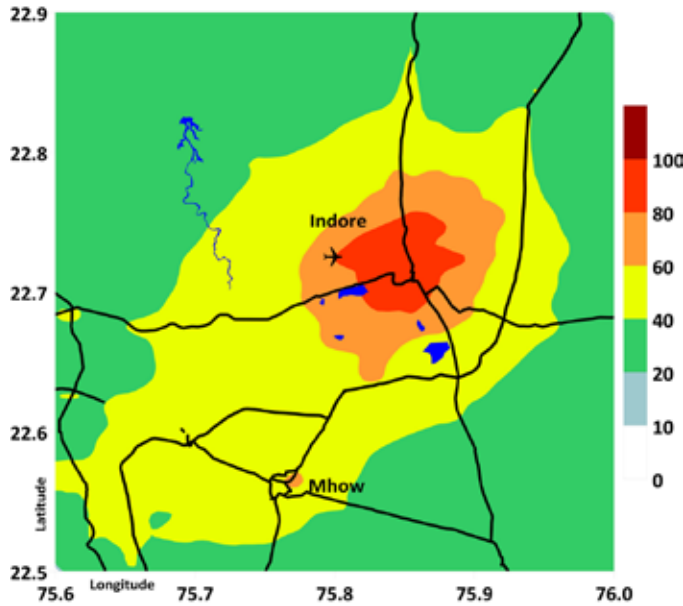


## Modeled annual average PM<sub>2.5</sub> concentration (2015) µg/m<sup>3</sup>



For urban Indore, average PM<sub>2.5</sub> concentration was  $66.3 \pm 12.3 \mu\text{g}/\text{m}^3$ . This is higher than the national standard (40) and more than 6 times the WHO guideline (10).

### Air monitoring infrastructure

Indore has 0 Continuous Air Monitoring Station (CAMS) reporting data for all the criteria pollutants and 3 manual stations reporting data on PM<sub>10</sub>, SO<sub>2</sub>, and NO<sub>2</sub>. There should be at least 20 CAMS in the city for efficient reporting.

### Annual averages from the national ambient monitoring program (2011-2015) µg/m<sup>3</sup>

PM <sub>10</sub>	NO <sub>2</sub>	SO <sub>2</sub>
139.2 ± 69.8	18.9 ± 3.9	11.3 ± 3.7

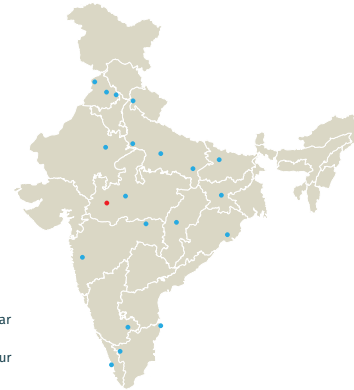
### Trend in PM<sub>2.5</sub> concentrations, based on satellite observations and global model simulations (1998-2014) µg/m<sup>3</sup>



## The Air Pollution Knowledge Assessment (APnA) City Program

Clearing the air with data

- Agra • Amritsar • Bengaluru • Bhopal • Bhubaneswar
- Chandigarh • Chennai • Coimbatore • Dehradun
- Indore • Jaipur • Kanpur • Kochi • Ludhiana • Nagpur
- 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.

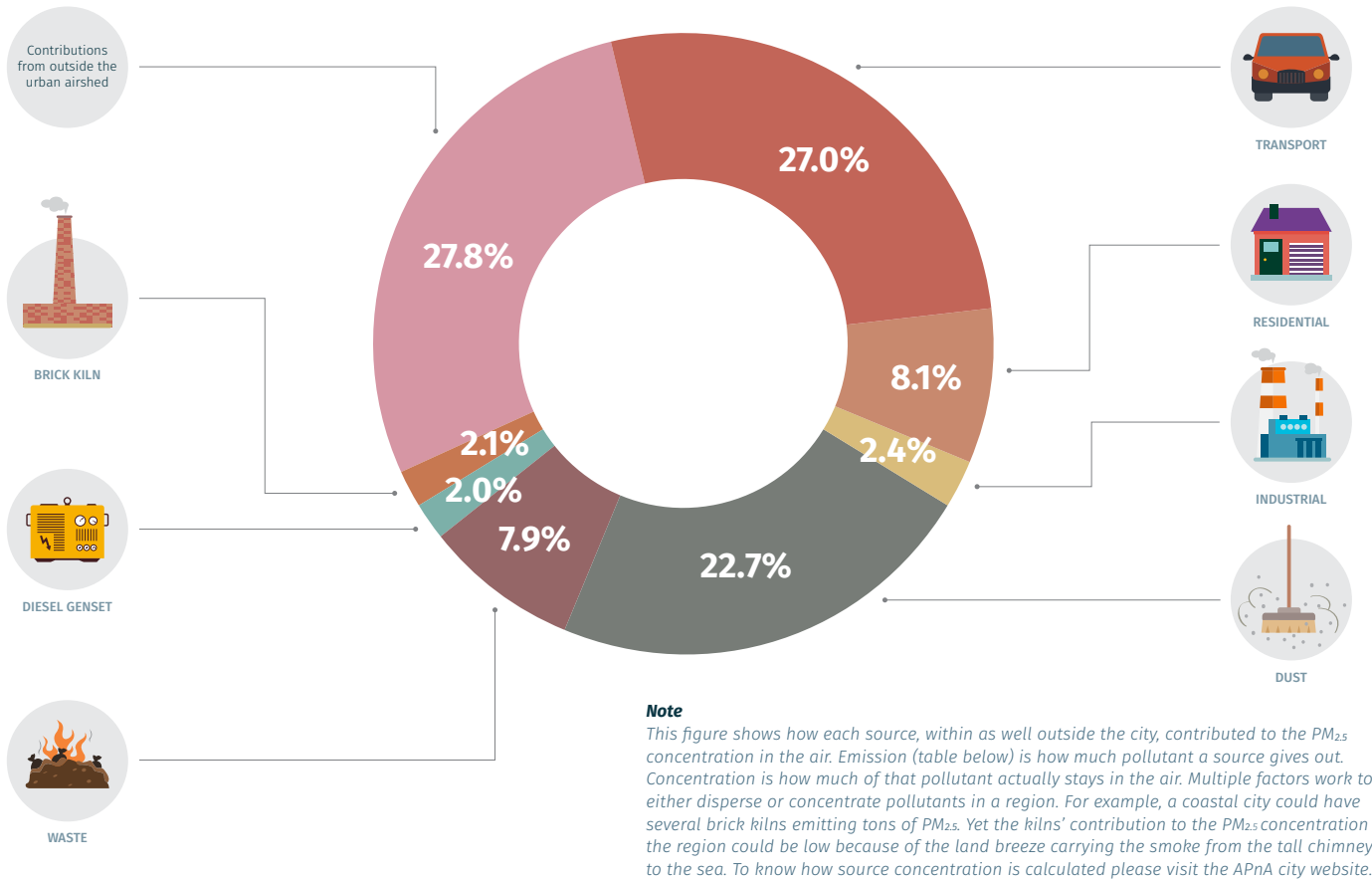
Policy options based on this information, and their implementation, would be the effective next steps in improving the air quality of our cities.

# Indore

The air quality of this bustling, vibrant city is deteriorating. The PM<sub>2.5</sub> levels are 6 times the WHO guidelines.

For detailed information on Indore Air Quality, visit [www.urbanemissions.info/india-apna](http://www.urbanemissions.info/india-apna)

## PM<sub>2.5</sub> concentration : source-wise percentage share in 2015



# 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 28% of the ambient annual PM<sub>2.5</sub> pollution (in 2015) originated outside the urban airshed, which suggests that some regional interventions could reduce the pollution loads. Coal-fired power plants, large (metal and non-metal processing) industries, and brick kilns located outside the urban airshed towards Bhopal were the major contributors.

- The city needs to aggressively promote public and non-motorized transport and improve the road infrastructure to reduce on-road dust re-suspension.

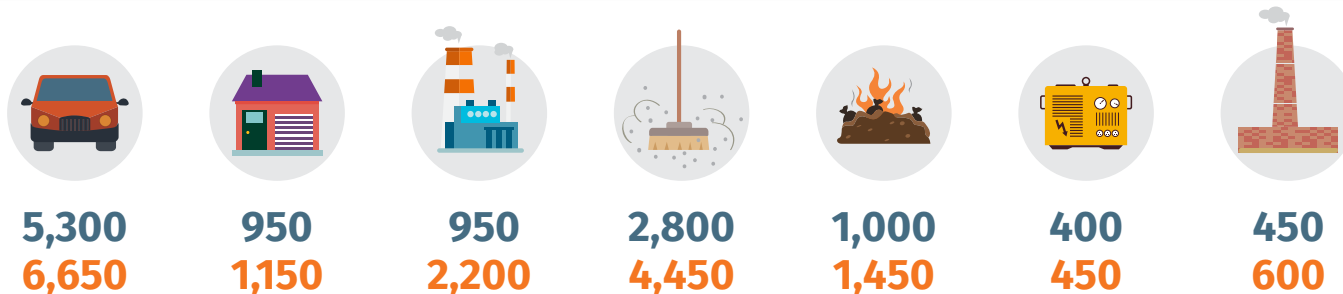
- By 2030, the vehicle exhaust emissions are expected to remain constant, if and only if, Bharat 6 fuel standards are introduced nationally in 2020, as recommended by the Auto Fuel Policy.

- By 2030, the share of emissions from residential cooking and lighting is expected to decrease with an increase in LPG, residential electrification and urbanization. However, due to the easy availability of biomass and coal in the region, their use is expected to continue. An aggressive program is needed for a 100% shift to cleaner options like LPG and electricity.

- The 100+ brick kilns in the urban airshed and outside are fueled mostly by coal and agri-waste. They can become more energy efficient by upgrading from the current fixed-chimney and clamp-style baking to (for example) zig-zag. Similarly, the coal-fired power plants in the state, 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.

## PM<sub>2.5</sub> emissions : source-wise share in tons in 2015 and 2030 (projected)



Total emissions in 2015 = 11,850 tons | Total emissions in 2030 = 16,950 tons