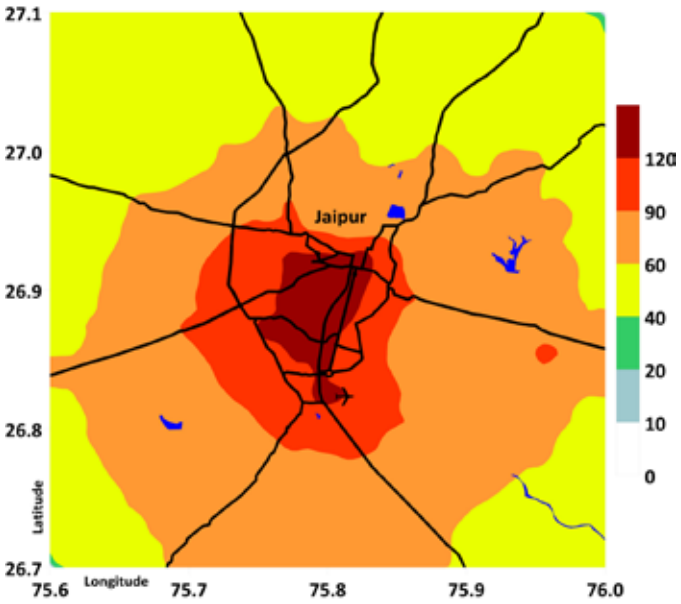
Modeled annual average $PM_{2.5}$ concentration (2015) µg/m³



For urban Jaipur, average $PM_{2.5}$ concentration was 99.6 ± 19.4 µg/m³. This is more than 2 times the national standard (40) and almost 10 times the WHO guideline (10).

Air monitoring infrastructure

Jaipur has 2 Continuous Air Monitoring Station (CAMS) reporting data for all the criteria pollutants and 6 manual stations reporting data on PM_{10}, SO_2, and NO_2. There should be at least 26 CAMS in the city for efficient reporting.

Annual averages from the national ambient monitoring program (2011-2015) µg/m³

PM_{10}	NO_2	SO_2
313.9 ± 141.3	79.8 ± 25.3	14.5 ± 7.5

Trend in $PM_{2.5}$ concentrations, based on satellite observations and global model simulations (1998-2014) µg/m³

URBAN emissions .info

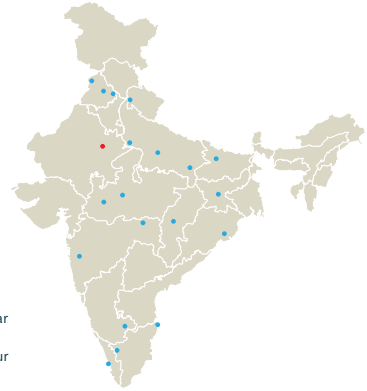
SHAKTI SUSTAINABLE ENERGY FOUNDATION

APnA CITY PROGRAM

Clearing the air with data

The Air Pollution Knowledge Assessment (APnA) City Program

Clearing the air with data



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• Patna • Pune • Raipur • Ranchi • Varanasi

Designing an effective Air Quality Management (AQM) plan for a city requires robust data on levels of pollution, affected areas, source contributors, peaking trends and possible control mechanisms.

The Air Pollution Knowledge Assessment (APnA) City Program seeks to make this database available and also serve as a starting point for understanding air pollution.

The program, implemented by Urban Emissions and facilitated by Shakti Sustainable Energy Foundation, seeks to create a comprehensive, city-specific information pool by pulling together data from disparate sources, surveys, mapping and atmospheric modeling.

Policy options based on this information, and their implementation, would be the effective next steps in improving the air quality of our cities.

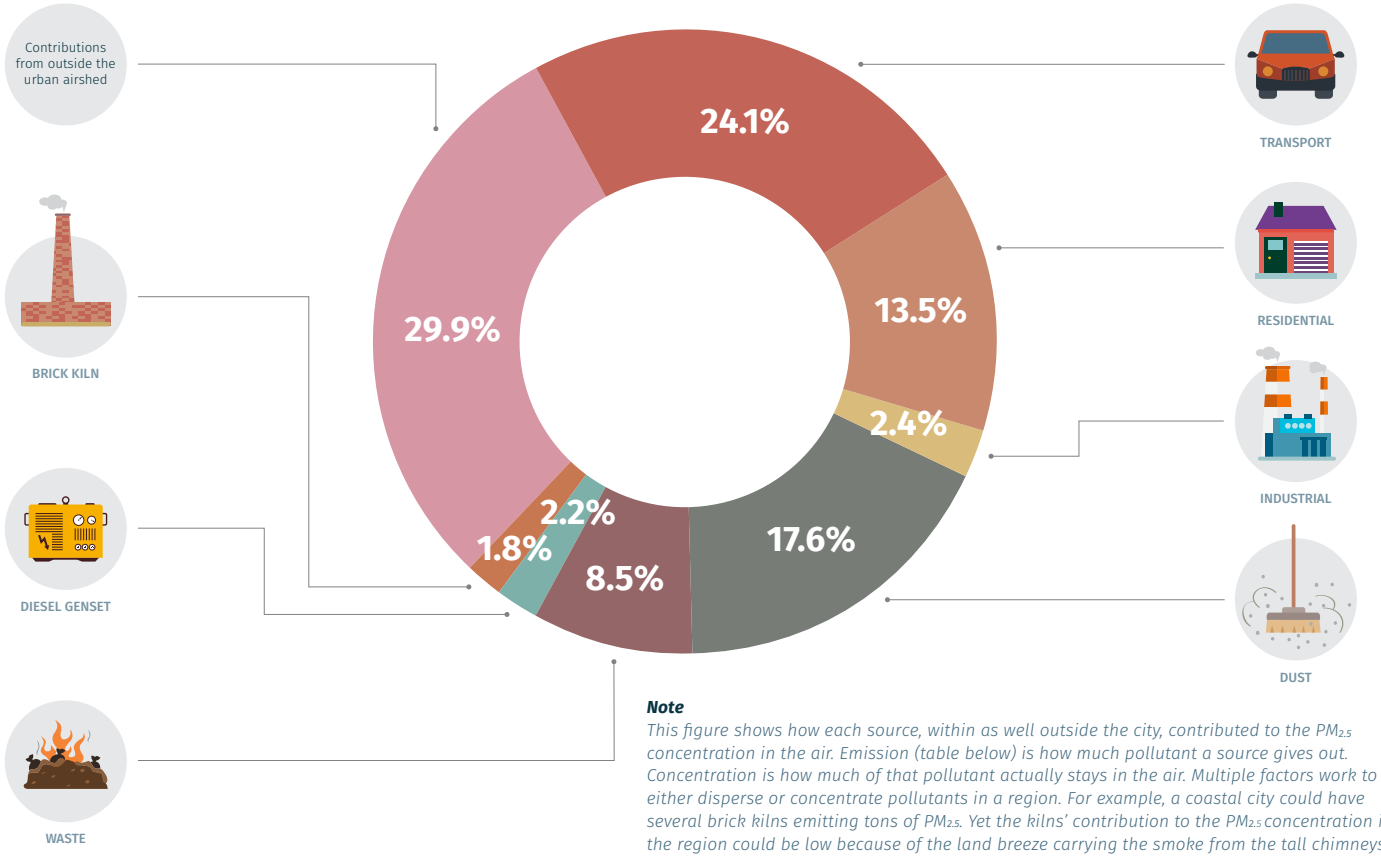
www.urbanemissions.info

Jaipur

The air quality of this princely city is quite poor, with $PM_{2.5}$ levels more than double the national standard.

For detailed information on Jaipur Air Quality, visit **www.urbanemissions.info/india-apna**

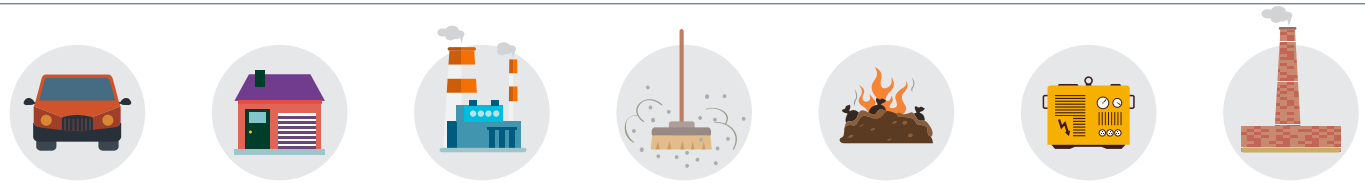
$PM_{2.5}$ concentration : source–wise percentage share in 2015



Note

This figure shows how each source, within as well outside the city, contributed to the $PM_{2.5}$ concentration in the air. Emission (table below) is how much pollutant a source gives out. Concentration is how much of that pollutant actually stays in the air. Multiple factors work to either disperse or concentrate pollutants in a region. For example, a coastal city could have several brick kilns emitting tons of $PM_{2.5}$. Yet the kilns' contribution to the $PM_{2.5}$ concentration in the region could be low because of the land breeze carrying the smoke from the tall chimneys to the sea. To know how source concentration is calculated please visit the APnA city website.

$PM_{2.5}$ emissions : source–wise share in tons in 2015 and 2030 (projected)



6,500	2,400	1,300	3,100	1,550	600	1,750
8,850	2,850	2,350	5,000	2,250	700	2,350

Total emissions in 2015 = 17,200 tons | Total emissions in 2030 = 24,350 tons

Findings & Recommendations

- The modeled source contributions highlight transport (including on road dust), domestic cooking and heating, and open waste burning as the key air pollution sources in the urban areas.
- An estimated 30% of the ambient annual $PM_{2.5}$ pollution (in 2015) originated outside the urban airshed, which strongly suggests that air pollution control policies in the Indo-Gangetic plain need a regional outlook.
- The city needs to aggressively promote public and non-motorized transport and improve road infrastructure to reduce on-road dust re-suspension.
- By 2030, the vehicle exhaust emissions are expected to remain constant, if and only if, Bharat 6 fuel standards are introduced nationally in 2020, as recommended by the Auto Fuel Policy.
- By 2030, the share of emissions from residential cooking and lighting is expected to decrease with an increase inLPG, residential electrification and urbanization. However, since biomass and coal in the region is easily available their use will be significant unless there is an aggressive program for a 100% shift to cleaner options like LPG and electricity.
- The 200 brick kilns in the urban airshed (and more through the state and the neighboring states), are fueled mostly by coal and agri-waste. These kilns can become more energy efficient by upgrading from their current fixed-chimney and clamp-style baking to (for example) zig-zag. Similarly, the coal-fired power plants need to practice and enforce stricter environmental standards for all the criteria pollutants
- Open waste burning is dispersed across the city and requires stricter regulations for addressing the issue.