



ENVIS CENTRE, CHANDIGARH

NewsLetter

P a r y a v a r a n - P a t r a

ISSN No. 0974-7087

Chandigarh State of Environment

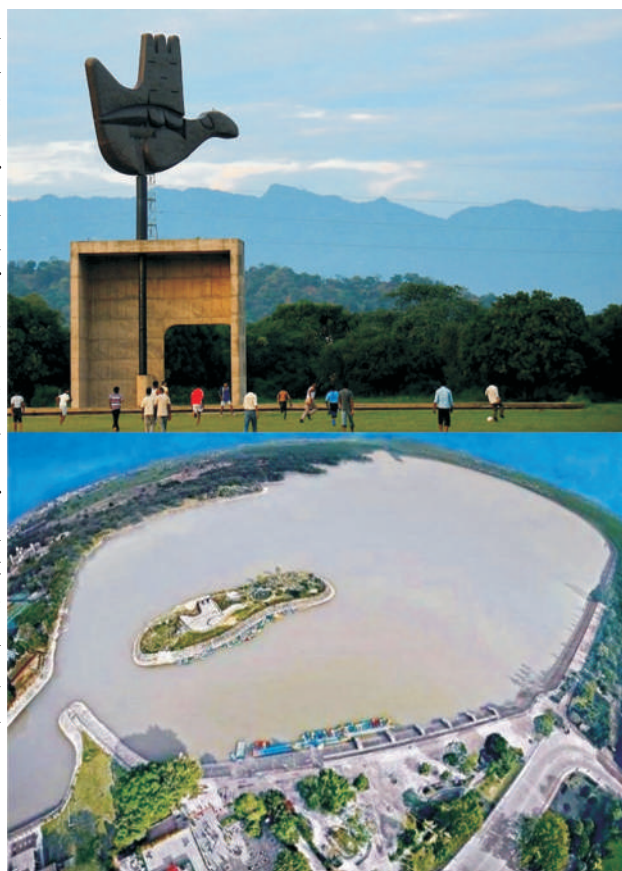


EDITORIAL

STATUS OF AIR QUALITY, CHANDIGARH

Air is one of the five fundamental elements vital for the very existence of any life form on planet earth. However the world has turned into a luxurious furnace with engines pumping obnoxious emissions primarily because half the world does not have access to green technologies and cleaner fuels. In India, an estimated 1.5 million people died from the effects of air pollution in 2012, according to WHO data. Globally, air pollution both indoor and outdoor caused nearly 7 million deaths in 2012, making it the world's single largest environmental health risk, according to World health statistics 2016. One Lakh children in India alone died in the year 2016 due to air pollutants. Since young children are more susceptible to such risks, this does not bode well for the future of our country.

Over the years there has been a virtual exodus of population from adjoining states namely Punjab, Haryana and Himachal Pradesh to Chandigarh resulting in untenable pressure on air quality of the city. In addition to these anthropogenic sources of air pollutants, there are a number of factors that contribute to air pollution and eventual health hazards. These include pollen, fruit yielding trees, wood burning, windblown dust etc. As per National Ambient Air Quality Standards of India, two major air pollutants i.e. SO_2 and NO_2 lie well within the permissible limits in the city. Fortunately, the city has been able to maintain its pristine status in regard to environmental conditions through sustained endeavours. Consistent appreciable measures have been initiated over the years to contain vehicular pollution through strict implementation of policies in vogue, maintain industrial emission standards and protect the dense forest cover in the city. On the contrary, the average RSPM level (PM_{10}) in the year 2017 was observed to be $107.4 \mu\text{g}/\text{m}^3$. It stands at an average of $105.8 \mu\text{g}/\text{m}^3$ in 2018. Despite this positive deviance, the figures still remain above the permissible limit for RSPM i.e. $60 \mu\text{g}/\text{m}^3$. Thus the need of the hour is to put in place effective futuristic strategies for better air quality in the city.



For Private Circulation only

Index

1. Editorial
Status of Air Quality, Chandigarh
2. Trends of SO_2 in Chandigarh
Trends of NO_2 in Chandigarh
3. Trends of RSPM in Chandigarh
Monthly average of RSPM Chandigarh
in five consecutive years

P a r y a v a r a n

4. Analysis of RSPM in Chandigarh
5. Reasons for high RSPM levels in Chandigarh
6. Action plan for control of air pollution in Chandigarh
7. Feedback form
8. AQI and associated health impacts



ENVIS CENTRE
Deptt. of Environment
Chandigarh

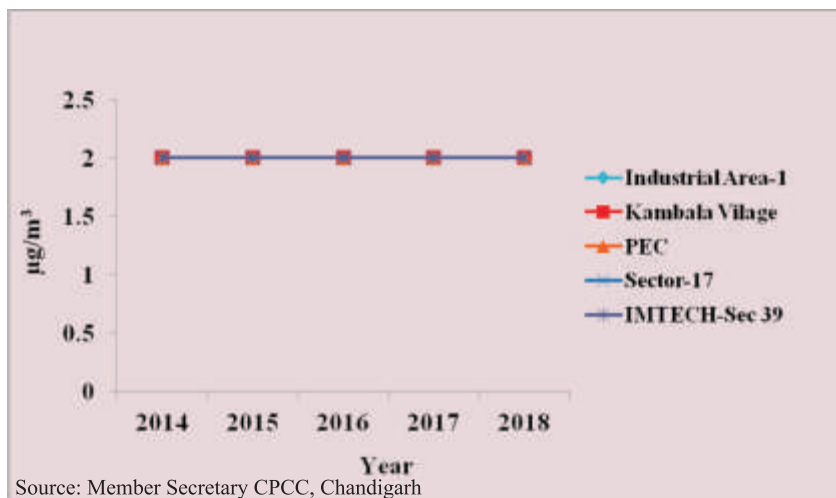
(VOLUME 13.1.0)

Jan -Mar 2018

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1. Trends of SO₂ in Chandigarh:

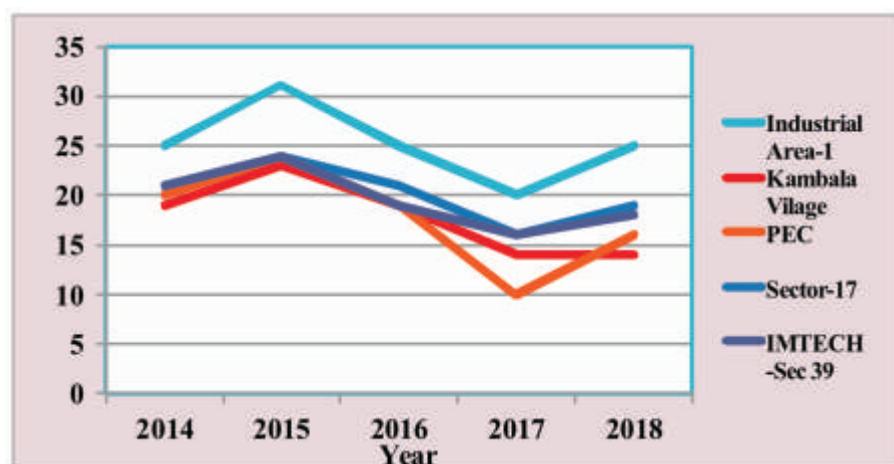


Observation:

The single largest pollutant of sulphur are the coal fired power stations. Coal based industries, in particular, emit maximum sulphur content in the air. Exploitation of coal, oil and gas for electricity power generation are other factors contributing to increased level of sulphur in the atmosphere. In addition to severe health hazards like bronchitis and other respiratory ailments, sulphur dioxide acts as a precursor to smog formation and accelerates the process of acid rain. Fortunately, industries in Chandigarh are primarily small-scale industries because of which the emissions of SO₂ are well within limits. The annual limit for sulphur dioxide is 50µg/m³. The above graph shows the controlled level of SO₂ in the city since the year 2014. Sulphur content has thus attained a constant value of '2 µg/m³' from 2014 up to 2018.

2. Trends of NO_x in Chandigarh

Annual Average of No_x in Chandigarh



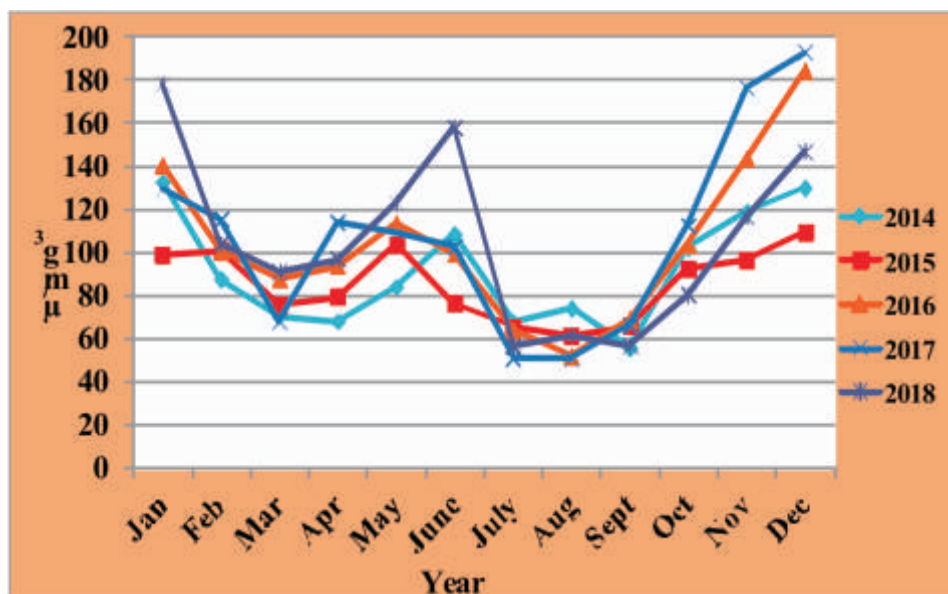
Source: Member Secretary CPCC, Chandigarh



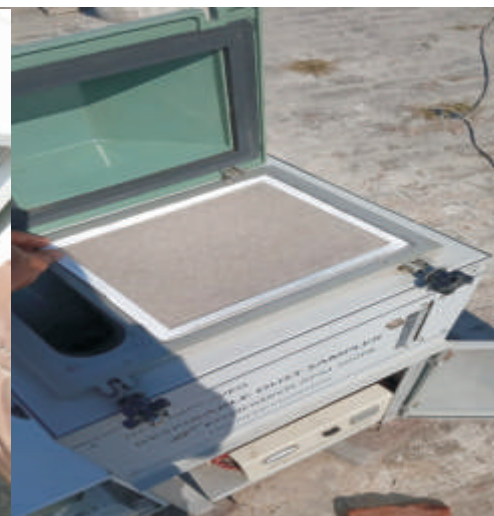
Study by Nandula Raghuram, Dean of Biotechnology at Indraprastha University in New Delhi revealed that chemical fertilizers account for over 77% of agricultural nitrogen oxide emissions in India and cattle contribute to 80% of the country's ammonia production. Perpetual matter of concern remains nitrogen oxide emission that is formed with combination of other oxygen gases after combustion of fossil fuels and vehicular emission. Manufacturing of nitric acid and explosives release certain significant amount of NO_x into the atmosphere. With increase in vehicular traffic, concentration of NO_x has been fluctuating over the years. According to National Ambient Air Quality Standards-2017, the permissible value of NO_x is set to a standard of 40 mg/m^3 . The above graph depicts that the concentration of NO_x from 2014 to 2018 has remained within permissible limit. The maximum concentration was observed at the monitoring station located at Industrial area phase-1, due to excessive vehicular emissions.

3. Trends of RSPM in Chandigarh

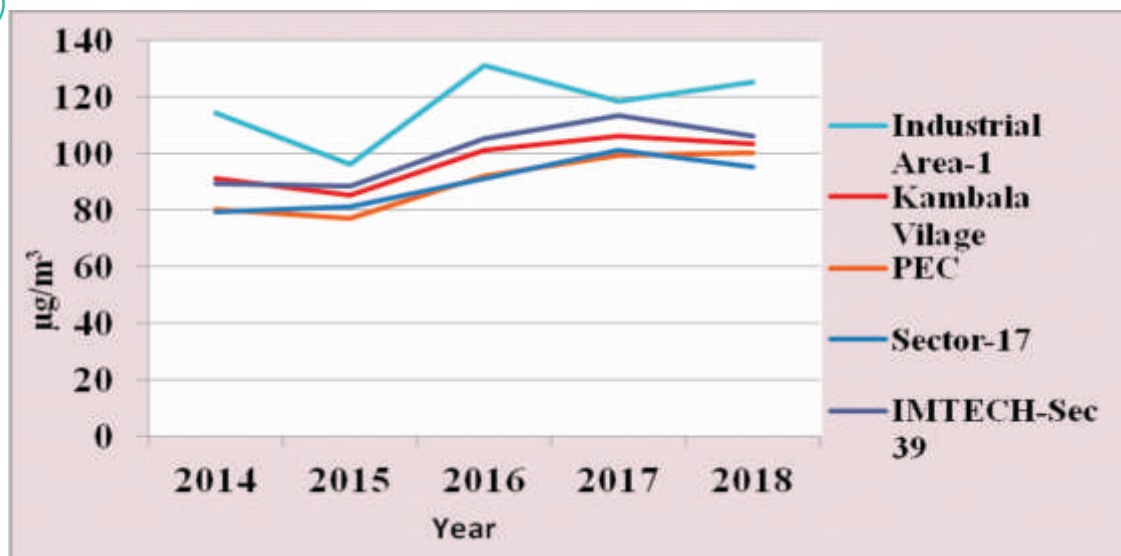
Combined Graph: Monthly average of RSPM Chandigarh in last 5 years



Source: Member Secretary CPCC, Chandigarh



Air Sampling by CPCC, Chandigarh staff

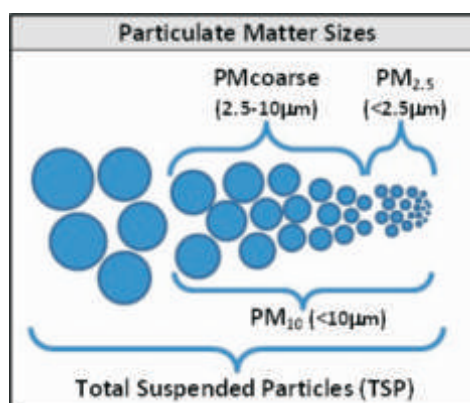


Source: Member Secretary CPCC, Chandigarh

Observation:

Particulate pollution is a term for a mixture of liquid droplets and solid particles found in the air. These include dirt, smoke, fog, mist, dust etc. Particulates are the deadliest form of air pollution, specially particulate matter with particles sizes less than 10 microns, also termed as (Respirable Particulate Matter) RSPM. They have a tendency to get embedded deep into the lungs and cause a broad range of respiratory illness. The annual limit for RSPM is $60 \mu\text{g}/\text{m}^3$. The above graph shows the changing trend of RSPM levels in the city over the years. Observations reveal that the levels of RSPM have remained constant over the last five years (2014-2018). As the RSPM monitoring in Chandigarh has been performed at five different locations i.e. Industrial area Phase-1, Punjab Engineering College, Commercial complex sector-17, IMTECH Sector-39 and a village named Kaimbwala, following analysis were reported-

- The lowest RSPM levels in the city has been monitored at Punjab Engineering College, sector 11 (89.6 avg./ 5 year).
- The highest RSPM levels in the city were observed at the monitoring point located at Industrial Area Phase 1 (116.8 avg./ 5 year), followed by IMTECH- Sec 39 (100.2 avg./ 5year)



Reasons Behind High RSPM levels:

Chandigarh is land locked Union Territory in which there is no possibility of expansion and obviously there is no possibility of road length expansion. Studies have shown that the air quality in Chandigarh is mostly affected by the vehicular pollution of the city. The fleet of vehicles is over 2 per capita household. Chandigarh has the highest density of vehicles in India. The major contributor of air pollution in Chandigarh are as follows:-Some of the possible reasons for increased RSPM levels in Chandigarh are listed below-

- Being surrounded by **the agricultural hubs** (Haryana, Punjab), the city beautiful is recipient to RSPM in bulk from various activities like stubble burning and wheat harvesting. The RSPM levels peak from April to June and from October to November.
- Winters catalyze the RSPM concentration owing to its low temperature. This occurs due to the phenomenon called '**Inversion**'. The dense air enhances concentration of trapped pollutant by restricting their atmospheric disposal.
- Natural processes like **pollen dispersal and propagation of seeds** by air accounts for major proportion of RSPM levels for any city.
- As per the information released from RLA department, Chandigarh: more than 15,912 cars/ jeeps and over 22,510 two wheelers have been registered with the city in the year 2017, compared to 13812 cars/jeeps and 19170 two wheelers in the year 2007. The **percentage increase** in the total number of vehicles in Chandigarh for more than over a decade (2007-2017) has been over **24.5**. Owing to maximum vehicular density, Chandigarh suffers from highest per trip energy consumption

The population density during the last five decades (1961-2011) has increased nine fold, from 1051 to 9252 persons per sq. Km. Due to this population explosion and lack of awareness, there has been a **unprecedented increase in reckless human activities** like gun firing during festive seasons, stubble burning, open waste burning etc leading to elevated levels of RSPM in the city.

- Road-Dust: Tiny bits of tyres, brake pads, and road materials** become suspended in the air when vehicles pass over. Huge traffic congestion tends to re-suspend the dust onto the roads and eventually into the atmosphere.
- Burning of dry leaves:** Chandigarh is blessed with 57.56 sq.km. of green cover with 41.11% of UTs total area which generates gigantic amount of Horticulture waste. If such waste is not managed properly, it can leave negative impact on AQI. However, Chandigarh Administration has banned such practices but some miscreant finds burning effortless as compared to making compost from the same.





Action Plan for Control of Air Pollution in Chandigarh

Air Quality Monitoring Committee (AQMC)

As per the orders of Hon'ble National Green Tribunal (NGT) in the matter of news item published in 'The Times of India' authored by Shri. Vishwa Mohan titled "NCAP with Multiple Timelines to Clear Air in 102 Cities to be released around August 15" Air Quality Monitoring Committee (AQMC) has been constituted in Chandigarh comprised of the following members:-


1. The Director Environment, Chandigarh
2. The Commissioner, Municipal Corporation, Chandigarh
3. The Director Industries, Chandigarh
4. The Director Transport, Chandigarh
5. The Chief Architect, Department of Urban Planning, U.T. Chandigarh
6. The Member Secretary, Chandigarh Pollution Control Committee, Chandigarh

The time targets has been given to various departments for the execution of actions proposed to control of air pollution in Chandigarh so that improvement can be seen in the air quality in near future.

 **State Transport Authority (STA)/ Traffic Police** will take the initiative to launch extensive drive against polluting vehicles for ensuring strict compliance. They will take productive measures to create public awareness campaigns for air pollution control, vehicle maintenance, lane discipline etc.

 **Urban planning Department and Engineering Department** will undertake steps for road widening and improvement of infrastructure for decongestion of roads.


 To limit the extensive road dust issue in the city, **Engineering department/ Municipal Corporation** will initiate blacktopping metalled road including pavement of road shoulders.

 Increasing the green cover at open areas, community places, gardens, schools and housing societies will be undertaken by **Municipal Corporation Chandigarh and Horticulture Department**. **Municipal Corporation Chandigarh** will take certain steps regarding regular check and control of burning of municipal waste.

Engineering Department will take initiatives to introduce water fountains at major traffic intersection with the use of tertiary treated water. They will also consider working on maintaining potholes free roads for free flow of traffic.

Chandigarh Pollution Control Committee (CPCC) will take action against non-complying industrial units to promote cleaner production in industries and introduce fugitive emission control.

Food and Supply Department will take effective measures to engage with concerned authorities on continual basis for maximizing coverage of LPG/PNG for domestic and commercial cooking with a target of 100% coverage.

 **Municipal Corporation Chandigarh** will enforce the Construction and Demolition Waste Rules in addition to undertaking effective measures for fugitive emissions from material handling-conveying and screening operations through water sprinkling activities.



Dear Information Seeker,

ENVIS CENTRE, Chandigarh furnishes you with the services to collect and disseminate information related to environment of Chandigarh. To share information with us you are requested to fill up the form given below.

Your feedback is valuable to us and will be highly appreciated



- Name _____
- Designation _____
- Department _____
- Address _____
- _____ City _____
- State _____ Country _____ Pin _____
- Phone _____ Fax _____
- Email _____

Your views on scope of improvement :

- Interest Area _____

➤ **I would like to have information on following :**



**ENVIS CENTRE TEAM**

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(Director, Environment)

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(Information Officer)

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(I.T. Officer)

Air Quality Index?

Air Quality Index is a tool for effective communication of air quality status to people in terms, which are easy to understand.

Ambient Air Quality?

Ambient air quality criteria, or standards, are concentrations of pollutants in the air, and typically refer to outdoor air. The criteria are specified for a variety of reasons including for the protection of human health, buildings, crops, vegetation, ecosystems, as well as for planning and other purposes.

What is the difference between PM₁₀ and PM_{2.5}?

PM₁₀ is particulate matter less than 10 micrometers in diameter, PM_{2.5} is particulate matter less than 2.5 micrometers in diameter.

AQI	Associated Health Impacts
Good (0–50)	Minimal Impact
Satisfactory (51–100)	May cause minor breathing discomfort to sensitive people
Moderate (101–200)	May cause breathing discomfort to the people with lung disease such as asthma and discomfort to people with heart disease, children and older adults
Poor (201–300)	May cause breathing discomfort to people on prolonged exposure and discomfort to people with heart disease with short exposure
Very Poor (301–400)	May cause respiratory illness to the people on prolonged exposure. Effect may be more pronounced in people with lung and heart diseases
Severe (401–500)	May cause respiratory effects even on healthy people and serious health impacts on people with lung/heart diseases. The health impacts may be experienced even during light physical activity

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To,

Note : While every care has been taken in compilation of the information available for this newsletter. However, readers must make thorough confirmation/enquiries at their own level before acting upon any data/information provided to the readers. Any discrepancy brought in the notice of ENVIS CENTRE, Chandigarh will be highly appreciated.

