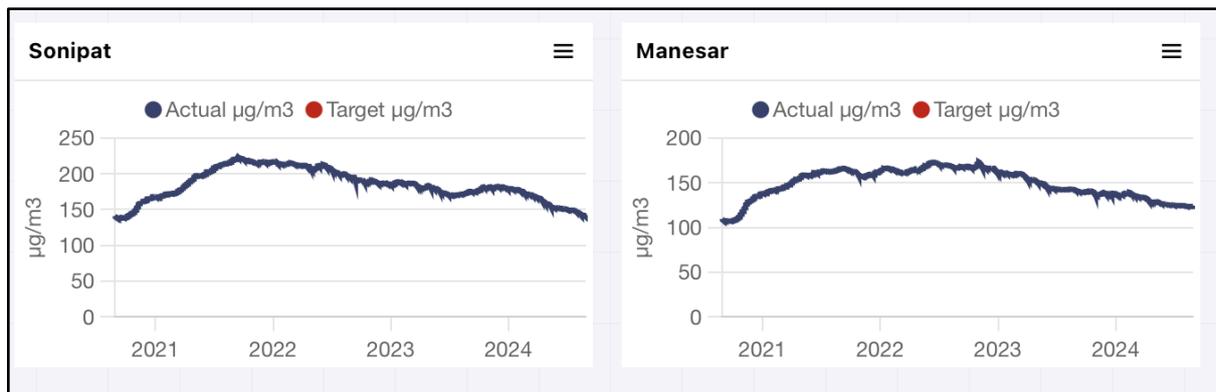
Figure 2: Trend of PM₁₀ in Haryana (2020-2024); [NAAQS - 60 µg/m³]



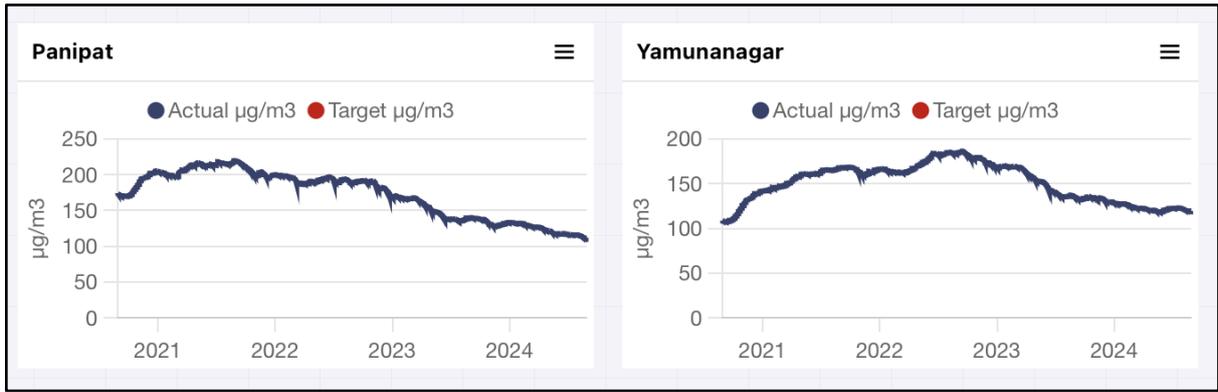
Kurukshetra & Mandikhera



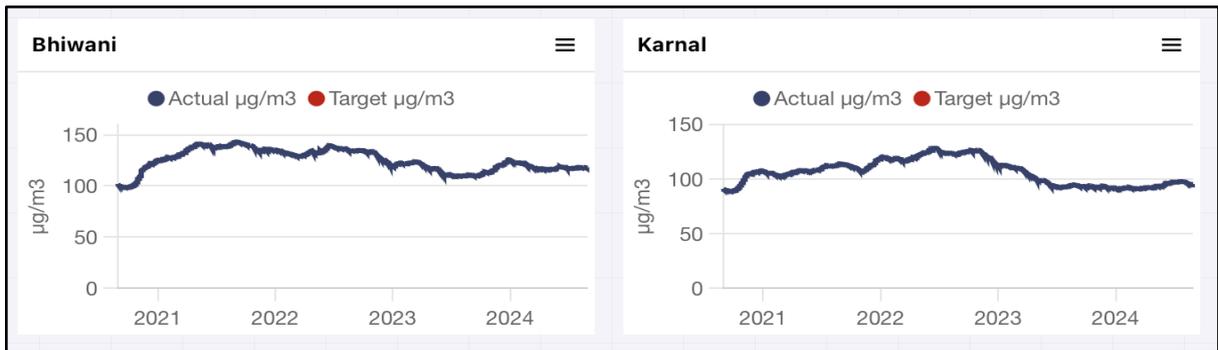
Gurugram & Hisar



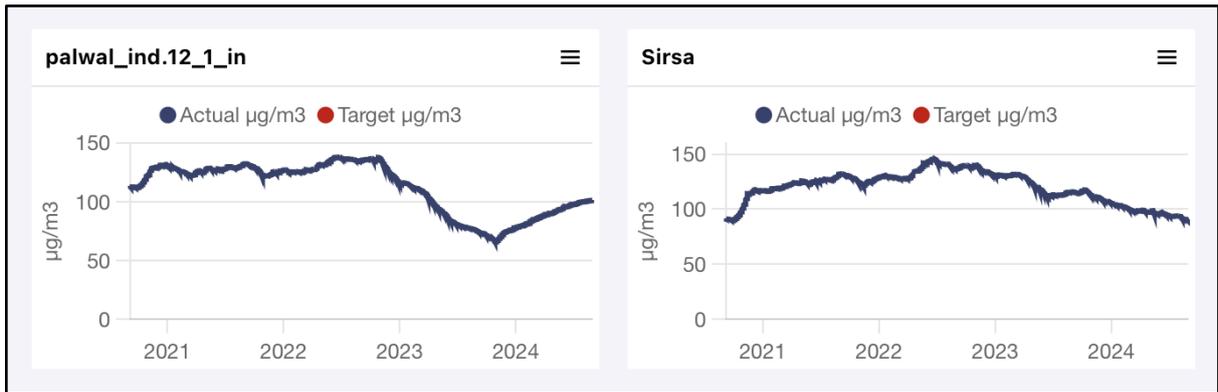
Sonipat & Manesar



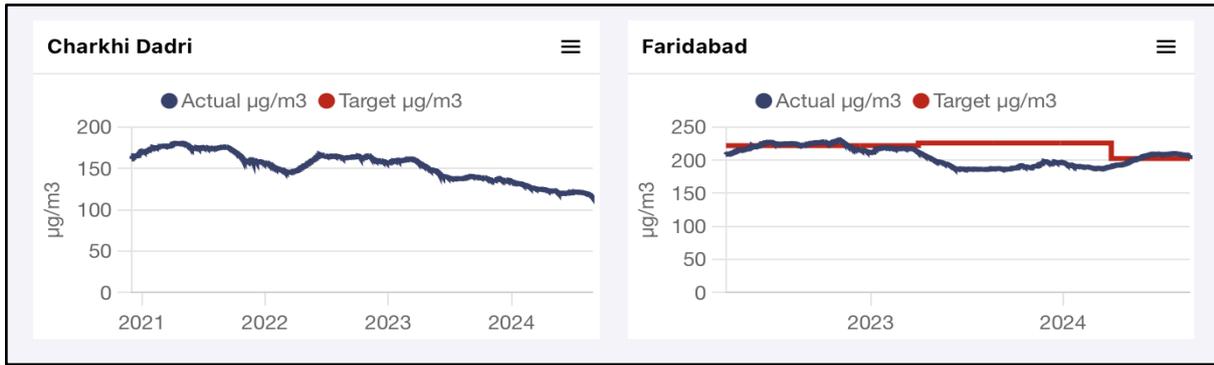
Panipat & Yamuna Nagar



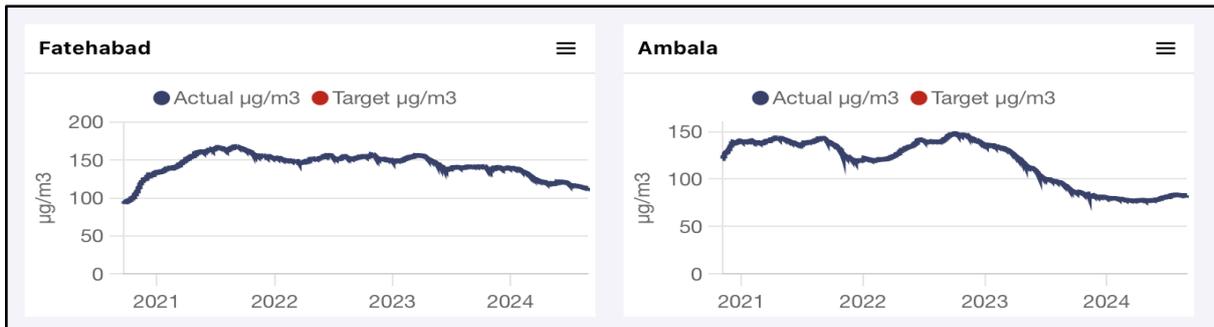
Bhiwani & Karnal



Palwal & Sirsa



Charkhi Dadri & Faridabad



Fatehabad & Ambala

4. Regulatory framework

The Environment (Protection) Act, 1986 empowers the central government to notify emission norms for industries (such as cement, brick kilns, thermal power plants etc), and other industrial processes or operations.¹⁵ These standards are monitored for compliance by the Pollution Control Boards/Committees.

The Haryana State Pollution Control Board is strictly following the various emission standards under the Environment Protection Act, 1986. In compliance with the Air (Prevention and Control of Pollution) Act, 1981, industrial emissions are regulated at the establishment phase and operational phase through consent management, inspections and



| Ministry of Environment, Forest and Climate Change | Central Pollution Control Board | Commission for Air Quality Management | State Pollution Control Boards |
|---|--|---|---|
| <ul style="list-style-type: none"> ❖ Plan, coordinate and monitor implementation of environmental programs ❖ Monitor implementation of environmental programs | <ul style="list-style-type: none"> ❖ Implements environmental regulations and standards ❖ Advises the government on pollution control and prevention | <ul style="list-style-type: none"> ❖ Coordinating actions taken related to air quality by concerned National Capital Region state governments <p><i>(NCT of Delhi, parts of Haryana, Uttar Pradesh, Rajasthan)</i></p> | <ul style="list-style-type: none"> ❖ Implementation of environment protection and regulations to reduce pollution in the state |

monitoring mechanisms.¹⁶

The consent certificate is issued only if industrial establishments / processes fulfil general as well as specific conditions (related to process, or technology, or inputs) to mitigate the impact on the environment. In case where the consent certificate conditions and the directions issued by the Board under the Act are violated, the Act empowers the Board to close defaulting units and initiate criminal prosecution against them.

¹⁵ [Section 3, Environment \(Protection\) Act, 1986](#)

¹⁶ [Air \(Prevention and Control of Pollution\) Act, 1981](#)

Further, various NGT directions have empowered the Board to levy Environmental Compensation (EC) from the defaulting units for the environmental damage caused.¹⁷

Vehicular emissions are monitored by the Ministry of Road Transport and Highways at the central level, and the Transport Department at the state level. Vehicles must comply with these standards for plying on the roads. This compliance is checked by the Pollution Under Check Centres, which issue Pollution Under Control Certificates to the vehicles.

The other sources of pollution including road dust, construction dust, agro-residue burning, and open-waste burning, which are more fugitive in nature, are generally regulated by the various directions from the CAQM. The CAQM is a unique body, in the sense that its jurisdiction is beyond the UT of Delhi, including 14 of the neighbouring districts of Haryana, and other districts from UP and Rajasthan.¹⁸ It is empowered with wide ranging powers to take policy decisions on air quality related matters.

The CAQM has taken several policy decisions across various sectors of air pollution, including industrial, vehicular, construction and agro residue burning. Further, the CAQM's Policy to curb pollution in the NCR Region (2022) provides guidance on the steps to be taken to curb air pollution.¹⁹

In addition to existing laws, the directions of the Hon'ble Supreme Court and the National Green Tribunal (NGT) are also part of the regulatory framework. The ban on plying of overage vehicles was imposed by the NGT.

¹⁷ [Methodology for calculating Environmental Compensation](#)

¹⁸ [The CAQM Act, 2021](#)

¹⁹ [Policy to curb pollution in the NCR Region, 2022, CAQM](#)

5. State and National level programmes for curbing air pollution

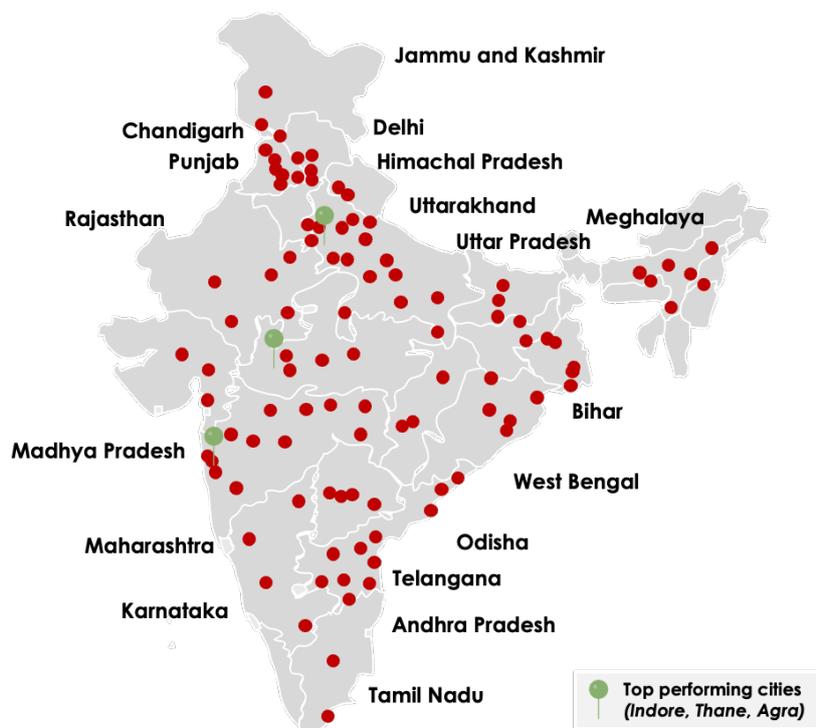
The central and state governments have implemented several programs to curb air pollution. The important programmes are listed under:

5.1 National Clean Air Programme (NCAP)

The NCAP is a comprehensive strategy launched by the Government of India to tackle air pollution across the country, with a specific focus on 131 non-attainment cities, including those in Haryana. The programme sets a target to reduce particulate matter (PM_{2.5} and PM₁₀) by 40% by 2026,²⁰ and it includes measures such as expanding the air quality monitoring network, implementing city-specific action plans, and enhancing public awareness.

A total of ₹ 9,649.9 crore has been allocated to non-attainment cities of the country from 2019 to 2024.²¹

NCAP funded cities



²⁰ [Strategies to reduce air pollution, Ministry of Environment, Forest and Climate Change, 2024](#)

²¹ [“Allocation of funds air pollution”, Ministry of Environment, Forest and Climate Change, 2023](#)

According to the Comprehensive Mobility Plan for Faridabad and Ballabgarh by the department of Town and Country Planning, Government of Haryana, the projected population of Faridabad in 2021 is 3,291,261. Faridabad has been identified as the only non-attainment city under The National Clean Air Programme (NCAP) due to its air quality not meeting the National Ambient Air Quality Standards (NAAQS) between 2011 and 2015.

Below are the details of the NCAP funds received and utilized by Faridabad from 2020 to 2024²²:

| Particulars (INR. crore) | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | Total |
|--------------------------|---------|---------|---------|---------|---------|-------|
| Fund allotted by XVFC | 48 | 25 | 25 | 27 | 28 | 153 |
| Funds received | 24 | 6.25 | 0 | 48.45 | – | 78.7 |
| Funds spent | 0 | 6.05 | 6.15 | 16.4 | 0 | 28.6 |
| Balance | 24 | 24.2 | 18.05 | 50.1 | – | 50.1 |
| Utilisation (%) | 0% | 97% | – | 34% | – | 36% |

To address these air quality challenges, several initiatives have been funded under the NCAP for Faridabad. These initiatives focus on improving traffic management, enhancing public awareness, promoting urban greening, and controlling dust and waste. The aim is to create a cleaner, healthier environment for residents and to bring the city's air quality within acceptable limits.

The key activities funded under the NCAP include:

1. **Traffic and Vehicle Management:**
 - a. Preventing parking in non-designated areas.
 - b. Establishing charging infrastructure for electric vehicles (E-vehicles).

²² Municipal Corporation, Faridabad

2. **Capacity Building:**
 - a. Training and skill development for public officials.

3. **Public Information and Awareness:**
 - a. Implementing a daily air quality public information dissemination system.
 - b. Creating public awareness on pollution sources and control measures.

4. **Urban Greening and Dust Control:**
 - a. Greening of traffic corridors, open areas, gardens, community places, schools, and housing societies.
 - b. Urban greening with vertical gardens.
 - c. Road stretches with high dust generation.
 - d. Using sprinklers and mechanical road sweeping machines.
 - e. Widening roads and ensuring end-to-end paving along with black-topping to maintain pothole-free roads.

5. **Waste Management:**
 - a. Regular collection, segregation, and scientific disposal of waste.

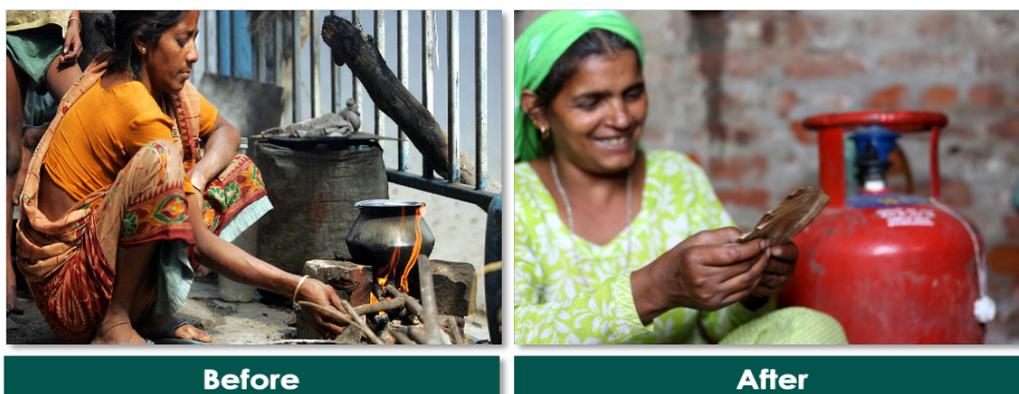
6. **Other Measures:**
 - a. Introducing water fountains at major traffic intersections.

5.2 Pradhan Mantri Ujjwala Yojana (PMUY)

The Pradhan Mantri Ujjwala Yojana (PMUY), launched on May 1, 2016, aims to provide clean cooking fuel to rural and underprivileged households by offering free LPG connections to women belonging to Below Poverty Line (BPL) families. By replacing traditional cooking methods that rely on biomass and other polluting fuels, PMUY significantly reduces indoor air pollution, which is a major health hazard in rural areas. As of August 2024, a total of 10,33,43,649²³ beneficiaries have received connections in the whole of the country, and Haryana has successfully provided over 11 lakh connections under the Pradhan Mantri

²³ [PMUY, Ministry of Petroleum and Natural Gas, 2024](#)

Ujjwala Yojana (PMUY). Around 10 lakh households have availed themselves of at least one refill, reflecting the widespread adoption and utilization of the scheme across the state.²⁴



5.3 Faster Adoption of Manufacturing of Hybrid and Electric Vehicles (FAME)

The FAME India Scheme aims to reduce vehicular emissions by promoting the adoption of electric and hybrid vehicles. Through financial incentives for consumers and manufacturers, as well as the development of supporting infrastructure like charging stations, FAME contributes to reducing air pollution by encouraging a shift from traditional fossil fuel-powered vehicles to cleaner, electric alternatives. This initiative is crucial for mitigating vehicular pollution, particularly in urban areas, which is a significant concern for air quality in Haryana.

The Faster Adoption and Manufacturing of (Hybrid) & Electric Vehicles in India (FAME India) implemented by the Ministry of Heavy Industries, commenced on 1st April 2019 and spans five years, with a total budgetary support of ₹ 10,000 crore. The primary focus is on the electrification of public and shared transportation, offering purchase incentives for 7,090 e-buses, 5 lakh e-3 wheelers, 55,000 e-4 wheeler passenger cars, and 10 lakh e-2 wheelers. Additionally, the scheme supports the creation of charging infrastructure. Under FAME India Scheme, the Ministry of Heavy Industries sanctioned 3,397 electric vehicle charging stations across 68 cities in 25 States/UTs and 1,576 charging stations across 9 expressways and 16 highways.²⁵

²⁴ [Lok Sabha, 2024](#)

²⁵ [Press Information Bureau, Ministry of Heavy Industries](#)

Moreover, the Ministry of Heavy Industries has sanctioned ₹800 crore as capital subsidy to three Oil Marketing Companies (OMCs) under the Ministry of Petroleum and Natural Gas (MoPNG) for the establishment of 7,432 electric vehicle public charging stations.²⁶

As of August 2024, the number of purchase incentives availed, and the total amount spent under FAME in Haryana is as follows:²⁷



| Vehicle type | No. of vehicles | Total amount (Cr.) |
|--------------|-----------------|--------------------|
| E-2W | 9173 | 29.66 |
| E-3W | 3258 | 19.62 |
| E-4W | 1381 | 35.01 |

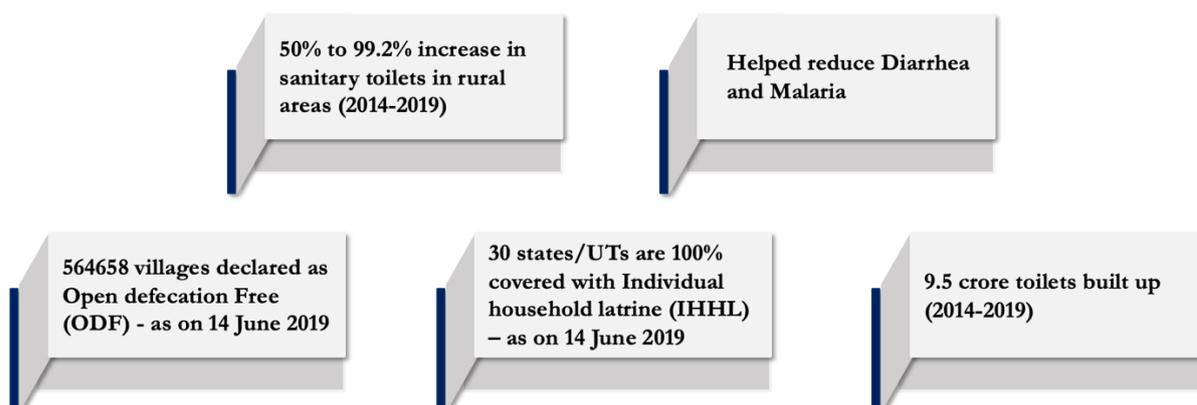
5.4 Swachh Bharat Abhiyan (Clean India Mission)

The Swachh Bharat Mission focuses on eliminating open defecation and improving solid waste management across India. By promoting sanitation infrastructure and encouraging behavioural change, this mission plays a crucial role in reducing environmental pollution, including air pollution from the burning of waste. In Haryana, the Swachh Bharat Mission is integral to creating cleaner urban and rural environments, thereby contributing to the state's efforts to manage and mitigate air pollution, particularly during the winter season when waste burning is more prevalent.

²⁶ [FAME India scheme, Ministry of Heavy Industries, 2023](#)

²⁷ [FAME India Dashboard, Ministry of Heavy Industries, August, 2024](#)

Key achievements of Swachh Bharat Abhijan²⁸



5.5 PM e-Bus Seva

The PM e-Bus Sewa initiative is a national programme aimed at expanding and enhancing electric bus services across India's cities, including those in Haryana. This program is designed to reduce urban air pollution by promoting the use of electric buses, which produce zero tailpipe emissions. Under the initiative, financial support is provided to state governments and urban local bodies to procure electric buses and develop the necessary charging infrastructure. By integrating these eco-friendly buses into public transportation systems, the PM E-Bus Sewa seeks to offer a sustainable alternative to conventional diesel-powered buses, thereby significantly cutting down on urban vehicular emissions and improving overall air quality in Haryana's cities.

5.6 Haryana EV Policy, 2022

The Haryana Electric Vehicle (EV) Policy is a forward-looking initiative aimed at accelerating the adoption of electric vehicles in the state to combat air pollution and promote sustainable transportation. The policy offers a range of incentives, including subsidies on electric vehicle purchases, tax exemptions, and support for establishing EV charging infrastructure. It also encourages the manufacturing of electric vehicles and components within the state, positioning Haryana as a hub for EV development.

Haryana has supported the purchase of more than 1,200 EVs, by disbursing financial incentives of more than Rs 34 crore till March 2024.

²⁸ [Press Information Bureau, Ministry of Finance, July 2019](#)

6. Sector-wise activities for emission control

6.1 Greening

As per the National Forest Policy, 1988, one-third of the total land area of the country should be under forest or tree cover. As per the 2021 report of the Forest Survey of India, Haryana has about 3.6% of its land area under forests.²⁹

Further, as Haryana lies in the semi-arid region, the prevalence of loose soil dust is more. Greening helps prevent erosion of topsoil from winds, especially in the summer season. This dust can get deposited on other surfaces (like roads), making it vulnerable to re-suspension.

6.1.1 Ongoing actions

For 2023-24, the state of Haryana achieved 88% of its plantation target of 98 lakh plants and shrubs. After a detailed identification exercise, nearly 76% of the identified hotspots have already been corrected, and converted to green spots by the urban local bodies and other agencies.³⁰ The conversion of other identified hotspots is under progress.

Below are the details of the department-wise plantation targets and the corresponding achievements in 2023-24³¹:

| Department | Target set | Target achieved | Target achieved (%) |
|-----------------------------|------------|-----------------|---------------------|
| Forest | 50,00,000 | 36,95,749 | 74% |
| ULB | 7,02,560 | 5,18,000 | 74% |
| HSIIDC | 30,400 | 34,500 | 114% |
| HSVP | 1,00,000 | 1,05,700 | 106% |
| PWD | 1,09,210 | 11,076 | 101% |
| GMDA | 10,50,000 | 10,86,700 | 103% |
| FMDA | 5,25,000 | 3,94,012 | 75% |
| NHAI | 5,00,000 | 6,77,292 | 136% |
| School Education Department | 6,73,850 | 6,61,887 | 98% |

²⁹ [Forest Cover in India, Ministry of Environment, Forest & Climate Change, 2022](#)

³⁰ Based on data from the urban local bodies, 63 hotspots were identified in the first phase.

³¹ Haryana Pollution Control Board, 2024

| | | | |
|------------------------|----------------|----------------|------------|
| Panchayat Department | 9,25,427 | 11,11,433 | 120% |
| Industrial Association | 2,77,350 | 2,87,750 | 104% |
| Total | 9893797 | 8683787 | 88% |

6.1.2 Planned actions

For 2024-25, the state has set a target of 1.3 crore plants.

Further, the state government is also leveraging the central government's Nagar Van Yojana, under which urban local bodies would receive assistance to establish Nagar Vans in 10-50 hectares of land and vaatikas in 1-10 hectares of land.

6.1.3 Departments/Agencies responsible for Greening

1. Directorate of Urban Local Bodies (DULB)
2. Municipal Corporations (MCs)
3. Public Works Department (PWD)
4. Haryana Shahari Vikas Pradhikaran (HSVP)
5. Gurugram Metropolitan Development Authority (GMDA)
6. Faridabad Metropolitan Development Authority (FMDA)
7. Forest department
8. Haryana State Industrial & Infrastructure Development Corporation (HSIIDC) and Industrial Associations
9. National Highways Authority of India (NHAI)
10. Development and Panchayats Department
11. Directorate of Higher Education
12. Directorate of School Education

6.2 Road Dust

6.2.1 Ongoing actions

One of the major reasons for road dust is disintegrating road surfaces, which can lead to potholes.

In this context, in 2024-25, the state will be focussing on:

- 1) Identifying major roads which need repair, by leveraging government resources, as well as citizen-to-government communication. One of the resources for this is the SAMEER App, developed by CPCB.³²
- 2) Completing the repair of the identified stretches or patches, ahead of the winter season.
- 3) Hiring of additional mechanised sweepers/sprinklers where required, and inter-agency leasing of idle mechanised sweepers or sprinklers.

Dust Control Management Cells (DCMCs) are specialized units established by the Commission for Air Quality Management (CAQM) to manage and mitigate dust pollution in various regions. In the context of the National Capital Region (NCR), where air quality issues are particularly severe due to high levels of particulate matter (PM), DCMCs play a crucial role.

Role of Dust Control Management Cells (DCMCs):

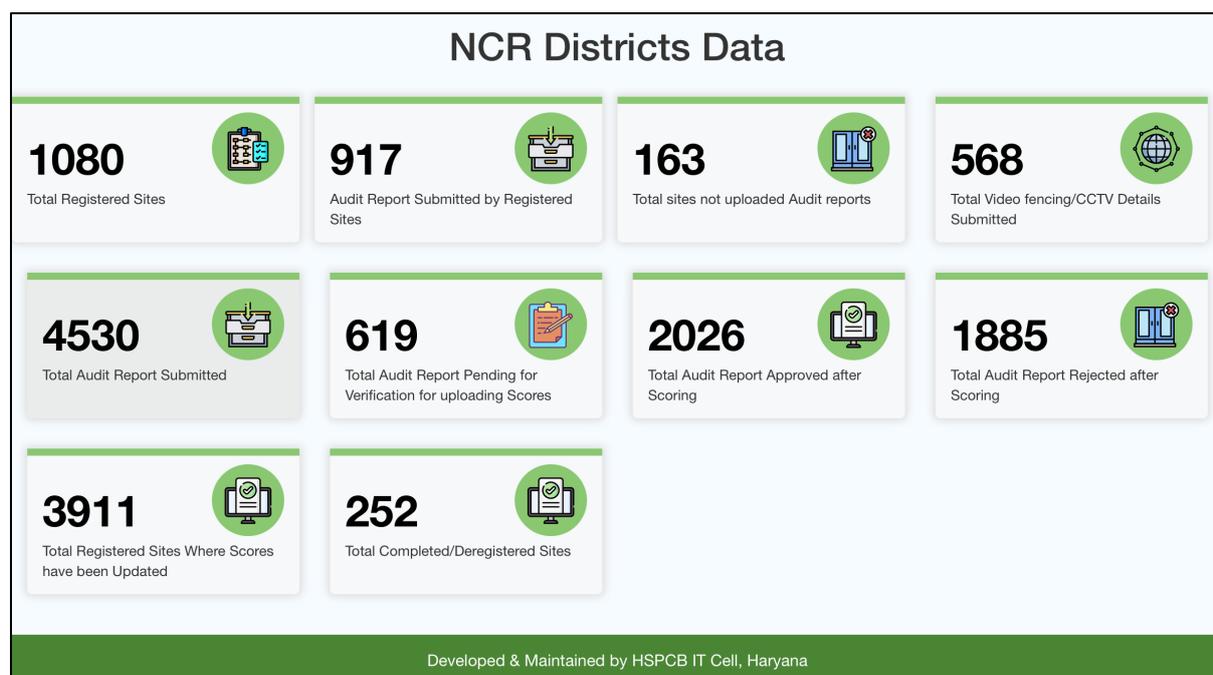
1. **Monitoring and Assessment:** DCMCs are responsible for monitoring dust emissions from various sources such as construction sites, roads, and industrial areas. They assess the effectiveness of dust control measures and identify areas requiring improvement.
2. **Implementation of Control Measures:** DCMCs oversee the implementation of dust control measures. This includes enforcing regulations, promoting best practices, and ensuring compliance with guidelines designed to minimize dust emissions.
3. **Coordination and Collaboration:** They coordinate with various stakeholders, including local authorities, construction companies, and industrial operators, to ensure that dust control measures are effectively implemented. This includes facilitating communication and collaboration between different entities involved in dust management.
4. **Public Awareness and Education:** DCMCs work on raising awareness about the importance of dust control among the public and stakeholders. They also provide training and resources to help in the adoption of effective dust management practices.

³² SAMEER App

5. **Reporting and Data Collection:** DCMCs collect data on dust levels and the effectiveness of control measures. They report this data to regulatory bodies and use it to refine strategies and policies.

Dust Portal

The Haryana State Pollution Control Board (HSPCB) has developed a Dust Portal for the remote monitoring of dust pollution at Construction and Demolition (C&D) sites exceeding 500 square meters within the National Capital Region (NCR) and under the jurisdiction of urban local bodies.



These sites are mandated to install CCTV cameras, low-cost sensors, and submit a self-audit report to facilitate effective remote monitoring. The self-audit report, which is assessed by the HSPCB officers, requires sites to document their compliance with mandatory and recommended dust mitigation practices. These practices include, but are not limited to, installing green screens around the construction site, utilizing water sprinkling to suppress dust, and covering stored construction materials.

Officers review the audit reports based on the attached photographs and videos, score the reports, and either accept or reject them based on the site's adherence to the required dust control measures.

6.2.2 Planned actions

Even though roads may be in good condition, dust from nearby sources often tends to get deposited on the road. This dust is susceptible to re-suspension, mainly due to vehicular movement. In this context, in 2024-25, the state will focus on:

- 1) Undertaking preventive maintenance of all sprinkling and sweeping machines, to ensure they are in working condition.
- 2) Efficiently operating the existing sprinkling and sweeping machines, to minimise re-suspension of road dust due to movement of vehicles.
- 3) Procuring new machines at the municipal authorities' level, based on the gap to achieve the 50% road sweeping / sprinkling target by 31-12-2023 (as per CAQM Policy for NCR region, 2022).³³
- 4) Ensuring that the road sweeping machines are effectively cleaning the road, through surprise inspections and test runs.

6.2.3 Departments responsible for controlling Road Dust

1. Directorate Urban Local Bodies (DULB)
2. Haryana Shahari Vikas Pradhikaran (HSVP)
3. Municipal Corporations (MCs)
4. Public Work Department (PwD)
5. Gurugram Metropolitan Development Authority (GMDA)
6. Faridabad Metropolitan Development Authority (FMDA)

³³ [Page 90, CAQM Policy for NCR Region \(2022\)](#)

6.3 Construction and Demolition

6.3.1 Ongoing actions

All active construction projects are mandated to comply with CAQM Direction No. 69.³⁴ This direction mandates the use of Anti-Smog Guns (ASGs) at construction sites, based on the following area slabs:

Table 2: Area slabs and Anti-Smog Guns (ASGs) as per CAQM Direction 11³⁵

| # | Area slab | Minimum no. of ASGs |
|---|--------------------------|---------------------|
| 1 | 5,000 sqm to 10,000 sqm | 1 |
| 2 | 10,000 sqm to 15,000 sqm | 2 |
| 3 | 15,000 sqm to 20,000 sqm | 3 |
| 5 | Above 20,000 sqm | 4 |

Since July 2024, district-level teams have increased the inspections of construction projects in their jurisdictions, to ensure that ASGs are deployed on the ground. This is an ongoing activity and will be intensified in the upcoming weeks.

6.3.2 Planned actions

In 2024-25, the state will focus on increased adoption of clean construction practices, remote monitoring through Dust Portal, and increased inspections. To achieve this, the district administration and the Regional Offices of the HSPCB will:

- 1) Sensitize project proponents on clean construction practices through workshops.
- 2) Get the project proponents registered on the Dust Portal and ensure timely submission of fortnightly self-audits.

³⁴ [CAQM Direction No. 69](#)

³⁵ [CAQM Direction No. 11](#)

- 3) Ensure that project proponents provide a web-camera with working web link and low-cost sensors on site for remote monitoring.
- 4) Increase the frequency of construction projects of all areas, to ensure deployment and usage of Anti-Smog Guns.
- 5) HSPCB has established a Web Portal for Dust Pollution Control Self-Assessment, for registration by construction projects on plot area 500 square metres and above in NCR. Till date 1044 sites have been registered on the Web portal.
- 6) Deployment of Low-cost sensors act as a dual verification tool in the state.

6.3.3 Departments primarily responsible for controlling emissions from Construction & Demolition sites in NCR

1. Directorate Urban Local Bodies (DULB)
2. Municipal Corporations (MCs)
3. Public Work Department (PWD)
4. Gurugram Metropolitan Development Authority (GMDA)
5. Faridabad Metropolitan Development Authority (FMDA)

6.4 Emissions from Diesel Generator Sets

6.4.1 Ongoing actions

Many commercial, industrial and residential establishments keep generator sets as a backup source for electricity supply. While proving to be a critical backup source, diesel generator (DG) sets are found to be the most polluting.

Throughout the year, in various review meetings, the power distribution companies of the state have been directed to undertake all measures (such as upgrading power infrastructure) to provide 24 X 7 uninterrupted supply of power.^{36,37} This would prevent the need to operate generator sets in the first place. In the short term, in the context of generator sets, all establishments must comply with the CAQM Direction No. 73.³⁸ This direction mandates DG

³⁶ [UHBVN districts: Panchkula, Ambala, Yamunanagar, Kurukhsetra, Kaithal, Karnal, Panipat, Sonapat, Rohtak and Jhajjar](#)

³⁷ [DHBVN districts: Faridabad, Palwal, Nuh, Gurugram, Mohindergarh, Rewari, Bhiwani, Charkhi Dadri, Hisar, Fatehabad, Sirsa and Jind](#)

³⁸ [CAQM Direction No. 73](#)

sets in industrial, residential, commercial, and office establishments to adhere to the following emission control system, based on their capacity (by 30.09.2023):

1. Below 19 kW – No emission control system required
2. 19 to 125 kW – Dual fuel mode (Natural gas & diesel)
3. 125 to 800 kW – Dual fuel mode Or RECD through certified vendors / agencies
4. 800 kW and above – Dual fuel mode or any other emission control device system

Apart from above no additional emission control device required in case of gas-based generator sets.

Further, there are no restrictions on new generator sets (up to 800 KW) which are compliant with November 2022 emissions standards.³⁹ Note that the emission limits for new engines used in generator sets (up to 800 kW Gross Mechanical Power), are applicable on:

1. Diesel engines,
2. Engines based on dedicated alternate fuels,
3. Engines based on Bi fuels run either on Gasoline or on any one of the alternate fuels,
4. (Engines based on Dual Fuel run on Diesel and any of the alternate fuels, and
5. Portable Generator sets (PI engines below 19kW and up to 800 cc displacement) run on Gasoline fuel, dedicated alternate fuels and Bi fuel run either on Gasoline or on any one of the alternate fuels

> Above 800 kW – any emission control mechanism, strictly subject to compliance of emission standards as indicated below:¹²

Table 3: Standards for stack emissions for 800 kW and above DG sets⁴⁰

| # | Parameter | Standards |
|---|------------------------------|--------------------------|
| 1 | PM (at 15% O ₂) | 50 mg / Nm ³ |
| 2 | NOx (at 15% O ₂) | 650 mg / Nm ³ |
| 3 | CO (at 15% O ₂) | 100 mg / Nm ³ |

³⁹ [MoEFCC notification GSR 804\(E\) dated 03.11.2022](#)

⁴⁰ [CAQM Direction No. 73](#)

| | | |
|---|--------------|---|
| 4 | Stack height | <p>Maximum of the following (in metres):</p> <p>a) Minimum 6 m <i>above</i> the building where DG set is installed, or</p> <p>b) 30 m</p> <p>For example, if the building height where such DG sets are installed is 20m, stack height for DG sets should be 30 m. from ground level; while if the building height itself is 27m, the minimum stack height for the DG sets should be 33m from the ground level.</p> |
|---|--------------|---|

6.4.2 Planned actions

As a part of ongoing efforts, the state will continue its efforts to ensure 24 X 7 uninterrupted power supply. Further, the state government will make efforts to expedite supply of gas connections to industries. There will be continuous dialogue between different departments, gas agencies, and industries. Ensuring uninterrupted supply of gas and electricity to industries is a top priority for the state government, and will be reviewed more frequently, going forward.

The quantum of assistance to be provided in the following table:

Table 4: Applicability criteria for availing financial assistance

| # | Type of purchase | Eligibility conditions | Quantum of assistance |
|---|--|---|------------------------------------|
| 1 | Dual fuel kit only | >PNG infrastructure/network is available. | 100% cost of dual fuel kit |
| 2 | RECD or dual fuel kits | >PNG infrastructure/network is available. >DG set is at least 5 years old. | 100% cost of RECD or dual fuel kit |
| 2 | New gas-based generator set (capacity up to 250 kVA) | >PNG is available in the area. >DG set is older than 13 years old. > DG set has been operated for more than 44,000 hours. | 40% of the generator cost |

6.4.3 Departments/Agencies responsible for reducing emissions from Diesel Generator Sets

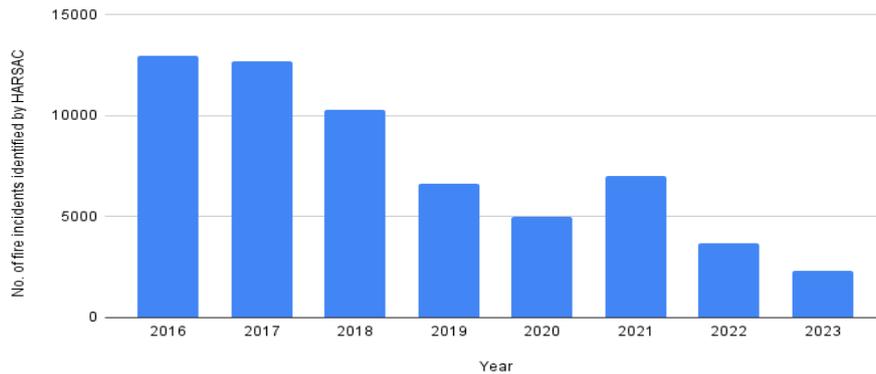
1. Department of Industries and Commerce
2. Haryana State Pollution Control Board (HSPCB)

6.5 Emissions from Agro Residue Burning

6.5.1 Ongoing actions

During the period 2018 and 2023, the state was able to reduce its Active Fire Locations by nearly 37% across all districts.

Fire Incidents reported by HARSAC (2016-23)



The measures taken by the State Government to control paddy stubble burning include:

- 1) Providing an incentive @ Rs. 1000/- per acre for in-situ / ex-situ management of paddy crop residue.
- 2) Providing an incentive @ Rs. 7000/- per acre for diversification of paddy area with alternative crops under Mera Pani Meri Virasat Scheme.
- 3) Providing an incentive @ Rs. 4000/- per acre for adoption of direct sowing of rice.
- 4) The New and Renewable Energy Department already identified & formed a cluster of villages, producing biomass in the vicinity of various industries in consultation with the Agriculture & Farmer Welfare Department.
- 5) Red Zone Panchayat to receive Rs. 1,00,000/- for achieving Zero Burning.
- 6) Yellow zone Panchayat to receive Rs. 50,000/- for achieving Zero Burning.
- 7) Transportation charges of Bales @ 500/- per acre limited to max of Rs. 15,000/- to Gaushalas.
- 8) Various IEC activities for farmer training through farmer vans, wall paintings etc.

Haryana is making substantial progress in managing paddy straw, a major contributor to air pollution, particularly due to stubble burning. The state has initiated several large-scale projects aimed at converting paddy straw into bio-energy, thereby mitigating environmental impacts while also generating economic opportunities. One significant project is the Compressed Biogas (CBG) Plant located in Jhajjar, which processes 20 Metric Tons per Day (MTD) of paddy straw, consuming a total of 150 MTD. Another notable initiative is the 2G Ethanol Plant in Panipat, with a capacity of 100 Kilo Litres per Day (KLPD) and using 52.5 MTD of paddy straw. Thermal power stations in Haryana are expected to utilize 2.75 Lakh

Metric Tons (LMT) of paddy straw annually in 2024-25. Additionally, biomass-based power plants are actively contributing to paddy straw management. As of May 2024, there are six operational plants with a combined capacity of 65.4 MW and an annual paddy straw consumption of 4.9 LMT. Moreover, four more plants are in the pipeline, which will add a total capacity of 31.8 MW.

In the realm of briquetting, Haryana is establishing 23 new plants, which together will have an annual paddy straw consumption capacity of 2.30 LMT.

Bio- Energy Policy, 2018:

The Haryana Bio-Energy Policy, introduced on December 7, 2018, by the Haryana Department of New and Renewable Energy (DNRE), is aimed at enhancing the utilization of biomass resources to produce renewable energy. The primary goal of the policy is to reduce reliance on fossil fuels and address environmental challenges by promoting the development of bio-energy projects. This includes the establishment of biomass-based power plants, biogas plants, and ethanol production facilities, which help in managing agricultural waste more effectively and mitigating pollution from stubble burning.

The policy supports the advancement of technologies such as Compressed Biogas (CBG) and 2G ethanol production, encouraging research and development to improve efficiency and lower costs. It provides financial incentives and subsidies to stimulate investment in bio-energy projects and the development of necessary infrastructure.

Regulation and standardization are central to the policy, with clear guidelines and standards established for biomass energy production, including emissions norms and quality criteria for biomass fuels. The policy also includes mechanisms for monitoring and enforcement to ensure compliance and assess project performance.

Furthermore, the policy emphasizes integration with broader environmental and agricultural policies, ensuring a cohesive approach to biomass resource management. Engaging with stakeholders—such as farmers, industry players, and local communities—is crucial for effective implementation. Overall, the Haryana Bio-Energy Policy aims to contribute to sustainable energy production, improved waste management, and economic development.

6.5.2 Planned actions

For the 2024-25 season, the state has devised a comprehensive strategy to manage the paddy straw and stubble generated. With an estimated 7,314,440 metric tons (MT) of straw to be managed, the state will employ a combination of in-situ and ex-situ strategies, alongside promoting its use as fodder. Specifically, around 2,462,882 MT of the straw will be utilised as fodder, supporting the livestock sector. In-situ management practices, which involve the incorporation of straw back into the soil, will handle approximately 3,141,892 MT, thereby improving soil health and reducing the need for burning. The remaining 1,709,666 MT will be managed through ex-situ methods, which include using straw for industrial applications and energy production, ensuring that the stubble is effectively and sustainably managed across the state.

- 1) An estimated quantity of 13.54 Lakh metric tons of paddy stubble is likely to be consumed in the major industries.
- 2) Deploying more than 80,000 Crop Residue Machines to manage more than 14 lakh hectares of paddy straw, with most of these machines going to small and marginal farmers.
- 3) Department has taken initiative to target 5 Lakhs acre paddy area through Pusa Bio Decomposer.
- 4) State government will provide Pusa bio decomposer kits to the farmers free of cost.
- 5) Increased use of IEC activities to make farmers aware about the existing schemes and incentives to avoid stubble burning.
- 6) Identifying and leveraging champions from each village and block as change agents, who have availed the benefits of the existing schemes.
- 7) Increasing the use of satellite-based monitoring from HARSAC to identify active fire locations.
- 8) Deploying task forces at District, Block, and Panchayat level in advance of the harvesting season, to create a 'presence of the administration' in hotspots, and
- 9) After exhausting the above measures, levying Environmental Compensation on the defaulting farmers as per the following schedule:⁴¹

⁴¹ [The Commission for Air Quality Management in National Capital Region and Adjoining Areas \(Imposition, Collection and Utilisation of Environmental Compensation for Stubble Burning\) Rules, 2023](#)

Table 5: Environmental Compensation for stubble burning

| # | Land area | Fine amount |
|---|-------------------|-------------|
| 1 | Less than 2 acres | Rs 2,500 |
| 2 | 2-5 acres | Rs 5,000 |
| 3 | More than 5 acres | Rs 15,000 |

6.5.3 Departments and Agencies responsible for controlling Agro Residue Burning

1. Department of Agriculture
2. Department of revenue
3. Deputy Commissioners of all districts
4. Haryana State Pollution Control Board
5. Haryana Space Applications Centre, Hisar
6. Chief Fire Officers of each district
7. Department of Rural Development and Panchayat

6.6 Vehicular Emissions

6.6.1 Ongoing actions

In 2022, the state notified two important policies - the Haryana Electric Vehicle (EV) Policy and the Vehicle Scrapping Policy.^{42,43} As of August 2024, Haryana has more than 1,000,00 EVs. More than 70% of these EVs were registered after the notification of EV Policy. By ensuring speedy implementation of a web portal, Haryana has already supported the purchase of more than 1,200 EVs, by disbursing incentives of more than Rs 34 crore.⁴⁴ Notably, the

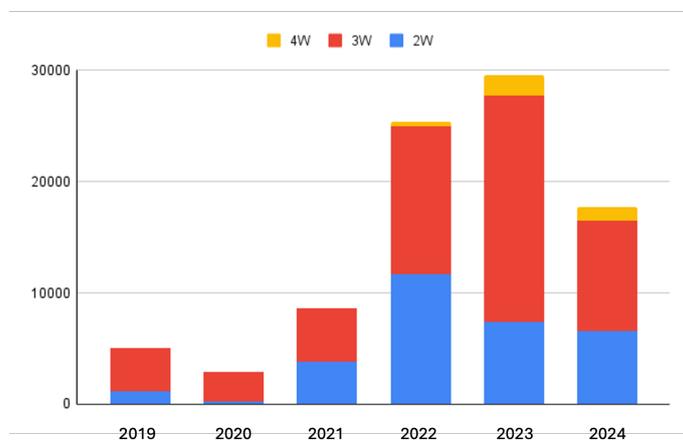
⁴² [The Haryana Electric Vehicle Policy, 2022](#)

⁴³ [The Haryana Vehicle Scrapping Policy, 2022](#)

⁴⁴ Based on data from VAHAN Dashboard and the Dept of Industries and Commerce for September 2023.

demand for certain segments has already exceeded the 5-year limit. A proposal for increasing this limit is under consideration of the state government.

EV registration trend in Haryana (2019-24)



*2024 is up to the month of August

For the Vehicle Scrapping Policy to be successful, the state needs two key enabling infrastructures - Automated Testing Stations (ATS) and Registered Vehicle Scrapping Facilities (RVSFs). The state government is in the process of establishing these ATS on PPP mode. As of September 2023, Haryana has 5 RVSFs.

Once a vehicle is handed over to the RVSF, the earlier vehicle owner is given a Certificate of Deposit (CoD). So far, 1,250 certificates of deposit (CoD) have been issued. When the same person buys a new vehicle and submits this CoD at the time of vehicle registration, the person shall receive a rebate on motor vehicle tax. The rebate shall be equal to lesser among 10% of the motor vehicle tax, or 50% of the scrap value (mentioned in the CoD).

Further, all Regional Transport Offices (RTOs) in the NCR region are inspecting the calibration of the equipment at Pollution Under Control Certificate (PUCC) centres. Non-compliant PUCC centres have been challaned, or shut down, based on the degree of non-compliance.

Further, NCR districts in Haryana are implementing CAQM Direction No. 70.⁴⁵ This direction mandates the registration of only CNG/electric autos in NCR districts.

⁴⁵ [CAQM Direction No. 70](#)

For the seamless and efficient traffic management and minimising traffic congestion in the jurisdiction of the NCR, the State has constituted dedicated task forces with representatives of the Departments concerned to continuously monitor and take corrective steps towards smooth traffic management. An “Intelligent Traffic Management System” (ITMS) is operational in the State.

The Haryana government has implemented a ban on older vehicles to address rising air pollution levels in the state. Under this regulation, diesel vehicles that are 10 years or older and petrol vehicles that are 15 years or older are prohibited from operating on the roads.

| Breakup of vehicle type which is older than 10 years diesel and 15 years older petrol as on 30.04.2024 | | |
|---|--|--|
| Type | Registered vehicle from 1.1.1990 to 30.4.2014 | Registered vehicle from 1.1.1990 to 30.4.2009 |
| | Diesel | Petrol |
| 2-wheeler | 1,934 | 13,65,396 |
| 3-wheeler | 72,942 | 73 |
| 4-wheeler | 49,44,464 | 3,23,329 |
| Buses | 24,220 | 38 |
| Goods Carrier | 3,01,861 | 8,851 |
| Total | 8,95,430 | 16,97,687 |

6.6.2 Planned actions

Under Stage I of the revised GRAP (AQI of Delhi ranging from 200-300), over-aged petrol/diesel vehicles found plying on the roads will have to be impounded, in compliance with the Hon’ble Supreme Court & NGT orders.⁴⁶ In this context, the state will:

⁴⁶ [Revised GRAP for 2023-24](#)

- 1) Spread awareness about the motor vehicle tax rebate available under the Haryana Vehicle Scrapping Policy, to ensure that people get their end-of-life or close to end-of-life vehicles scrapped.
- 2) Spread awareness about the directions of the Hon'ble Supreme Court & NGT orders regarding ban on plying of end-of-life vehicles.
- 3) ICE activities to be undertaken for E-trucks and Tractors to increase their adoption in the state.
- 4) Focus on the deregistration and scrapping of older vehicles, as well as those polluting above permissible limits.

Further, efforts will be made to minimise traffic congestion in NCR areas. To achieve this, the state will:

- 1) Encourage government and private offices to have staggered office timings, to distribute the flow of traffic.
- 2) Review the working of traffic light systems, ahead of the winter season.
- 3) Ensure deployment of traffic police at points prone to congestion.
- 4) Deploy anti-smog guns on congestion points, especially at peak hours.
- 5) Low Emission Zones pilot implementation in hotspot cities i.e. Gurugram and Faridabad.

6.6.3 Departments responsible for controlling Vehicular Emissions:

1. Department of Transport
2. Haryana State Pollution Control Board (HSPCB)
3. Traffic Police
4. Gurugram Metropolitan Development Authority (GMDA)
5. Faridabad Metropolitan Development Authority (FMDA)

6.7 Industrial Emissions

6.7.1 Ongoing actions

The HSPCB, through its Regional Offices, has held a series of sensitization and stock-taking

meetings, to make stakeholders aware of various CAQM directions. The state government and concerned agencies are speeding up providing Piped Natural Gas connections, to allow operation of generator sets on dual fuel mode.

Although, industries are an integral part of Haryana’s economy, they also contribute to air pollution within the state. In compliance with the CAQM directions and CAQM Policy for NCR region (2022), the state is taking the following measures to abate industrial emissions:

- 1) Clean fuel strategy: As of today, all industries in industrial clusters in NCR are running on approved fuels. Most of such industries are operating on biomass fuels. Further, in March 2023, the state government announced a scheme to provide financial assistance of 30% of the total cost of conversion of boilers to run on PNG/CNG, for MSMEs.⁴⁷

| Status of shifting of industries to cleaner/approved fuels in NCR (2023-24) | | |
|--|---|--------------|
| # | Particulars | Total |
| 1 | Total No. of fuel-based industries | 4966 |
| 2 | No. of industries running on PNG / CNG / LPG / LNG | 825 |
| 3 | No. of industries running on biomass fuels | 3178 |
| 4 | No. of industries running on electricity | 384 |
| 5 | No. of industries running on L.S.H.S Family fuels | 277 |
| 6 | No. of industries running on other approved fuels, if any | 0 |
| | Bio- Diesel | 6 |
| | Hydrogen | 1 |
| | Metallurgical coke | 89 |
| | Wood / Charcoal (for Lead recycling units only) | 53 |
| | Solar System | 1 |
| 7 | Thermal Power Plants | 3 |
| 8 | No. of industries still running on unapproved fuels | 0 |
| 9 | Industries closed of their own | 108 |

⁴⁷ [Notification of “Assistance in conversion of boiler to run on cleaner fuel”, Dept of Industries and Commerce](#)

| | | |
|----|----------------------------|----|
| 10 | Industries closed by Board | 41 |
|----|----------------------------|----|

- 2) Process upgradation: More than 99% of brick kilns in the state have shifted to zig-zag technology. This has helped reduce the contribution of brick kilns to air pollution.
- 3) Emissions monitoring: The HSPCB monitors the emission stacks of all red category industries using Online Continuous Emissions Monitoring System (OCEMS). In cases of exceedance and delays, the industrial units are notified and asked to take corrective action. As of now, 291 industries in Haryana have installed the Continuous Emissions Monitoring System (CEMS). Additionally, The Haryana State Pollution Control Board (HSPCB) has implemented a dedicated portal to monitor industry compliance with the Continuous Emissions Monitoring System (CEMS). This portal plays a crucial role in tracking and ensuring that industries provide real-time emissions data to the Pollution Control Board.

The portal is designed to facilitate continuous oversight of industrial emissions, ensuring that industries adhere to the emission standards prescribed by the regulatory authorities. By receiving real-time data, the PCB can promptly identify any deviations from the standards and take necessary corrective actions to mitigate pollution.

- 4) Inspections and monitoring: The HSPCB has a roster of inspections for red, orange and green categories of industries. Through these inspections, the HSPCB monitors emissions from industrial units. Action is being taken on defaulting units as per procedure prescribed under the law.

6.7.2 Planned actions

The HSPCB through its Regional Offices will intensify the inspections and monitoring of industries. Further, the state government will increase its extension activities to ensure that financial incentives for clean fuel transition are known and availed by MSMEs.

6.7.3 Departments responsible for controlling for Industrial Emissions

1. Department of Industries and Commerce

2. Directorate of Micro, Small & Medium Enterprises (MSME)
3. Haryana State Pollution Control Board (HSPCB)
4. Department of Labour

6.8 Biomass Burning

6.8.1 Ongoing actions

Household combustion emits more than half of all global black carbon emissions, a major component of fine particulate matter.⁴⁸ A significant section of the population of the state, are dependent on cooking using: (i) easily available but polluting fuels (such as wood, animal dung and crop waste and coal), or (ii) inefficient stoves. Both result in harmful household air pollution.

The state government is implementing the PM Ujjwala Yojana, aiming to ensure access to clean cooking fuel to all eligible households.

6.8.2 Planned actions

Apart from biomass burning for cooking, biomass burning for heating has also emerged as a problem, especially for the poor and vulnerable. In peak winter, the poor and vulnerable segments of society resort to burning of biomass, to keep themselves warm. In the winter season, this too contributes to the high pollutant concentrations in the air. To prevent this situation, the state will:

- 1) Ensure that all government shelters for the poor and vulnerable are well stocked with warm clothes and heating coils.
- 2) Create awareness among civil society organisations to contribute clean, warm clothes for the poorer segments in society.

Further, unauthorised burning of open waste will be monitored, and penalised by teams from the urban local bodies.

6.8.3 Departments responsible for controlling emissions from Household

1. Department of Agriculture

⁴⁸ [Integrating Air Quality Management and Climate Change Mitigation, World Bank, 2023](#)

2. Department of Food and Civil Supplies

6.9 Burning of Firecrackers

6.9.1 Ongoing actions

Ahead of the festive season, the state will be implementing a total ban on manufacturing, sale, and distribution of firecrackers.

6.9.2 Planned actions

By taking this decision in September (a month in advance of the ban), the state has proactively tried to reduce the 'sunk cost' in the firecracker supply chain, thereby protecting lives of its residents, and of those employed in the firecracker sector as well.

In 2024-25, inspection teams constituted under the Deputy Commissioners will shortly start inspections, to check establishment of the firecracker supply chain. Further, wide publicity will be given to the ban, to make the citizens aware.

6.9.3 Departments responsible for taking actions on burning of Firecrackers

1. Haryana State Pollution Control Board (HSPCB)
2. Directorate of Urban Local Bodies (DULBs)
3. Municipal Corporations (MCs)
4. District Administration
5. Department of Explosive
6. Chief Fire Officers of each district

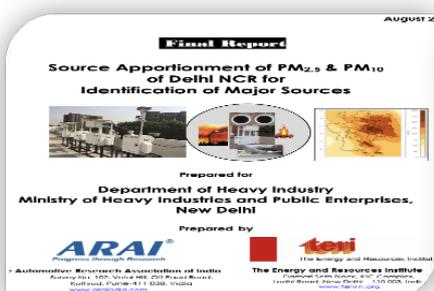
6.10 Air Quality Monitoring



4 state sample-testing laboratories



29 CAAQM stations & 39 MAAQM stations



4 source apportionment studies in pipeline



AQ related trainings for officials

6.10.1 Ongoing actions

Air quality monitoring enables us to track changes in air quality over time, identify pollution hotspots and exposure patterns, and inform action plans. HSPCB monitors criteria pollutants regularly. Currently, there are 29 real-time monitoring stations and 39 manual monitoring stations in Haryana.

Source apportionment and emission inventory studies (in combination) help us to understand local sources of air pollution and their relative contributions. So far, source apportionment studies for Faridabad, Gurugram, Sonapat, and Panipat are in progress. An interim report for Faridabad (being done by TERI) found construction and road dust to be the major contributors for high PM₁₀ levels and Road Dust and Industries for PM_{2.5}. The status of the source apportionment studies in the state is captured below:

Table 6: Status of source apportionment studies in Haryana

| # | City | Executing Agency | Starting time | Status |
|---|--|------------------|-----------------|---------------------|
| 1 | Faridabad | TERI | March 2021 | Nearing completion. |
| 2 | Gurugram, Sonipat, and Panipat | ARAI, Pune | March 2023 | In progress |
| 3 | Rewari, Jhajjar, Charkhi Dadri, Rohtak, and Jind | Not yet selected | Not yet started | Under tendering |

6.10.2 Planned actions

The state is focused on expanding its ambient air quality monitoring network. Further, NGT directed CPCB to install 10 new real-time stations- 5 each in Charkhi Dadri and Mahendergarh districts. A proposal for procurement of additional real-time monitoring stations is under consideration.

The expression of interest for conducting the source apportionment studies in another 5 NCR districts i.e. Rewari, Jhajjar, Charkhi Dadri, Rohtak and Jind, have been floated.

The HSPCB will continue to hold regular reviews of the ongoing studies, to ensure adherence to agree upon timelines. Further, any actionable insights from these studies will be leveraged in the Winter Action Plan.

6.10.3 Departments responsible for Air Quality Monitoring

1. Haryana State Pollution Control Board (HSPCB)
2. Urban local bodies and Metropolitan development authorities
3. Gurugram Metropolitan Development Authority (GMDA)
4. Faridabad Metropolitan Development Authority (FMDA)

7. Stakeholder discussions ahead of winter for 2024-25

The HSPCB aims to undertake measures which, to the extent possible, prevent the AQI forecast to breach the thresholds for Stage I of the Graded Response Action Plan (GRAP). To achieve this, the pollution sources in the state must be abated with greater intensity. This is because in winter, due to temperature inversion, pollutants tend to remain suspended in the atmosphere at lower heights.

To that extent, a series of review meetings at district headquarters, will be held under the chairmanship of Chairperson, Haryana State Pollution Control Board (HSPCB) from October to December, to review the enforcement of air pollution abatement actions across departments in all the 14 NCR districts of Haryana. In each of these meetings, a total review of the contributing sectors will be taken, which includes, construction and demolition activities, road dust, vehicular emissions, and emissions from DG sets, etc.

The state will undertake comprehensive stakeholder consultations across various sectors to ensure a holistic approach to address air pollution. These consultations will involve active participation from both government agencies and private sector players, including industry representatives, environmental NGOs, and community organisations. The goal is to gather diverse perspectives, leverage sector-specific expertise, and foster collaborative solutions that align with the state's environmental objectives. Through these discussions, the state aims to create a unified and actionable plan that addresses the challenges faced by different sectors, ensuring broad-based support and effective implementation of air pollution control measures.

Here are some key topics for stakeholder discussions that can be done as part of the Winter Action Plan to curb air pollution:

7.1 Vehicular Emissions Control:

Discussion Points: Strengthening the Pollution Under Control (PUC) certification process, promoting electric vehicles (EVs), improving public transportation, and refilling off the potholes and implementing stricter emission norms for private and commercial vehicles.

7.2 Industrial Emission Standards:

Discussion Points: Enhancing emission control technologies, monitoring compliance with existing standards, and incentivizing cleaner production methods,.

7.3 Construction and Demolition Waste Management:

Discussion Points: Implementing dust control measures at construction sites, promoting the use of green building materials, enforcing regulations on waste disposal, and fostering collaboration between government bodies and private construction firms.

7.4 Agricultural Practices and Crop Residue Management:

Discussion Points: Encouraging sustainable farming practices, promoting alternatives to stubble burning, and facilitating access to eco-friendly agricultural technologies for farmers.

7.5 Urban Planning and Green Spaces:

Discussion Points: Integrating green infrastructure in urban planning, expanding urban green cover, and involving private developers in creating and maintaining green spaces within cities.

7.6 Public Awareness and Behaviour Change:

Discussion Points: Designing effective public awareness campaigns, promoting eco-friendly behaviours, leveraging social media for outreach, and engaging community leaders in air pollution prevention efforts.

7.7 Monitoring and Data Sharing:

Discussion Points: Enhancing air quality monitoring infrastructure, ensuring real-time data sharing among stakeholders, developing a unified database for air quality data, and involving tech companies in creating innovative monitoring solutions.

7.8 Regulatory Framework and Policy Implementation:

Discussion Points: Reviewing existing air pollution regulations, identifying gaps in enforcement, exploring new policy initiatives, and discussing the role of private sector compliance.

These topics provide a broad framework for stakeholder discussions, ensuring that all relevant aspects of air pollution control are addressed through collaborative efforts.

8. Enabling Implementation

8.1 Graded Response Action Plan (GRAP)

Currently, Delhi's AQI is the reference point for implementation of GRAP. Acknowledging the presence of Haryana in the same airshed as Delhi, this Winter Action Plan aims to minimise Haryana's contribution to air pollution. However, the transboundary nature of air means that the state government must be prepared for effective implementation of GRAP. It should be noted that many of the measures under GRAP are part of existing control measures that are being taken. These include measures related to mitigation of dust and vehicular emissions.

GRAP's objective is to balance protection of public health and maintaining livelihoods. This can only be achieved if GRAP restriction period is minimal but implemented effectively. To ensure speedy and effective implementation of GRAP, the state government/HSPCB will:

- 1) Monitor the 3-day forecast of air quality from System of Air Quality and Weather Forecasting and Research (SAFAR)⁴⁹ daily.
- 2) Constitute district-level task forces with representation from all stakeholder departments to review the actions corresponding to the GRAP stages.
- 3) Streamline reporting and monitoring of on-ground actions by departments.
- 4) Review the implementation of GRAP at regular intervals

8.2 Review and Monitoring Mechanism for the Winter Action Plan

To ensure the effective implementation and success of the Winter Action Plan, a robust review and monitoring mechanism will be established. This mechanism will be structured around continuous assessment, data-driven decision-making, and transparent reporting. The following components will be integral to the process:

1. Formation of a Steering Committee:

A high-level steering committee will be constituted under the chairmanship of Member Secretary, HSPCB and Senior Environmental Engineer (in charge of Air Cell) as convener, comprising representatives from key government departments, experts from environmental organisations, industry stakeholders, and academic institutions.

⁴⁹ SAFAR is an air quality forecasting system, developed by the Indian Institute of Tropical Meteorology (IITM). Using existing air quality data as well as meteorological information, SAFAR can provide air quality forecasts of 1-3 days for Delhi, Pune, Mumbai, and Ahmedabad.

The committee will oversee the overall implementation of the Winter Action Plan, provide strategic guidance, and ensure inter-departmental coordination.

2. Regular Progress Reviews:

Quarterly review meetings will be conducted by the steering committee to assess the progress of various initiatives outlined in the Winter Action Plan. These meetings will focus on identifying bottlenecks, challenges and reviewing the performance of different sectors, and making necessary adjustments to the plan.

3. Public Feedback and Engagement:

Mechanisms for public feedback will be established, including online portals and community meetings. Citizen feedback on air quality and the effectiveness of local interventions will be an important input for the review process.

This review and monitoring mechanism is designed to ensure that the Winter Action Plan is implemented effectively, with continuous oversight and the flexibility to adapt to evolving challenges.

9. Information, Education and Communication (IEC) activities

The government can implement various types of Information, Education, and Communication (IEC) strategies to effectively raise awareness and drive behavioural change related to air pollution.

Here are the few types of IEC initiatives:

9.1 Mass Media Campaigns:

- a) **Television and Radio Broadcasts:** Airing public service announcements, educational programs, and interviews with experts on air pollution and its impacts.
- b) **Print Media:** Publishing articles, advertisements, and informational inserts in newspapers, magazines, and newsletters to reach a broad audience.
- c) **Social Media Campaigns:** Using platforms like Facebook, Twitter, Instagram, and YouTube to share infographics, videos, real-time air quality updates, and engage with the public through interactive content.

9.2 Community Outreach Programs:

- a) **Workshops and Seminars:** Conducting educational sessions in schools, colleges, community centres, and workplaces to discuss air pollution, its health impacts, and preventive measures.
- b) **Public Meetings:** Organising town hall meetings and community discussions where residents can learn about air pollution and voice their concerns or suggestions.
- c) **Street Plays:** Using street plays to creatively communicate messages about air pollution to local communities.

9.3 Educational Initiatives:

- a) **School and College Programs:** Integrating air pollution topics into school curricula, conducting eco-clubs, and organising contests or quizzes to engage students.
- b) **Educational Materials:** Developing and distributing brochures, posters, booklets, and comic strips that provide information on air pollution in an easy-to-understand format.

9.4 Digital and Mobile Platforms:

- a) **Mobile Applications:** Creating apps that provide real-time air quality data, tips for reducing pollution, and alerts on high pollution days.
- b) **Websites and Portals:** Developing dedicated websites with resources, updates, and interactive tools related to air pollution and its management.
- c) **SMS and WhatsApp Campaigns:** Sending regular updates, tips, and alerts via SMS or messaging platforms like WhatsApp to reach people directly on their phones.

9.5 Public Events and Campaigns:

- a) **Awareness Rallies and Marches:** Organising events like marathons, bicycle rallies, and walks to raise awareness about the importance of clean air.
- b) **Thematic Days:** Observing days like World Environment Day, Clean Air Day, and Earth Day with special events, campaigns, and activities focused on air pollution.
- c) **Green Drives:** Initiating tree plantation campaigns, distribution of medicinal plants to the public, waste management drives, and other community actions to directly involve the public in pollution control efforts.

9.6 Policy and Advocacy Initiatives:

- a) **Public Consultations:** Holding forums and consultations where citizens can contribute to policy discussions and decision-making processes related to air quality management.
- b) **Policy Briefs and Reports:** Publishing policy documents, white papers, and research reports that inform and guide stakeholders on air pollution control strategies.

9.7 Partnerships and Collaborations:

- a) **Public-Private Partnerships:** Collaborating with businesses, NGOs, and other organisations to jointly address air pollution, enabling us to achieve state's goals more effectively and efficiently.

9.8 Incentive Programs:

- a) Competitions and Rewards: Organizing contests, such as clean air challenges, and providing rewards for communities, schools, or individuals who contribute significantly to reducing air pollution.
- b) Recognition Programs: Establishing awards and recognition for local governments, organisations, and individuals who demonstrate exemplary efforts in air quality improvement.

By employing a mix of these IEC strategies, the government can effectively reach different segments of the population, educate them about air pollution, and inspire meaningful action to improve air quality.

When it comes to air pollution, citizens are as much a part of the problem as they are of the solution. Keeping in mind both the preventive aspects and the greater health risks associated with pollution in winter, the state will launch a 360-degree IEC campaign. The campaign will urge citizens to:

- 1) Avoid unnecessary use of vehicles and choose public transport wherever possible. Scrap personal vehicles which are nearing end-of-life.
- 2) Use non-polluting modes of travel, including CNG/electric vehicles - whether public or private.
- 3) Ensure good maintenance of personal vehicles, to minimise emissions.
- 4) Ensure regular updation of the PUC certificates of the existing private vehicles.
- 5) Avoid starting any new major construction/ demolition activity during the winter months.
- 6) Undertake firecracker free festivities and use traditional non-polluting alternatives (such as Diyas).
- 7) Avoid throwing garbage in unauthorised areas, to prevent chances of open waste burning.
- 8) Provide electric heaters to security guards in residential societies and colonies, to help them keep warm.
- 9) Report air pollution activities through SAMEER App.
- 10) Use indoor air purifiers, in case air quality deteriorates to poor in health facilities, schools, public offices etc,

- 11) Undertake personal precautions (such as wearing masks etc) when air quality deteriorates to poor, keeping in mind the existing medical condition of individuals.
- 12) Use of Public transportation and reduce the dependency on private vehicles in order to reduce emissions and congestion.
- 13) Adoption of EVs in the state especially for promotion of E-trucks and E-Tractors.
- 14) Undertake stakeholder consultations, round tables and large conclaves to increase the awareness of FAME and state EV incentives.

10. Actions for Citizens

To support our collective efforts in reducing pollution and maintaining a healthy environment, we encourage all citizens to take the following detailed actions:

10.1 Avoid Open Burning

Open burning of leaves, crop residues, and other waste materials releases a significant amount of pollutants into the air. This practice not only deteriorates air quality but also poses health risks.



10.1.1 Planned Actions

- **Composting:** Convert organic waste such as leaves and kitchen scraps into compost, which can be used to enrich soil.
- **Waste Disposal:** Use municipal waste collection services to dispose of non-organic waste properly.
- Each household shall segregate the solid waste in the form of organic waste, inorganic waste, domestic hazardous waste in three different containers and the same may be delivered to the authorized waste pickers having vehicles of three compartments. These waste pickers shall do further activities as under:
 1. The waste pickers shall transfer the different kind of waste in the GPS enabled compartmentalized vehicles, which shall carry the waste to the solid waste management site.
 2. Organic Waste shall be put into the compost pits for composting and inorganic waste consisting of iron pieces, waste papers, wooden waste etc. shall be recycled and plastic waste

shall be used in the cement plants and waste to energy plants. Inert waste may be disposed of in the sanitary landfill sites.

10.2 Limit Vehicle Use

Vehicular emissions are a major source of air pollution. Reducing the number of vehicles on the road can significantly lower pollution levels.



10.2.1 Planned Actions

- **Public Transportation:** Opting for buses, metros, and inter-city trains to reduce individual vehicle use.
- **Carpooling:** Share rides with family, friends, or colleagues to decrease the number of vehicles on the road.
- **Walking or Cycling:** For short distances, consider walking or cycling, which are not only eco-friendly but also beneficial for your health.

10.3 Maintenance of the vehicles

Proper vehicle maintenance ensures that emissions are kept to a minimum, contributing to better air quality.



10.2.1 Planned Actions

- **Regular Servicing:** Have your vehicle serviced regularly to ensure the engine, exhaust system, and fuel system are functioning efficiently.
- **Use Clean Fuels:** If possible, switch to fuels with lower emissions such as Electric Vehicles, and Compressed Natural Gas (CNG).

10.4 Use Cleaner Fuels

Traditional fuels used for heating can release harmful pollutants. Opting for cleaner alternatives can help reduce this impact.

LPG Gas Room Heaters



10.4.1 Planned Actions

- **CNG and LPG:** Consider using CNG or LPG for heating as they produce fewer emissions compared to coal or wood.
- **Energy-Efficient Appliances:** Use modern, energy-efficient appliances that require less fuel for the same amount of heat.

10.5 Support Green Initiatives

Green initiatives help improve air quality and overall environmental health.

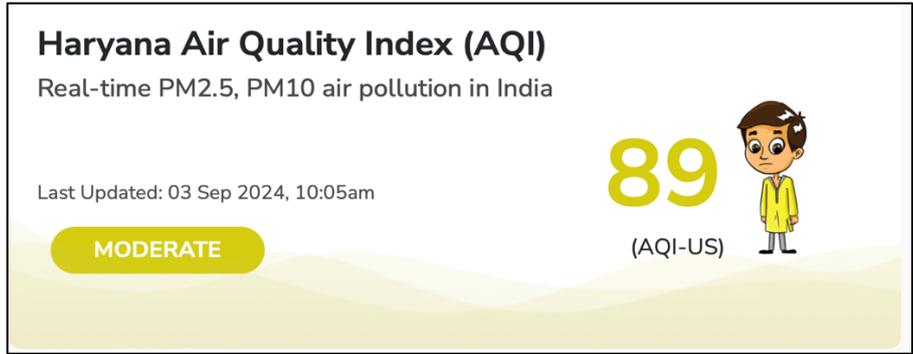


10.5.1 Planned Actions

- **Tree Planting:** Participate in or support local tree-planting drives. Trees act as natural air purifiers by absorbing pollutants and providing oxygen.
- **Community Projects:** Get involved in community efforts aimed at enhancing green spaces and reducing pollution.

10.6 Stay Informed

Keeping track of air quality can help you make informed decisions about when to limit outdoor activities.



10.6.1 Planned Actions

- **Air Quality Forecasts:** Check air quality forecasts and advisories provided by the CPCB, HSPCB and other reliable sources.
- **Health Precautions:** On days when pollution levels are high, limit outdoor activities, especially for vulnerable groups such as children, the elderly, and individuals with respiratory conditions.

10.7 Conserve Energy

Reducing energy consumption helps decrease the demand for power generation, which in turn reduces pollution from power plants.



10.7.1 Planned Actions

- **Energy-Efficient Lighting:** Use LED bulbs and energy-efficient lighting solutions to reduce energy consumption.
- **Smart Usage:** Turn off lights and appliances when not in use. Consider using programmable thermostats to optimize heating.
- **Use of Solar Technology:** Extracting electric energy.

10.8 Report Violations

Addressing pollution sources promptly can prevent further environmental damage.

10.8.1 Planned Actions

- **Report Infractions:** Illegal activities such as unauthorized burning of waste or excessive industrial emissions, can be reported the HSPCB which may help to take timely action to address these issues.

11. Haryana Clean Air Project for Sustainable Development in collaboration with The World Bank (HCAPSD)



Haryana Clean Air Project For Sustainable Development

The Government of Haryana in collaboration with World Bank aims to improve air quality management across eight states in the Indo-Gangetic Plain (IGP). As part of their Regional Action Plan, they intend to improve air quality and reduce emissions across a common geographic area (the Indo-Gangetic plain), irrespective of the state boundaries. This is known as the airshed approach. For implementation of the Regional Action Plan, the World Bank is extending financial and technical assistance to the eight IGP States for seven years. Given the geographic and strategic importance of Haryana in the IGP region and 14 out of its 22 districts falling in the National Capital Region (NCR), the World Bank approached the State government on devising a project for Haryana as part of their regional action plan for the IGP states.

The state has closely engaged with the World bank over the last one year and formulated the 'Haryana Clean Air Project for Sustainable Development'. As part of the Haryana Clean Air Project, the state is going to be provided financial assistance of USD 300 million (~2,498 crore rupees) from the World Bank to implement priority interventions for improvement of air quality in Haryana and contribute towards the collective effort on air quality management in the IGP region.

The project aims to reduce air pollution through a multi-sector, airshed based approach. It also envisions building a pioneer model that can be replicated across India. The project will support in:

- 1) Devising policies on air quality management
- 2) Building institutional capacity
- 3) Strengthening air quality monitoring infrastructure
- 4) Implementing sector-specific air pollution abatement measures

The interventions are designed with alignment of all the relevant departments including Transport, Industries and Commerce, HSIIDC, PWD, Rural Development, Animal Husbandry and Dairying, Food, Civil Supplies, and Consumer Affair Department, Municipal corporations, Gurugram Metropolitan Development Authority (GMDA), and Faridabad Metropolitan Development Authority (FMDA).

The project is set-up to be extended with a potential investment of up to INR 10,000+ crore in the later phases of the project, a significant increase from the earlier proposal.

12. Way Forward

The Winter Action Plan 2024-25 outlines sector-wise interventions aimed at addressing the root causes of pollution through targeted, strategic actions. Moving forward, the state will focus on the following key areas:

12.1 Construction & Road Dust and Waste Management:

To mitigate dust and manage waste effectively, the state will enhance capacity building by creating Standard Operating Procedures (SOPs) for key stakeholders, including officers, contractors, and construction workers. Comprehensive training will be provided to ensure adherence to best practices. The state will also engage in the measurement and collection of legacy Construction & Demolition (C&D) waste and will strengthen future C&D waste management by expanding processing capacity and promoting the use of recycled waste materials.

12.2 Transport:

The state will strengthen public transportation infrastructure by planning for the transportation needs of all districts and advancing the electrification of intra- and inter-city bus fleets. Efforts will be made to increase the adoption of electric vehicles across the state by promoting demand for private 3-wheelers and cab aggregator 4-wheelers. The state will also encourage the replacement of older fleets with cleaner vehicles by offering higher incentives for purchasing electric vehicles post-scrappage. Additionally, a model for setting up Automated Testing Stations (ATS) will be designed and implemented to monitor vehicle health and facilitate the phasing out of old vehicles.

12.3 Agriculture:

To reduce stubble burning, the state will strengthen in-situ and ex-situ crop-residue management by conducting a needs assessment to identify state-level requirements for Crop Residue Management (CRM) machines. Large-scale training programs for farmers and field officers will be conducted, and efforts will be made to diversify the reuse of stubble across industries. The state will promote the use of Bio-decomposer among farmers through awareness campaigns and initiate research to reduce the decomposition time from 60 to 15

days. Additionally, research will be undertaken to monitor and reduce secondary emissions from agricultural fields and livestock farms.

12.4 Industries:

The state will accelerate the transition of industrial boilers to clean fuels by providing financial incentives for the purchase of clean fuel boilers. To reduce emissions from diesel generator (DG) sets, the state will promote the use of cleaner DG sets across industries by incentivizing the retro fitment of emission control devices or the purchase of generators running on dual fuel mode.

12.5 Institutional Strengthening:

The deployment of new continuous ambient air quality monitoring stations (CAAQMS) will expand the state's infrastructure based on population projections for 2030. Additionally, two mobile vans equipped with real-time source apportionment technology will be deployed to collect data on particulate matter (PM), metals, and other gaseous emissions across identified hotspots. A Command Control Centre (CCC) will be set up at HSPCB to integrate data from all sources, including CAAQMS, MAAQMS, mobile vans, low-cost sensors, and CCTV cameras, enabling real-time monitoring of all interventions and their impact on air quality.

12.6 Clean Cooking:

Extensive information, education, and communication (IEC) activities will be conducted to raise awareness about the benefits of clean cooking and encourage a shift towards cleaner cooking practices, fostering social behaviour change.

In the upcoming winter season, the state government will continue to increase public awareness, strictly enforce existing laws and directives issued by the Hon'ble Supreme Court, National Green Tribunal, and the Commission for Air Quality Management (CAQM). Regular high-level reviews of on-ground actions will ensure that the Winter Action Plan 2024-25 is implemented in both letter and spirit, bringing the state closer to its goal of significantly reducing air pollution and protecting the health and well-being of its citizens.

12.7 Solid Waste:

Solid waste dumping sites are known to release harmful gases such as sulphur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO), and suspended particulate matter. The dust emitted from these sites can contribute to a range of health issues, from common colds to serious diseases like cancer, as well as acute and chronic respiratory disorders, and lung damage due to high concentrations of pollutants. The smoke generated from the incineration of waste further exacerbates air pollution, affecting communities even far from the dumping sites. Additionally, landfill gases, primarily consisting of methane (CH₄) and carbon dioxide (CO₂), are potent greenhouse gases that contribute significantly to global warming.

Given the severe health and environmental risks associated with unmanaged solid waste, the state will prioritize solid waste management strategies. This will include implementing comprehensive waste segregation, promoting recycling, adopting scientific waste disposal methods, and controlling emissions from landfill sites.