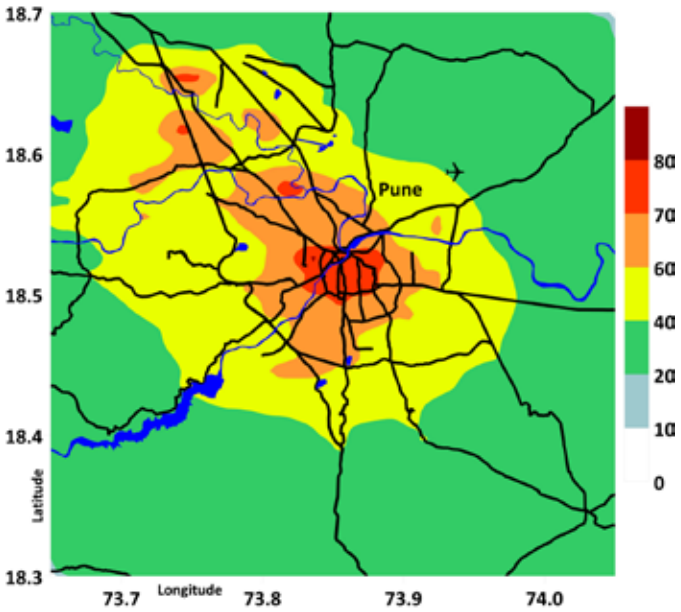
Modeled annual average $PM_{2.5}$ concentration (2015) µg/m³



For urban Pune, average $PM_{2.5}$ concentration was 56.3 ± 12.9 µg/m³. This is higher than the national standard (40) and more than 5 times the WHO guideline (10).

Air monitoring infrastructure

Pune has 1 Continuous Air Monitoring Station (CAMS) reporting data for all the criteria pollutants and 4 manual stations reporting data on PM_{10}, SO_2, and NO_2. There should be at least 30 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
162.2 ± 104.3	82.5 ± 45.0	40.3 ± 20.9

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

URBAN emissions .info

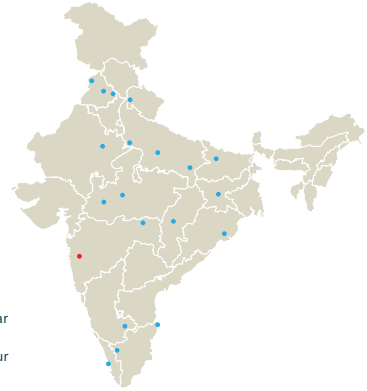
SHAKTI SUSTAINABLE ENERGY FOUNDATION

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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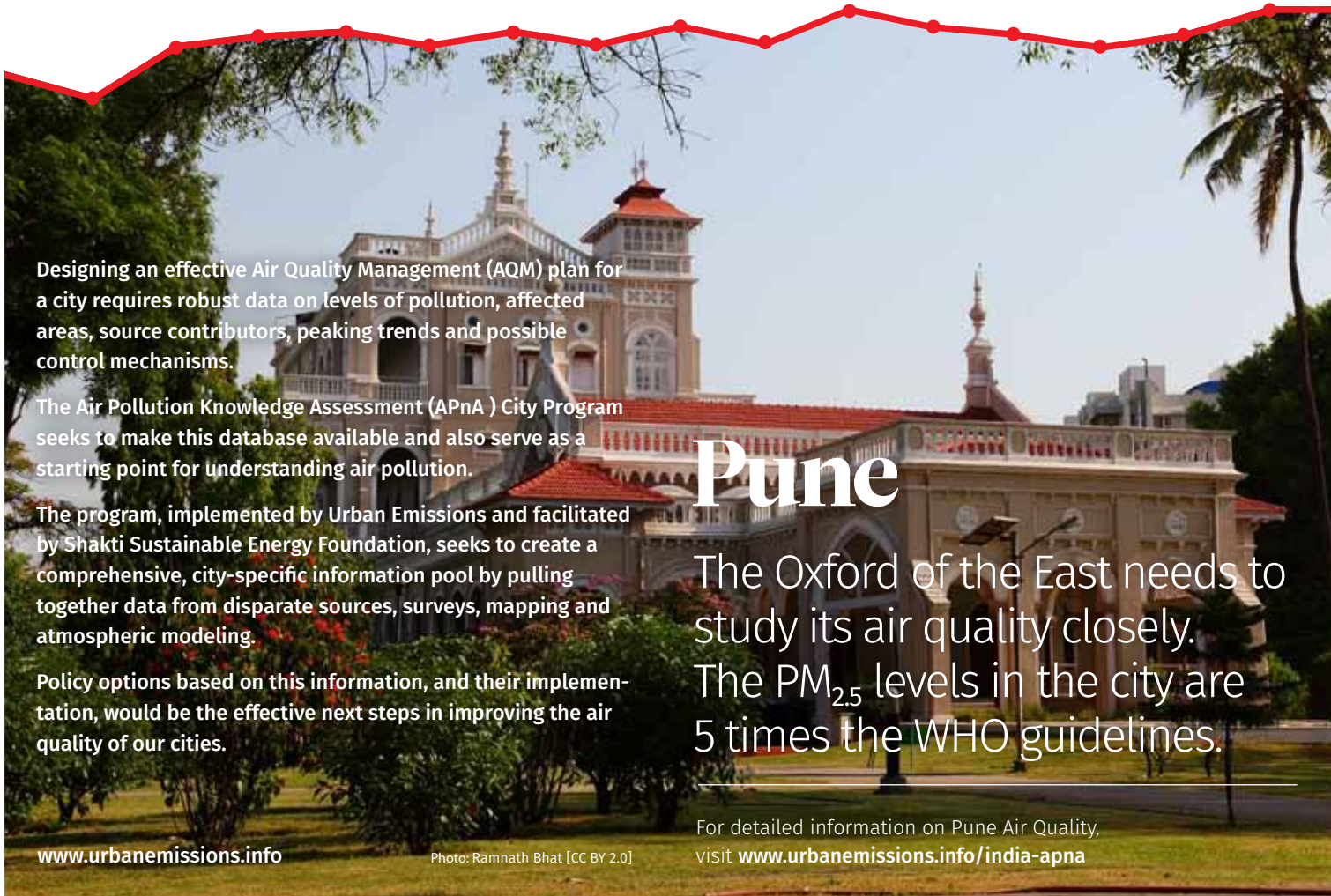
• Patna • Pune • Raipur • Ranchi • Varanasi



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.

Pune

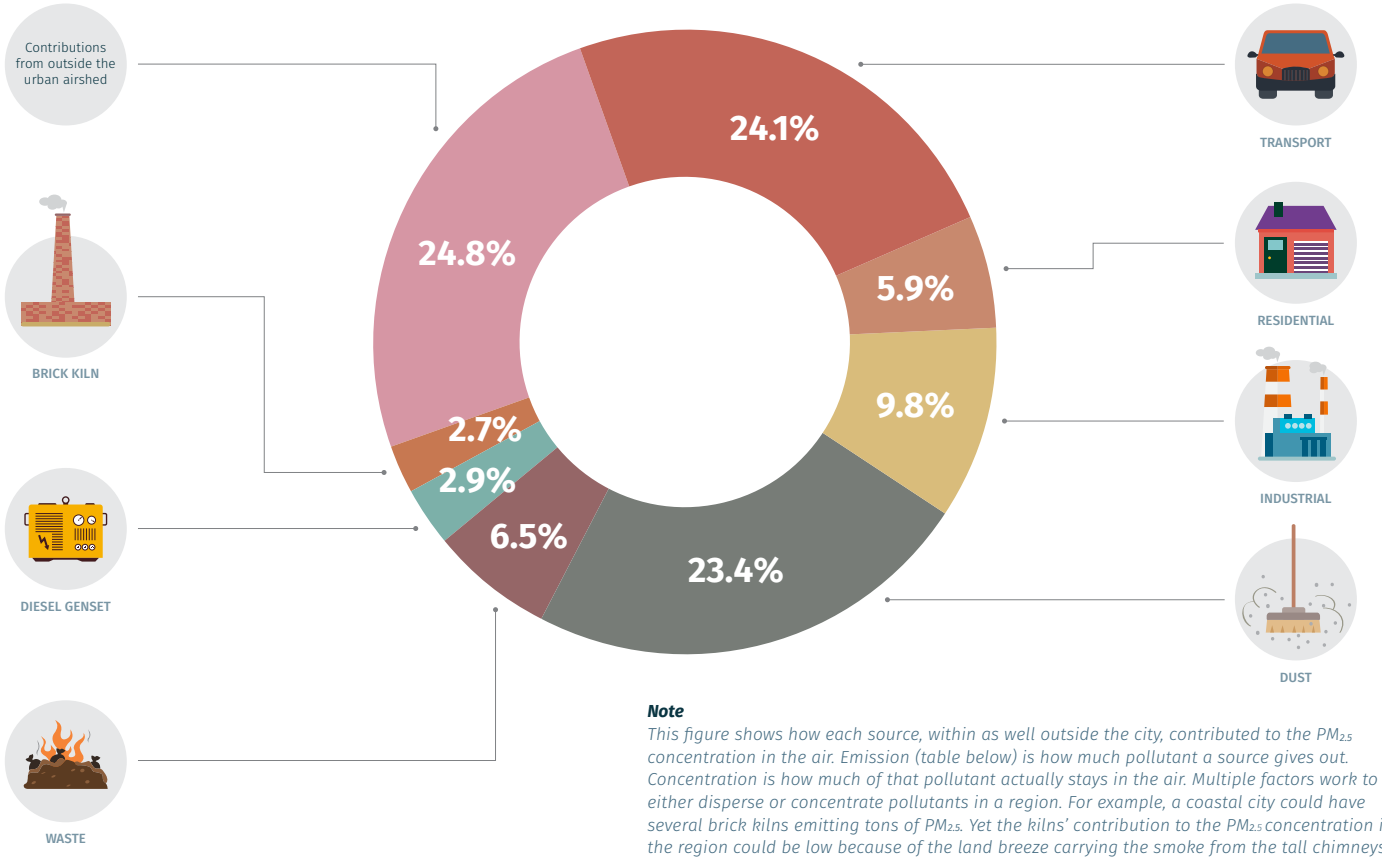
The Oxford of the East needs to study its air quality closely. The $PM_{2.5}$ levels in the city are 5 times the WHO guidelines.

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

www.urbanemissions.info

Photo: Ramnath Bhat [CC BY 2.0]

$PM_{2.5}$ 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)

6,200	900	4,100	3,400	1,000	700	1,400
9,150	1,100	7,250	5,900	1,400	800	1,850

Total emissions in 2015 = 17,700 tons | Total emissions in 2030 = 27,450 tons

Findings & Recommendations

- The modeled source contributions highlight transport (including on-road dust), domestic cooking and heating, industries, open waste burning, and influence of outside sources as the key air pollution sources in the urban area.
- In 2015, an estimated 25% of the ambient annual $PM_{2.5}$ pollution originated outside the urban airshed. The contribution stemmed largely from coal-fired power plants, large (metal and non-metal processing) industries, brick kilns and rock quarries located outside the urban airshed. The rock quarries use in situ generators and old heavy duty vehicles. Some regional interventions could reduce the pollution loads.
- 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 due to an increase in LPG, residential electrification and urbanization. However, since biomass and coal is easily available, their use is expected to continue. An aggressive program is needed for a 100% technology shift to cleaner options.
- The 150 brick kilns (between Pune and Pimpri-Chinchwad) are largely clamp-style and fueled mostly by coal and agri-waste. These kilns can become more energy efficient by upgrading to (for example) zig-zag and fixed-chimney kilns.
- Similarly, coal-fired power plants in the vicinity need to enforce stricter environmental standards for all the criteria pollutants.
- Open waste burning is dispersed across the city and requires stricter regulations to address the issue.