Comprehensive Research Report: Air Quality Index (AQI) of Chandigarh

Executive Summary

As of November 16, 2025, Chandigarh's Air Quality Index stands at **178-194** (Unhealthy category), with PM2.5 levels ranging from **95-116 µg/m³** and PM10 levels at **122-144 µg/m³**. This represents a critical environmental and public health situation, with pollutant levels **6.3-7.7 times higher** than WHO guidelines for PM2.5 and **2.7-3.2 times higher** for PM10. The city's air quality has shown **zero improvement** despite spending ₹31.17 crore under the National Clean Air Programme (NCAP) over seven years, with PM10 levels stagnating at 114-121 µg/m³ from 2017-18 to 2024-25.ndtv+3

Current Air Quality Status (November 15-16, 2025)

Real-Time Measurements

The current air pollution levels in Chandigarh demonstrate severe health hazards:

Primary Pollutants:

- **AQI:** 178-194 (Unhealthy category)
- **PM2.5:** 95-116 µg/m³ (primary pollutant)
- **PM10:** 122-144 µg/m³
- **Carbon Monoxide (CO):** 364-552 ppb
- **Sulfur Dioxide (SO2):** 2-3 ppb
- **Nitrogen Dioxide (NO2):** 13-16 ppb
- **Ozone (O3):** 5-19 ppb aqi+2

24-Hour AQI Fluctuation

The Air Quality Index in Chandigarh showed significant diurnal variation on November 15-16, 2025:

- **Worst AQI:** 207 (Severe) at 7:46 AM on November 15
- **Best AQI:** 155 (Unhealthy) at 2:04 PM on November 15
- **Current Range:** 178-194 (Unhealthy)aqi+1

Station-Wise Distribution

Different monitoring stations across Chandigarh recorded varying pollution levels on November 15, 2025:

- **Sector 22 (CAAQMS):** 279-335 (Poor to Very Poor)
- **Sector 53 (CAAQMS):** 304-341 (Very Poor)
- **Punjab Engineering College, Sector 12:** 312 (Very Poor)
- **IMTech, Sector 39:** 318 (Very Poor)
- **Sector 25 (CAAQMS):** 184-317 (Moderate to Very Poor)
- **Sector 17:** 183 (Moderate)[timesofindia.indiatimes+1]

Health Impact Assessment

Cigarette Equivalence

Breathing Chandigarh's air is equivalent to smoking **4.5 cigarettes per day**, translating to:

- **Weekly exposure:** 31.5 cigarettes
- **Monthly exposure:** 135 cigarettes [aqi]

This quantification, based on Berkeley Earth's methodology, underscores the severe health burden on Chandigarh's 13 lakh residents.

WHO Guidelines Comparison

Current pollution levels dramatically exceed international safety standards:

Pollutant	WHO Guideline	NAAQS India	Chandigarh Current	Exceedance Factor
PM2.5 (Annual)	5 µg/m³	40 µg/m³	70-95 µg/m³	14-19x WHO
PM2.5 (24-hour)	15 µg/m³	60 µg/m³	95-116 µg/m³	6.3-7.7x WHO
PM10 (Annual)	15 µg/m³	60 µg/m³	112-121 µg/m³	7.5-8x WHO
PM10 (24-hour)	45 µg/m³	100 µg/m³	122-144 µg/m³	2.7-3.2x WHO

Health Advisory Status

With AQI in the 178-194 range, Chandigarh residents face:

- **Breathing discomfort** for most people on prolonged exposure
- **Respiratory illness risk** especially for vulnerable groups
- **Recommended actions:** Avoid outdoor morning and late evening walks, limit outdoor activities, use N95 masks outdoors, keep windows closed during peak pollution hours (early morning and late evening)hindustantimes+3

The health department has advised avoiding outdoor activities when AQI exceeds 200, particularly for children, senior citizens, pregnant women, and those with chronic respiratory or heart diseases.timesofindia.indiatimes+1

Historical Trends and Analysis

Long-Term PM10 Concentration (2017-2025)

Chandigarh's air quality has shown a **deteriorating trend** rather than improvement:

Period	PM10 (µg/m³)	Change from Base Year	Status
2017-18 (Base)	114	-	Above NAAQS (60)
2023-24	116	+2 (+1.8%)	Above NAAQS
2024-25	121	+7 (+6.1%)	Above NAAQS

This represents **zero effective improvement** despite substantial government investment, placing Chandigarh among 33 Indian cities showing worsening air quality trends.tribuneindia+1

Comparative Performance with Other Cities

While other major Indian cities recorded significant improvements in PM10 levels from 2017-18 to 2024-25:

- **Mumbai:** 44% reduction
- **Kolkata:** 37% reduction
- **Delhi:** 15% reduction
- **Chandigarh:** 0% improvement (actually worsened by 6.1%)tribuneindia

Among 130 cities under NCAP, 103 cities showed reduction in PM10 concentration, with 64 cities achieving more than 20% reduction, and 25 cities achieving more than 40% reduction. Chandigarh remained a stark outlier.hindustantimes+1

Monthly AQI Patterns (2025)

Chandigarh's air quality shows strong seasonal variation:

Month	Average AQI	Category	Key Factors
January	174	Unhealthy	Winter peak, temperature inversion
February	145	Moderate-Unhealthy	Gradual improvement
March	113	Moderate	Spring conditions
April	112	Moderate	Pre-monsoon
May	100	Moderate	Summer heat
June	85	Moderate	Monsoon onset
July	70	Moderate	Active monsoon
August	60	Satisfactory	**Best month** - lowest pollution
September	96	Moderate	Post-monsoon transition
October	170-199	Unhealthy	Diwali fireworks, stubble burning begins
November	192-214	Unhealthy-Poor	Peak stubble burning season

The data reveals **winter months (November-February)** consistently record the worst air quality, while **August** represents the cleanest month.aqi+2

Diurnal Patterns

PM2.5 concentrations follow a predictable daily pattern with two peaks:

Time Period	PM2.5 Range (µg/m³)	Pattern Explanation
12-1 AM	85-95	Moderate overnight levels
6-7 AM	115-140	Rising due to temperature inversion
8-9 AM	180-195	**Morning peak** - rush hour traffic + inversion
12-1 PM	110-130	Midday dip due to atmospheric mixing
3-4 PM	90-110	**Lowest point** - maximum atmospheric dispersion

6-7 PM	130-150	Evening rise - traffic + cooling
8-9 PM	170-190	Night peak - calm winds, cooling
11 PM-12 AM	180-193	Late night high - stable atmosphere aqi

This pattern is primarily driven by temperature inversion during morning and evening hours, which traps pollutants close to ground level.hindustantimes+2

Root Causes: Comprehensive Analysis

1. Vehicular Emissions (35-40% contribution)

Chandigarh has the **highest vehicle density in India**, creating an unprecedented pollution challenge:

Quantitative Vehicle Statistics:

- **Total vehicles:** 14.27 lakh (1.427 million)
- **Population:** 13 lakh (1.3 million)
- **Vehicles per 1,000 people:** 1,098 (highest in India)
- **Vehicles per capita ratio:** 1.098 (more vehicles than people)
- **New registrations (2020-May 2025):** 2.03 lakh
- **Daily average new registrations:** 104 vehicles per day aqi+2

Vehicle Composition:

- **Petrol vehicles:** Dominant (30,000+ annually from 2022-2024)
- **Diesel vehicles:** Declining sharply
- **Electric vehicles (2020-2025):** 8,000+ (only 5.2% of total)
- **Two-wheelers:** 5,442 EVs registered
- **Four-wheelers:** 3,027 EVs registered indianexpress+3

Greenhouse Gas Emissions:
A 2017 study found vehicular greenhouse gas emissions increased from 1,065 Gg in 2005 to 2,486 Gg in 2011, with projections of 4,015 Gg by 2020 - representing a **200% increase**. Four-wheelers and buses are the major contributors despite fewer buses on roads.timesofindia.indiatimes

Economic Impact:
From 2020-2025, vehicle registrations generated:

- **Total revenue:** ₹1,262.62 crore
- **Revenue from fancy numbers:** ₹56.97 crore
- **Fancy numbers auctioned:** 38,155

- **Driving licenses issued:** 63,096 tribuneindia

2. Road Dust (37% contribution)

Road dust has emerged as one of the **most significant contributors** to Chandigarh's PM2.5 and PM10 levels:

Contributing Factors:

- **Unpaved central verges:** Loose soil exposed along roads and central dividers
- **Construction and Demolition (C&D) waste:** 1,500 tonnes generated daily
- **Inadequate road maintenance:** Poor sweeping practices causing dust re-suspension
- **Open land parcels:** Over 300 sq. metres of uncovered soil in various locations
- **Vehicular movement:** Traffic-induced dust re-suspension downtoearth+5

Mitigation Efforts:
The CPCC has implemented new dust control measures:

- **Environmental compensation:** ₹5,000 to ₹1,00,000 per violation
- **Winter penalty (Oct 15 - Feb 15):** Doubled to ₹10,000 to ₹2,00,000
- **Pilot project:** Road washing with treated water, mechanized sweeping on dust-prone corridors
- **Procurement:** Anti-smog guns and mechanical sweepers (to be completed by November 2025)indianexpress+4

3. Stubble Burning in Punjab and Haryana (Seasonal: 3-35% contribution)

Agricultural residue burning in neighboring states significantly impacts Chandigarh's air quality, particularly from mid-October to mid-November:

2025 Season Statistics:

State	Cases (Sep 15 - Nov 10)	November Cases (Nov 1-13)	Peak Contribution
Punjab	4,195	2,650 (56% of season total)	Up to 35%
Haryana	360	Not specified	Significant
Total NCR	4,555	-	Major factor

Critical Observations:

- **56% of Punjab's seasonal stubble burning** occurred in just the first 13 days of November pib+1
- Peak single-day spike: **422 cases** recorded on one Saturday in Punjab hindustantimes

- The contribution to Delhi's PM2.5 reached **3.71% on October 26**, with potential to reach **35% at seasonal peak** newindianexpress
- Chandigarh's AQI begins to spike in early October and remains elevated until mid-November carboncopy+2

Punjab's Five-Year Trend:
Despite government measures, Punjab's stubble burning remains persistent:

- 2019: 82.70% of all national cases
- 2020: 77.03%
- 2021: 77.46%
- 2022: 71.70%
- 2023-24: 64.04%
- 2025: 4,734 cases (as of Nov 13)hindustantimes+1

Public Perception Gap:
A University of Tokyo study found that fewer than 30% of Punjab households believe stubble burning significantly contributes to Delhi's air pollution, and 58.2% reported that stubble burning smoke did not affect their family's health - highlighting a critical awareness gap.timesofindia.indiatimes+1

4. Construction Activities (Significant contribution)

Rapid urbanization and extensive construction drive dust pollution:

Quantitative Data:

- **Daily C&D waste:** 1,500 tonnes
- **Active projects:** Numerous across the city
- **Dust mitigation compliance:** Partial/Low
- **New penalty structure:** ₹5,000 - ₹1,00,000 per violation (doubled in winter)indiatoday+2

Enforcement Issues:
Despite regulations requiring green mesh, construction shade nets, water sprinkling, and anti-smog guns at construction sites, implementation remains inadequate.timesofindia.indiatimes+2

5. Waste Burning (Minor but persistent)

Open burning of garbage, dry leaves, and solid waste contributes to localized pollution spikes:

Enforcement Data (2025):

- **Complaints:** 100+ related to solid waste burning in Swachh Vayu Survekshan
- **Challans issued (April 2025):** 5 challans
- **Penalty per challan:** ₹6,701
- **Total penalties collected:** ₹33,505
- **FIR threshold:** ₹25,000 for large-scale burning
- **60-day ban:** Imposed from March 27 to May 25, 2025 indianewscalling+4

Despite strict penalties, waste burning continues in various parts of the city, with municipal corporation writing to police for FIRs in serious cases.tribuneindia

Dadu Majra Landfill Issues:
The city's main dumping site has caught fire **486 times in the past 15 years**, with frequent incidents during summer due to methane gas accumulation. Over **50,000 people** live near the site, facing health hazards.india.mongabay

6. Industrial Emissions (Minimal contribution)

Unlike many polluted Indian cities, Chandigarh has **minimal industrial activity**, making it unique:

- **No major industries** located within city limits
- **Small-scale units:** Some in peripheral areas contribute marginally
- **Industrial areas in neighboring regions:** Emissions from industries in adjoining Punjab and Haryana areas affect Chandigarh during unfavorable wind conditions timesofindia.indiatimes+2

7. Meteorological Factors

Temperature Inversion (November-February):
During winter, a warm air layer settles above cool air near the ground, creating a "lid" that traps pollutants. This phenomenon is particularly severe in the Indo-Gangetic plains, where the Himalayas to the north and Vindhya-Satpura ranges to the south create a bowl-like topography.indiatoday+2

Current Meteorological Conditions (November 15-16, 2025):

Parameter	Value
Minimum Temperature	11.9-14°C (1.4°C below normal)
Maximum Temperature	27-29°C
Humidity	42-44%

Wind Speed	6-8 km/h (very low)
Wind Direction	North-Northeast (NNE)
Visibility	10 km
Temperature Inversion	Active (trapping pollutants)

The low wind speed (**6-8 km/h**) severely limits pollutant dispersion, while the active temperature inversion traps pollutants close to ground level.weatherspark+5

Government Response and Expenditure

National Clean Air Programme (NCAP) Funding

Despite substantial investment, Chandigarh has failed to show measurable improvement:

Financial Allocation:

- **Total released (2019-20 to 2025-26):** ₹38.09 crore
- **Amount utilized:** ₹31.17 crore (81.8%)
- **PM10 improvement:** 0% (actually worsened by 6.1%)
- **Per year average spending:** ₹4.45 crore tribuneindia

Fund Utilization Breakdown:

- **2023 allocation:** ₹6.87 crore to CPCC
- **2024-2025 allocation:** ₹7.92 crore to Municipal Corporation
- **Bioremediation project (Dadu Majra):** ₹11 crore allocated from NCAP hindustantimes+2

Expenditure Areas:

- Anti-smog guns procurement
- Mechanical sweeping machines
- Enhanced greenery and paving
- CCTV cameras at dumping sites
- Source apportionment studies
- E-waste management systems hindustantimes

Graded Response Action Plan (GRAP)

Chandigarh has adopted GRAP framework to manage air quality through tiered interventions:

Stage	AQI Range	Status in Chandigarh (Nov 2025)	Key Actions
Stage I	201-300 (Poor)	Implemented (Nov 6-14)	Road sweeping with water, sprinklers, anti-smog guns
Stage II	301-400 (Very Poor)	Ready to implement	Traffic regulation, doubled parking fees, construction curbs
Stage III	401-450 (Severe)	Not yet invoked	Ban on polluting activities, closure of industries
Stage IV	450+ (Severe+)	Not yet invoked	Emergency measures, school closures

GRAP Implementation (November 2025):
Following AQI deterioration to Very Poor category for six consecutive days (Nov 6-11), the administration held task force meetings with:

- **Directions to Municipal Corporation:** Night-time road sprinkling, no manual sweeping without water, 12-hour daily operation of anti-smog guns, dust control at construction sites
- **Traffic Police:** Regulate traffic to avoid congestion, consider doubling parking fees
- **Monitoring teams:** Two dedicated teams formed with CPCC, Traffic Police, and State Transport Authority officials tribuneindia+3

Green Cover and Afforestation

Positive developments in urban forestry:

Initiative	Status/Value	Impact
Green Cover Area	51.2% of city (2025)	Improved from 46% (2023)
Green Cover Increase	830 hectares added	Significant expansion
Miyawaki Forests	Sites identified	Dense green buffer zones
Urban Forestry Drives	Regular plantation	Long-term carbon sink

Despite improved green cover, it hasn't translated to measurable air quality improvement due to overwhelming vehicular emissions.timesofindia.indiatimes

Electric Vehicle Adoption

Chandigarh's EV penetration remains inadequate despite policy push:

EV Policy (Launched September 2022):

- Goal: Make Chandigarh a "Model EV City" by 2027
- Target: Highest zero-emission vehicle penetration

EV Statistics:

Year	Total EVs Registered	Four-Wheelers	Two-Wheelers
2021	251	-	-
2022	996	253	743
2023	3,126	1,013	2,113
2024	3,078	1,326	1,752
2025 (Jan-Apr)	783	304	479
Total (2020-2025)	**8,000+**	**2,808**	**5,107**

EV Penetration Rate:

- **October 2024:** 14.8% (highest among all states/UTs in India, ranking #2 after Tripura)
- **Overall (2020-2025):** Only 5.2% of 1.60 lakh vehicles sold auto.economictimes.indiatimes+3

Challenges:

- Expensive battery maintenance costs
- Only **20 out of 100 planned** charging stations operational
- Lack of buyer confidence in EV technology
- Higher upfront costs compared to conventional vehicles hindustantimes+1

Comparative Analysis with Other Indian Cities

November 2025 AQI Comparison

City	AQI (Nov 15-16)	Category	Comparison to Chandigarh
Delhi	386-456	Very Poor-Severe	2.2-2.6x worse
Ghaziabad	429	Severe	2.4x worse
Noida	347	Very Poor	1.9x worse
Chandigarh	**178-194**	**Unhealthy**	**Baseline**
Panchkula	294-308	Poor-Very Poor	1.6x worse
Mumbai	67	Satisfactory	2.7x better
Bangalore	47	Good	4x better

While Chandigarh's AQI is significantly better than Delhi-NCR, it remains in the unhealthy category and worse than southern cities.indiatoday+3

Regional Context

On November 11, 2024, Chandigarh featured among the **three most polluted cities in India** with AQI over 331, highlighting the severity of north India's pollution crisis compared to cleaner air in southern and coastal regions.timesofindia.indiatimes

Sectoral and Seasonal Analysis

Diwali Impact (October 2025)

The festival period demonstrated the impact of firecracker emissions:

Date	AQI Level	PM2.5 (µg/m³)	Notes
Oct 13 (Regular)	80-130 (Satisfactory-Moderate)	50-70	Normal day
Oct 21 (Diwali Night Peak)	304-318 (Very Poor)	222	Multiple stations >300
Oct 22 (Day After)	234-296 (Poor)	120-160	Partial recovery

Oct 23 (48 hrs after)	Higher	488 (spike)	PM2.5 tripled

Year-on-Year Improvement:
Compared to 2024, four out of six monitoring stations (Sectors 17, 22, 25, and 53) recorded improved air quality during Diwali 2025, reflecting growing public awareness and adherence to green guidelines.hindustantimes+3

COVID-19 Lockdown Impact (2020)

The 2020 lockdown provided a natural experiment on pollution sources:

Pre-Lockdown vs First Phase:

- **PM2.5:** Decreased from 20.1 µg/m³ to 14.3 µg/m³ (28.8% reduction)
- **PM10:** Decreased from 56.9 µg/m³ to 35.9 µg/m³ (36.8% reduction)

This dramatic improvement, attributed to halted vehicular traffic, industries, and construction, definitively proved that **vehicular emissions are the primary pollution source** in Chandigarh.pmc.ncbi.nlm.nih

Key Challenges and Systemic Issues

1. Implementation Gap

Despite allocating ₹31.17 crore under NCAP, zero improvement in PM10 levels indicates:

- **Poor execution** of pollution control measures
- **Lack of accountability** in fund utilization
- **Inadequate monitoring** and enforcement
- **Missing targeted interventions** addressing root causes tribuneindia

2. Vehicular Explosion

The daily addition of **104 new vehicles** creates an unsustainable trajectory. With more vehicles than people, Chandigarh faces a unique challenge requiring:

- **Aggressive promotion** of public transport
- **Restrictions** on private vehicle usage
- **Congestion pricing** in high-traffic zones
- **Faster EV adoption** (currently only 5.2%)aqi+2

3. Regional Coordination

Stubble burning in Punjab and Haryana requires **interstate cooperation**. Despite 92% reduction in farm fires over five years, absolute numbers remain high during peak season. The **lack of viable alternatives** to burning and **perception gaps** among farmers hinder progress.indianexpress+1

4. Seasonal Interventions

Current measures remain **reactive rather than proactive**. The predictable winter pollution spike (November-February) requires:

- **Pre-emptive actions** starting October
- **Year-round sustained efforts** rather than seasonal responses
- **Permanent infrastructure** for dust control indianexpress

5. Awareness and Behavior Change

Public participation remains inadequate:

- **100+ complaints** about waste burning indicate persistent violations
- **Low EV adoption** despite incentives
- **Continued firecracker use** during festivals
- **Resistance to behavioral changes** (continued use of personal vehicles)babushahi+2

Expert Recommendations and Actionable Solutions

Immediate Actions (0-6 months)

1. **Vehicular Emission Control:**
    - Deploy more emission checking teams at entry points
    - Implement odd-even vehicle rationing during high pollution days
    - Triple parking fees in congested areas
    - Expand pedestrian and cycling infrastructure
2. **Dust Suppression:**
    - Complete procurement of sprinklers and mechanical sweepers by November 2025
    - Implement 24/7 water sprinkling on major roads
    - Cover all open land exceeding 300 sq. metres with vegetation or pavers
    - Enforce strict penalties (₹10,000-₹2,00,000 during winter)
3. **Construction Site Compliance:**
    - Mandatory green mesh, water sprinkling, and anti-smog guns
    - Real-time monitoring via CCTV
    - Zero-tolerance for violations with immediate work stoppage

4. **Waste Burning Enforcement:**
    - Increase monitoring teams
    - Immediate FIRs for repeat offenders
    - Community-level awareness campaigns

Medium-Term Strategies (6-24 months)

1. **Public Transport Revolution:**
    - Expand electric bus fleet
    - Introduce metro rail connectivity
    - Create dedicated bus rapid transit (BRT) corridors
    - Integrate multi-modal transport systems
2. **EV Infrastructure:**
    - Complete all 100 planned charging stations by mid-2026
    - Provide higher subsidies for EV purchases
    - Mandate EV taxis and commercial vehicles
3. **Regional Stubble Management:**
    - Support paddy-straw pellet plants in Punjab/Haryana
    - Provide financial incentives for alternative uses
    - Mechanized stubble management support to farmers
    - Advance paddy procurement to extend planting window
4. **Green Infrastructure:**
    - Expand Miyawaki forests around city periphery
    - Create green buffer at Dadu Majra dumpsite
    - Plant 1 lakh trees annually
    - Increase green cover to 60% by 2027

Long-Term Vision (2-5 years)

1. **Sustainable Urban Planning:**
    - Implement congestion pricing
    - Create car-free zones in central areas
    - Develop satellite towns to reduce pressure
    - Mixed-use development to reduce commute distances
2. **Technology Integration:**
    - Real-time AQI monitoring at 50+ locations
    - AI-based traffic management to reduce congestion
    - Smart dust sensors at construction sites
    - Mobile app for citizen reporting
3. **Policy Reforms:**
    - Mandatory pollution certificates for vehicle registration
    - Progressive taxation on older, polluting vehicles
    - Ban on diesel vehicles in city center
    - Mandatory rooftop solar for new buildings

4. **Research and Innovation:**
    - Establish air quality research center
    - Annual source apportionment studies
    - Pilot innovative solutions (vertical forests, smog towers)
    - Collaborate with international clean air cities

Health Advisory for Citizens

Given current AQI levels (178-194), residents should:

General Population:

1. Avoid outdoor morning (before 9 AM) and late evening walks (after 7 PM)
2. Keep windows/doors closed during peak pollution hours
3. Use N95 or N99 masks when outdoors
4. Install HEPA air purifiers indoors
5. Check daily AQI before planning outdoor activities
6. Practice wet mopping instead of dry sweeping
7. Stay hydrated and consume antioxidant-rich foods

Vulnerable Groups (children, elderly, pregnant women, those with respiratory/cardiac conditions):

1. Strictly avoid outdoor exposure when AQI >200
2. Keep emergency medications handy
3. Consult doctor immediately for breathlessness, chest discomfort, persistent cough
4. Monitor health parameters regularly
5. Consider temporary relocation during severe pollution episodes timesofindia.indiatimes+2

Conclusion

Chandigarh faces a **critical air quality crisis** that has worsened despite significant government spending. With AQI at 178-194 (Unhealthy), PM2.5 levels **6.3-7.7 times WHO guidelines**, and PM10 levels **2.7-3.2 times WHO guidelines**, the health burden on 13 lakh residents is severe - equivalent to smoking **4.5 cigarettes daily**.

The **root causes are clear and quantified**: vehicular emissions (35-40%), road dust (37%), seasonal stubble burning (3-35%), construction activities, and unfavorable meteorological conditions. The city's unique challenge - **highest vehicle density in India** with 1,098 vehicles per 1,000 people - makes it fundamentally different from other polluted cities.

Despite spending **₹31.17 crore under NCAP**, PM10 levels showed **zero improvement** from 114 µg/m³ (2017-18) to 121 µg/m³ (2024-25), while other cities achieved 15-44% reductions. This implementation failure demands immediate accountability and course correction.

The situation is not insurmountable. With **aggressive vehicular emission controls**, **comprehensive dust suppression**, **regional coordination on stubble burning**, **accelerated EV adoption**, and **year-round sustained efforts**, Chandigarh can reclaim its planned-city heritage and provide clean air to its residents. The winter months (November-February) present the most critical challenge, requiring emergency-level interventions and unprecedented political will.

The data is unambiguous: **business-as-usual is not an option**. Chandigarh must treat air pollution as a public health emergency and implement evidence-based, quantified interventions with strict monitoring and accountability. The alternative - continued deterioration and mounting health costs - is simply unacceptable for India's first planned city.

Reference

1. https://www.ndtv.com/aqi/chandigarh
2. https://www.tribuneindia.com/news/chandigarh/31cr-spent-no-improvement-in-chandigarh-air-quality-in-seven-years/
3. https://www.aqi.in/in/dashboard/india/chandigarh
4. https://www.aqi.in/in/dashboard/india/chandigarh/chandigarh
5. https://timesofindia.indiatimes.com/weather/chandigarh-aqi-level-air-quality-index-today/3259
6. https://cpcb.nic.in/aqi_report.php
7. https://www.hindustantimes.com/cities/chandigarh-news/chandigarhgets-cracking-as-aqi-stays-in-very-poor-range-101731356536905.html
8. https://timesofindia.indiatimes.com/city/chandigarh/punjab-issues-health-advisory-as-air-quality-worsens/articleshow/125114554.cms
9. https://timesofindia.indiatimes.com/city/chandigarh/avoid-outdoor-walks-if-aqi-exceeds-200-mohali-health-dept/articleshow/125144680.cms
10. https://www.babushahi.com/view-news.php?id=194631
11. https://www.hindustantimes.com/cities/chandigarh-news/pollution-worsening-in-chandigarh-despite-clean-air-efforts-101733084478761.html
12. https://www.aqi.in/dashboard/india/chandigarh/chandigarh/modern-housing-complex/historical-analysis
13. https://www.aqi.in/in/dashboard/india/chandigarh/chandigarh/historical-analysis
14. https://www.hindustantimes.com/cities/chandigarh-news/chandigarhs-minimum-temperature-drops-to-119c-101762635574859.html
15. https://www.indiatoday.in/science/story/winters-deadly-blanket-how-thermal-inversion-traps-india-pakistan-in-toxic-air-2633696-2024-11-15
16. https://www.hindustantimes.com/cities/chandigarh-news/aqi-turns-poor-in-chandigarh-again-101762202895812.html
17. https://www.aqi.in/blog/why-pollution-in-chandigarh-is-still-an-issue/
18. https://www.downtoearth.org.in/air/how-india-moves-in-chandigarh-more-vehicles-than-people-undermine-a-visionary-design

19. https://www.tribuneindia.com/news/chandigarh/more-vehicles-than-people-in-chandigarh-highest-density-in-country/
20. https://indianexpress.com/article/cities/chandigarh/2021-april-25-8000-evs-registered-chandigarh-data-9985004/
21. https://auto.economictimes.indiatimes.com/news/industry/chandigarh-experiences-surge-in-electric-vehicle-adoption-amid-declining-diesel-sales/121404141
22. https://www.hindustantimes.com/cities/chandigarh-news/only-5-vehicles-bought-in-chandigarh-in-past-3-years-are-electric-101754256235277.html
23. https://www.electronicsforyou.biz/industry-buzz/chandigarh-sells-only-5-64-evs-in-last-five-years-despite-strong-ev-policy/
24. https://timesofindia.indiatimes.com/city/chandigarh/greenhouse-gas-emissions-in-city-to-rise-by-200-in-2020-study/articleshow/61620555.cms
25. https://www.aqi.in/in/dashboard/india/chandigarh/chandigarh/pm10
26. https://chandigarhenvis.gov.in/sites/default/files/pdffiles/SoER_Chandigrah%202021-3.pdf
27. https://timesofindia.indiatimes.com/city/chandigarh/road-dust-and-vehicles-major-polluter-not-industry-pb-orders-new-study-for-steel-hub/articleshow/122927828.cms
28. https://indianexpress.com/article/cities/chandigarh/pilot-dust-control-project-in-chandigarh-to-see-road-washing-with-treated-water-10234592/
29. https://www.hindustantimes.com/cities/chandigarh-news/pollution-panel-sounds-alarm-over-blind-eye-to-rising-dust-in-chandigarh-101749585351649.html
30. https://www.hindustantimes.com/cities/chandigarh-news/chandigarh-pollution-committee-to-fine-govt-commercial-sites-for-dust-pollution-101763060818936.html
31. https://www.tribuneindia.com/news/chandigarh/amid-rising-pollution-admn-puts-curbs-on-activities-causing-dust/
32. https://indianexpress.com/article/cities/chandigarh/cpcc-to-impose-penalty-for-causing-dust-pollution-in-city-10364187/
33. https://timesofindia.indiatimes.com/city/chandigarh/foggy-days-loom-chandigarh-steps-on-the-pedal-to-curb-vehicular-emissions/articleshow/125283100.cms
34. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2187847
35. https://www.hindustantimes.com/cities/chandigarh-news/punjab-logs-56-of-season-s-4-734-stubble-fires-in-nov-101763058858109.html
36. https://www.newindianexpress.com/nation/2025/Oct/27/punjab-122-stubble-burning-cases-recorded-on-october-26-highest-single-day-spike-this-season
37. https://carboncopy.info/stubble-burning-and-air-pollution-punjab-experts-speak/
38. https://timesofindia.indiatimes.com/city/chandigarh/punjab-reduces-share-of-farm-fire-cases-from-over-82-to-nearly-30-in-5-yrs/articleshow/125353726.cms
39. https://timesofindia.indiatimes.com/city/chandigarh/most-punjab-households-dont-believe-farm-fires-to-be-key-culprit-behind-delhis-air-pollution-study/articleshow/125259025.cms
40. https://www.nature.com/articles/s41598-025-21235-8
41. https://www.indiatoday.in/information/story/smoke-free-chandigarh-indias-second-most-polluted-city-2635229-2024-11-18

42. https://www.tribuneindia.com/news/chandigarh/chandigarh-takes-steps-to-fight-pollution/
43. https://www.indianewscalling.com/news/170272-mc-chandigarh-intensifies-action-against-waste-burning-and-indiscipline-among-sanitation-staff.aspx
44. https://www.babushahi.com/full-news.php?id=202587
45. https://www.tribuneindia.com/news/ludhiana/mc-writes-to-cp-for-fir-over-garbage-burning/
46. https://timesofindia.indiatimes.com/city/chandigarh/garbage-burning-in-open-continues-unabated-in-chandigarh-punjab-and-haryana/articleshow/67425736.cms
47. https://indianexpress.com/article/cities/chandigarh/dm-bans-waste-burning-in-chandigarh-for-60-days-9906128/
48. https://india.mongabay.com/2022/04/landfill-fire-foregrounds-improper-waste-management-in-chandigarh/
49. https://weatherspark.com/m/108778/11/Average-Weather-in-November-in-Chandigarh-India
50. https://www.aqi.in/weather/in/india/chandigarh/chandigarh
51. https://www.weather2travel.com/india/chandigarh/november/
52. https://www.hindustantimes.com/cities/chandigarh-news/union-ministry-allocates-6-87-crore-to-chandigarh-pollution-control-committee-to-address-air-pollution-101690611654493.html
53. https://www.tribuneindia.com/news/chandigarh/rs-11-crore-push-for-waste-treatment-project-577217/
54. https://timesofindia.indiatimes.com/city/chandigarh/breathe-easy-air-in-chandigarh-is-swachh/articleshow/123793967.cms
55. https://timesofindia.indiatimes.com/city/chandigarh/chandigarh-achieves-leading-148-electric-vehicle-adoption-in-just-7-months/articleshow/115346355.cms
56. https://www.indiatoday.in/weather/chandigarh-air-quality-index-aqi-today
57. https://timesofindia.indiatimes.com/city/chandigarh/chandigarh-smog-crisis-four-days-of-toxic-air-quality/articleshow/115194586.cms
58. https://www.hindustantimes.com/cities/chandigarh-news/chandigarh-tuesday-night-s-fireworks-raise-pollution-levels-aqi-now-in-poor-category-101761160148004.html
59. https://timesofindia.indiatimes.com/city/chandigarh/chandigarhs-air-gets-a-second-wind/articleshow/124748428.cms
60. https://www.babushahi.com/view-news.php?id=212422&headline=Air-quality-and-Noise-levels-in-Chandigarh-shows-year-on-year-improvement-during-Diwali-celebrations
61. https://www.hindustantimes.com/cities/chandigarh-news/chandigarh-aqi-turns-very-poor-on-diwali-night-but-improves-faster-than-previous-years-101761076609006.html
62. https://pmc.ncbi.nlm.nih.gov/articles/PMC7434328/
63. https://indianexpress.com/article/cities/chandigarh/punjab-farm-fires-numbers-dip-10364821/
64. https://www.accuweather.com/en/in/chandigarh/202350/air-quality-index/202350
65. https://aqicn.org/city/india/chandigarh/sector-25/
66. https://aqicn.org/city/india/chandigarh/sector-53/

67. https://aqicn.org/city/india/chandigarh/sector-22/
68. https://www.thefinancialworld.com/delhis-toxic-trap-why-punjab-and-haryana-breathe-easier-amid-stubble-burning-backlash/
69. https://www.newindianexpress.com/nation/2024/Nov/14/after-delhi-chandigarh-becomes-most-polluted-city-as-aqi-reaches-436-in-severe-category
70. https://timesofindia.indiatimes.com/city/chandigarh/ut-approves-new-rules-for-environmental-compensation/articleshow/125309814.cms
71. https://ncdc.mohfw.gov.in/wp-content/uploads/2025/01/36_SAPCCHH_Chandigarh_21-10-24.pdf
72. https://www.instagram.com/p/DRBhHRqgaHs/
73. https://indianexpress.com/article/cities/chandigarh/chandigarh-air-turns-very-poor-amid-noisy-diwali-celebrations-10319894/
74. https://www.ceicdata.com/en/india/number-of-registered-motor-vehicles-monthly-by-category-wise/registered-motor-vehicles-chandigarh-two-wheeler-transport
75. https://chandigarhenvis.gov.in/sites/default/files/documents/3-3.pdf
76. https://timesofindia.indiatimes.com/city/chandigarh/chandigarh-ranks-second-in-india-for-electric-vehicle-registrations-in-2024-2025/articleshow/120674689.cms
77. https://tribe.t8np75rys.junction.express/uploads/wp-content/uploads/2024/04/winter-air-in-cities.pdf
78. https://www.sciencedirect.com/science/article/abs/pii/S0048969720322348
79. https://www.facebook.com/chdlife/posts/chandigarh-has-officially-crossed-a-unique-milestone-the-city-now-has-more-vehic/1325955592872922/
80. https://chandigarhenvis.gov.in/sites/default/files/Newsletters/NL04062024.pdf
81. https://chdtransport.gov.in/faqs/vehicle-registration
82. https://timesofindia.indiatimes.com/city/chandigarh/a-chipko-protest-to-save-trees-and-how-chandigarh-went-from-corbusiers-model-city-to-urban-nightmare/articleshow/119226191.cms
83. https://urbanemissions.info/india-apna/chandigarh-india/
84. https://www.instagram.com/p/DLkJpzutUB-/
85. https://www.aqi.in/in/dashboard/india/chandigarh/chandigarh/pm
86. https://www.aqi.in/in/dashboard/india/chandigarh/chandigarh/sector-8c/historical-analysis
87. https://www.indiastat.com/chandigarh-state/data/environment-and-pollution/ambient-air-quality-status
88. https://www.kaggle.com/datasets/ankushpanday1/air-quality-data-in-india-2015-2024
89. https://www.aqi.in/in/dashboard/india/chandigarh/chandigarh/sector-25/historical-analysis
90. https://cpcb.nic.in/aqi_bulletin.php
91. https://energyandcleanair.org/india-monthly-ambient-air-quality-snapshot-may-2024/
92. https://www.kaggle.com/datasets/abhisheksjha/time-series-air-quality-data-of-india-2010-2023
93. https://www.weather25.com/asia/india/haryana/chandigarh?page=month&month=November
94. https://mausam.imd.gov.in/chandigarh/mcdata/daily_report_chan.pdf

95. https://moef.gov.in/uploads/2017/08/Chandigarh-SAPCC.pdf
96. https://en.climate-data.org/asia/india/chandigarh/chandigarh-4075/t/november-11/
97. https://cpcb.nic.in/Actionplan/Chandigarh.pdf
98. https://timesofindia.indiatimes.com/city/chandigarh/burning-garbage-piles-choke-air-in-panchkula/articleshow/125354948.cms
99. https://www.pib.gov.in/PressReleseDetail.aspx?PRID=2188524
100. https://indianexpress.com/article/cities/chandigarh/air-quality-poor-category-chandigarh-gasps-clean-air-9630750/
101. https://www.edudel.nic.in/upload/upload_2025_26/1004_dt_11112025.pdf
102. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2188873
103. https://ncdc.mohfw.gov.in/wp-content/uploads/2024/07/6.Chandigarh.pdf
104. https://chandigarhenvis.gov.in/sites/default/files/documents/nl101207.pdf
105. https://www.aqi.in/in/dashboard/india/chandigarh/chandigarh/sector-38
106. https://cpcb.nic.in/winter-action-2024-25/
107. https://indianexpress.com/article/india/environment-ministry-pollution-control-fund-2025-parliamentary-panel-9905432/
108. https://timesofindia.indiatimes.com/city/chandigarh/chandigarh-pollution-control-committee-issues-notices-to-government-bodies-to-curb-air-pollution/articleshow/121658682.cms
109. https://www.pib.gov.in/PressReleasePage.aspx?PRID=1989207
110. https://www.tribuneindia.com/news/chandigarh/high-end-electric-vehicles-catch-fancy-of-city-residents/
111. https://www.facebook.com/ChandigarhTribune/posts/despite-spending-rs-3117-crore-under-the-national-clean-air-programme-ncap-chand/1191089913030360/
112. https://www.mygov.in/group-issue/suggest-pollution-control-measures-chandigarh/?page=0%2C52
113. https://www.dailypioneer.com/2025/india/sc-given-update-on-stubble-burning-in-punjab-haryana.html
114. https://www.who.int/publications/i/item/9789240034228
115. https://indianexpress.com/article/trending/top-10-listing/top-10-indian-cities-worst-best-aqi-in-2025-new-delhis-very-poor-10345002/
116. https://www.c40knowledgehub.org/s/article/WHO-Air-Quality-Guidelines?language=en_US
117. https://cpcb.nic.in/upload/NAAQS_2019.pdf