

## Cleaning up: Technology can provide new lungs to Indian cities

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About nine out of the world's top 10 polluted cities are located in India and more than a million deaths nationwide each year are directly or indirectly related to pollution. In addition, those residents that continue to survive in these polluted cities have to endure various health issues which reduce their productivity levels at work and worsen quality of life. As per recent reports, the nation's urban population will rise from 377 million in 2011 to 594 million in 2036 – an astounding increase of 57%. This means that about 39% citizens will live in urban areas by 2036 vis-à-vis 31% in 2011.

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As migration to urban areas and resultant urbanisation cannot be restricted in democratic nations such as India, there are two approaches

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to improve this urban pollution situation. The first involves stronger environmental regulations with better enforcement – this is being done, however, much more is needed. The other approach involves leveraging technological solutions to reduce particulate air pollution in urban areas by using air cleaning systems, also commonly known as smog towers.

These 20-metre (65 feet) high towers will trap hazardous particulate matter especially PM2.5 suspended in the air. Large blowers placed at ground level suck the polluted air from the top of the tower. The air then passes through the proprietary novel geometry filter systems. The

blowers or fans are placed downstream of the filter which throws the clean air to the surroundings.

These smog towers work in a specific radius and cannot cover entire cities, however, it would be pertinent to point out that even a few square kilometers in a highly dense urban area such as Delhi, Mumbai or Kolkata means covering millions of residents from nearby localities. A large proportion of urban residents can be covered if such smog towers are placed at densely populated locations within cities. If placed strategically in a planned manner across multiple locations within cities – it can cover nearly the entire city.

The first two such smog towers coming up in India will be in Delhi and shall be a pilot project—based on the outcome of this pilot project—it can be replicated across other large cities in India. These first two smog towers are being engineered and constructed by Tata Projects with technology provided by University of Minnesota in association with IIT Bombay for Central Pollution Control Board and Delhi Pollution Control Committee.

Smog towers are technologically cutting-edge. They can create target clean air zone in densely populated areas like school, hospital, residential societies, markets and transport hubs. Multiple such air cleaning systems coordinated with Internet of Things can be a solution for our cities. Pollution reducing technologies such as smog towers should be considered, or else people will continue to suffer related health ailments including loss of precious lives.

In conclusion, it would be right to point out that breathing in today's highly toxic and polluted air across Indian cities is roughly equivalent to inhaling approximately ten cigarettes per day and cutting down of life expectancy by more than ten years. Hence, the need is urgent since lives of millions of citizens are at risk – let's explore technology aided solutions such as smog towers to make our cities livable again.