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Air Pollution: Breathless

'I deny that particulate matter is resulting in total excess deaths per year.'

'I deny that particulate matter is more deadly for the fact that they are breathed deep into the lungs and lodge there.'

'I deny that the smaller the particle is, the more harmful it is.'

—Tata Engineering and Locomotive Company's Affidavit at the Supreme Court, 1999

I remember the day as if it was yesterday. It was April 1999 and I was at my first press conference. It had been organized to tell the world that we had received a legal notice from Tata Motors for a whopping Rs 100 crore.[1] This was over an article that my late colleague Anil Agarwal and I had written, talking about toxins emitted by diesel vehicles that were dangerous to our health. Anil had fallen ill. He had asked me to handle the press. I was faced with what I can only describe as a hostile group—Tata was a respected business house; Centre for Science and Environment (CSE) was unknown at that time, while I was even lesser known.

My message was: Diesel vehicles emit fine particles. They were known then as PM 10 and are now known as PM 2.5—simply because measuring devices have improved over the years. It has been shown conclusively that because of their small size, these particles can penetrate deep into our lungs and enter our bloodstream, leading to cardiac and respiratory problems. The World Health Organization (WHO) had classified these particles as 'likely carcinogen' (since then, it has upgraded the threat to 'carcinogen'). Our conclusion was: Cars should not use diesel. Buses should shift to compressed natural gas (CNG), which emits much lower levels of PM 10 and PM 2.5. The government should rapidly and urgently clean up the quality of fuel and improve vehicle technologies.

At the press conference, our message to Tata Motors was clear: Take us to court. We will not back down from our campaign for clean air.

When I look back, I realize that the press conference was a turning point in our work. The room full of cynical faces looked at me with some amusement. But I had managed to convince some and intrigue others about the need to take air pollution seriously. Interestingly, the very next day, Tata Motors wrote to us saying that they were withdrawing their legal notice.

This was the time when Delhi's air was foul, black and poisonous. My colleagues at the CSE had spent over a year trying to understand the cause of pollution in the city. The book that was an outcome of the research, *Slow Murder*, set the problem out in detail. It found that there had been an explosion in the number of vehicles on the road—a phenomenon driven by the easy availability of the affordable Maruti cars. This, combined with the fact that there was absolutely no standard for the quality of fuel or limits on vehicle emissions, meant that the air of the national capital was toxic. It was also a time when there was absolutely no awareness about the threat to human health from

the air we breathe. My recollection of that period is that we were screaming, but nobody was listening.

Ironically, this was also when smoke was a sign of progress.

Breathless in Delhi

Flash forward to November 2016. Fifteen years later, Delhi's air turned so black that even the most sceptical became breathless. It was literally 'death by breath'. There was no question that Delhi faced a public health emergency because of its deteriorating air quality. Why had the air in Delhi become so bad and what could be done to combat this hazardous pollution?

In the winters of 2015 and 2016, Delhi's air was classified as 'severely polluted' for over 65 per cent of the days in November, December and January. According to the government's own air quality index, this meant that the pollution was so bad that it would cause 'respiratory effects even on healthy people'. In the winter of 2016, the season started with a toxic bang—the level of particulate matter in the city was more than fourteen to sixteen times the safe limit. It was even worse than the infamous London smog of 1952.[2]

There should be no doubt that Delhi's air apocalypse is a result of a combination of causes, including adverse weather. First, Delhi's pollution levels are high because of its own doing, such as the ever-growing number of vehicles on its roads. These include toxic gas–emitting diesel cars. Another reason is the collective inability to check activities such as road and construction dust and the burning of garbage. Second, pollution is also brought to Delhi by winds from Punjab and Haryana when farmers burn leftover paddy straw, which has no value as fodder. Farmers in these states are desperate to clear their fields before planting wheat, and the only alternative to burning the stubble is to use machines to plough it out or to bale it for use in

power plants—which is costly. It is cheaper, and easier, to just set it on fire.

Third, winter is the time for Diwali and several other festivals, and also weddings. This is when people in the city and its vicinity burst crackers, adding to the already polluted air. Over and above this are the near-still weather conditions and winter inversion, which trap the pollutants in the air and make it risky even to take a breath.

This situation is neither new nor unusual.

For me, personally, the 2016 smog was a sign of our failure. It had been due to the dedicated efforts of the CSE that Delhi had cleaned up its foul and toxic air in the past. My colleagues, particularly Anumita Roychowdhury, who leads the CSE's work on air pollution, had pushed the option to leapfrog to cleaner fuel—CNG—which brought benefits. As we would say after the city's bus and rickshaw fleet had been converted to CNG, finally the stars were visible in the night sky over Delhi.

And then, all those benefits were lost.

The reasons are there for all to see. In this period, the number of vehicles surged, not just in Delhi but in neighbouring cities as well. Now, the answer is to limit the number of cars and build a convenient and modern public transport system, so that even the well-off do not use their vehicles. We need to drastically improve the quality of fuel and the technology used in truck engines or find ways for them to bypass cities. We need to find more CNG that can be used in industries. We have to ensure that there is a strict enforcement of rules by institutions that have been deliberately whittled away. We need to clean up or shut down old coal-based power plants and replace dirty combustion fuels, like furnace oil and pet coke, with cleaner alternatives.

All this is difficult—much more difficult today than before. The second-generation reforms for cleaner air entail the mother of all battles.