

In Search of Clean Air*

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Saturday 7 February was voting day in the capital city of Delhi. So it was effectively a holiday for many workers, who only had to walk to their polling stations to cast their votes for the Assembly elections. This meant much less traffic on the streets. It was also a bright sunny day with a light breeze, free from the characteristic smog that increasingly blights our winters. Surely a day in which air pollution would be minimal, you would think – and so a welcome respite from the almost continuously contaminated atmosphere that residents of Delhi have had to get accustomed to.

Yet even on this well-favoured afternoon, the pollution readings of the official agencies in Delhi were disturbing, if not downright alarming. According to the [Central Pollution Control Board's](#) website at 5 pm, the air quality in its monitoring station in Dwarka area of Delhi was remarkably poor even on such a day. Nitric oxide concentration was nearly five times the recommended level (at 320 $\mu\text{g}/\text{m}^3$), nitrogen oxide (NO_x, a highly reactive gas) was four and a half times, particulate microns PM10 (at 958 $\mu\text{g}/\text{m}^3$) was nearly ten times and sulphur dioxide was more than five times the recommended upper limit.

The Met Department's estimates for that day were hardly more reassuring: levels of [particulate microns](#) (PM10) that were 24 times the level recommended by the World Health Organization (WHO) and six times those of our own much more lenient national standard. The worst news was about the levels of [PM2.5](#) – extremely tiny particulates that are more dangerous because they can penetrate deep into the lungs to cause illness and even death. Levels of PM2.5 in Delhi are often in excess of 15 times the WHO limit, but even on this apparently clear and pleasant day they were more than 22 times the WHO limit!

But Delhi is unfortunately not alone in this respect. In 2013, WHO found that India has 13 of the 20 cities in the world with the most polluted air: a sad attribute for which to be the world leader, especially with our still low levels of both per capita income and industrialisation. Nor are the big metros always the biggest offenders. Indeed, on the very day that I checked the levels for Delhi, the worst atmospheric pollution was recorded by Pune in Maharashtra, once a city renowned for its leafy streets and pleasant environment. Officially, half of our towns and cities have “critical” levels of atmospheric pollution and one-third of urban residents in India live in surroundings that are designated as “extremely critical” in terms of contaminated air.

It is no surprise, therefore, that people across the country now suffer routinely from serious respiratory illnesses including asthma and persistent throat and lung infections. Many of us will eventually also have to deal with potentially fatal diseases like cancer and pulmonary failure, as well as suffer from more heart attacks and strokes, simply because of the air that we breathe on a daily basis. It has been estimated by the [Environment Pollution \(Prevention and Control\) Authority](#) appointed by the Supreme Court of India that outdoor air pollution is the fifth biggest killer in India, after high blood pressure, indoor air pollution from cooking fuels, tobacco smoking and poor nutrition. WHO estimated that air pollution ranked fifth in terms of

mortality impact and seventh in terms of health burden in India, contributing to over 6,27,000 deaths and 17.7 million healthy years of life lost in 2010.

As always, the poor are the worst affected. They are more likely to have jobs that involve more time in polluted open environments that therefore require breathing foul air; they are more likely to use transport systems (buses, cycling and walking) that expose them to contaminated atmosphere; they will probably live in homes that are more exposed to the outside air and in more congested areas that are anyway more polluted. And of course, when they suffer from illnesses as a result, they are less likely to be able to access good quality medical care or the medicines that will allow them to live with the associated morbidity with some ease.

So what exactly are we doing about this appalling situation that threatens the basic health and well-being of so many of our people? Sadly, almost nothing is being done in terms of effective public policy. Pollution is still not seen as a political issue: even in the Delhi elections, none of the major contending parties dealt with it seriously in their manifestos. In official circles, much of the discussion is confined to high-minded platitudes rather than genuine and systematic efforts to address this rapidly increasing problem.

If anything, the problem is set to get much worse before it gets better. A significant part of urban air pollution comes from vehicular traffic, and the automobile population in the country is only going to grow. A study by Tata Energy Resource Institute and the University of San Diego in 2014 suggested that “if the current trends of vehicle population, fuel and emission standards persist, PM 2.5 emissions will increase by a factor of three, and those of NO_x will increase by a factor of five”.

Obviously, one direct and necessary way of addressing this is to regulate the number and nature of vehicles. This has been a major means of reducing atmospheric pollution in the developed world, with different policy carrots (better public transport and more planned urban environments with reduced commuting needs) being combined with sticks (higher taxation and tighter regulation of the number of vehicles, stricter emission limits, etc). But in India all this is still in its infancy, and in fact public policy still operates to incentivise automobiles and private ownership of vehicles.

Although [emission limits](#) have been tightened to some extent, at present only 38 Indian towns and cities have Bharat Stage IV standards (equivalent to Euro IV, still lower than what is required in most European towns). Others operate on Bharat III standards, which allow significantly higher levels of vehicular emissions, or no effective standards at all. Meanwhile one of the most dangerous air pollutants, PM_{2.5} particles, results from heavy reliance on diesel vehicles that produce black carbon aerosols. Both private vehicles and public transport contribute to this, also because the cars, buses and trucks used are not the most clean and efficient ones.

But more significantly, the entire thrust of urban planning across the country is actually to push more people into using private vehicles rather than developing public transport or making it possible to walk or cycle. The first sector to receive subsidies and tax rebates in the wake of the Global Financial Crisis in 2008-09 was the automobile sector. The inadequate provision of public transport in any case forces greater dependence upon private vehicles. Most cities and towns have developed road systems that are not just unfriendly to pedestrians but frequently extremely dangerous

and sometimes near impossible to traverse on foot. The use of bicycles too is both fraught and hazardous given the nature of other traffic on the roads and the lack of dedicated lanes for cyclists.

So public intervention actively (though indirectly) contributes to the worsening atmospheric pollution in India. There are some obvious measures that could be undertaken, such as those mentioned above. Many others can be thought of, if only there is clear engagement on the part of those who matter in the effort to change things. Unfortunately, thus far there is no indication that dealing with urban air pollution is at all a pressing concern for policy makers.

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