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## The Coronavirus Offers a Radical New Vision for India's Cities

On the morning of April 3rd, residents of Jalandhar, an industrial town in the Indian state of Punjab, woke to a startling sight: a panorama of snowcapped mountains across the eastern sky. The peaks and slopes of the Dhauladhars—a range in the lesser Himalayas—were not new, but the visibility was. Last summer, Jalandhar had the worst air quality in Punjab, although it still doesn't rank among the most polluted cities in India. On March 24th, as a national lockdown was imposed to stop the spread of the <u>coronavirus</u>, nearly all of Jalandhar's road traffic came to a halt, along with its manufacture of auto parts, hand tools, and sports equipment.

Ten days later, suspended particulates had dispersed from the air, and the Himalayas were unveiled. Residents gathered on their rooftops, posting photos of far, icy elevations towering behind water tanks and clotheslines. "Never seen Dhauladhar range from my home rooftop in Jalandhar," the international cricketer Harbhajan Singh, who was born there forty years ago, tweeted. "Never could imagine that's possible."

The view from my own rooftop, fifteen hundred miles to the south, in Bangalore, has not revealed any equivalent surprises. Instead, there is the birdsong. The constancy of car horns in India is legend, a stock line for travel writers. I could never have imagined it possible, in an Indian city, to wake up not to the sounds of traffic but to the sovereignty of bulbuls and mynahs over the morning air. I wonder when an Indian city last felt like this. I wonder when *I* last felt like this.

It's a guilty pleasure, for sure. In a country where most households live squeezed into a single room, I'm working through the lockdown in an apartment with a balcony covered in potted plants. As people are forced indoors, I can sit under an open sky, beneath passing clouds, studying a birdbath. This is how the world looks from inside the silver lining. Outside, the silence on the street may be therapeutic, but it can also feel grim, suspenseful. It suggests the held breath of a country bracing for disaster—not only for the brunt of a pandemic but for empty savings accounts, purses, and pantries. Millions of Indians eat only if they are paid wages each day, which means that when the lockdown was announced, a second epidemic, of hunger, began to unfold.

As for the virus, the curve is not yet flattening. The circulation of a billion Indians has not settled into the neat grid of social distance. On my phone, I see looming disaster. And yet, looking up, I see something else—a glimpse, behind the jungle crow facing off with two brahminy kites, of an alternative to how we live. In northern India, the change has been as basic as breathing. Of the thirty cities with the worst air pollution in the world, twenty-one are in northern India. New Delhi and its exurbs make up the worst of those. In such places, air pollution may reach us before our first breath—particulates have been found in the placenta of pregnant mothers—and continues to harm us until our last one, increasing the risk of cancer, heart attacks, and respiratory disease. The World Health Organization has linked exposure to PM2.5—particles with a diameter of 2.5 micrometres or less—to a hundred thousand deaths in India each year, and that's just among children below the age of five.

The coronavirus will only compound these morbidities. Studies of viral pandemics such as the 1918 flu, or the 2003 *SARS* outbreak, found that residents of areas with more polluted air were far more likely to die. A team at Harvard made similar findings about *COVID*-19, using data of death rates across the United States. In Delhi, bad air is chronic, but the worst of the smog is seasonal, drifting over the city when the farmers of the Indo-Gangetic plain burn crop stubble after the harvest, in October. To live in Delhi is to agonize, each winter, over your choice to stay and breathe the air, or to be the reason your family has to breathe it.

Historically, the city's curse was harsh weather. Now residents check the temperature less often than they do the air-quality index, or A.Q.I., and its most incriminating measure, PM2.5—the particulates that pass most easily through the lungs. Living in the city, last winter, my waking routine was to look at my phone and see the route to work dotted with flags coded in

red, purple, and black, each with a numerical rating that indicated if it was "unhealthy" or "hazardous" to breathe that day. Often, the ratings would simply be maxed out.

The lockdown, whatever its effect on the virus, has given Indian cities the kiss of life. In a week, Delhi's PM2.5 count dropped by seventy-one per cent. The sky is bluer now, the Yamuna River less black, and my friends say that the stars are out at night. Elsewhere, the number of cities in which India's Central Pollution Control Board recorded "good" or "satisfactory" air rose from fifty-four to ninety-one.

The lockdown is also improving our understanding of the complex phenomena that contribute to pollution. "From a research viewpoint, this is a fantastic experiment," Sarath Guttikunda, a founder and director of UrbanEmissions.info, told me over the phone. Guttikunda's team studies air pollution across India: its baselines, its sources, its chemical interactions. "What we're seeing now is unprecedented: drops in commercial activity, industrial activity, and transport, all at the same time—not just in a city but, significantly, across a region," he said. The past few weeks have allowed his team to assess, for example, how responsible a given city is for its air quality. "We do a lot of modelling for every city of how much pollution is local, and how much is coming from the boundary," he said. "The big cities always point outwards, saying, 'All my pollution is coming from outside.' "Guttikunda's models had suggested otherwise, and from the first day of the lockdown evidence of cities' own contributions became clear. "Now we don't have to blindly say, 'Look, you are responsible for seventy per cent of your pollution. Please do something about it,' "Guttikunda said. "We have that proof."

Blue skies may seem like scant compensation for a frozen economy and a health crisis. But it's worth remembering that last November, Delhi's schools, colleges, construction sites, and many of its offices were ordered to shut down because of the smog. We were already working from home, going out in N95 masks, before the coronavirus was even dreamt of in Wuhan.

Pollution is the world's least exciting pandemic. In India, the crisis has become the norm, not least because it discriminates. The assault is most painful if you're in poverty: if you work on the roadside, commute on a bicycle, or sleep on the street. Emissions may disperse into a common "air shed," but the rich adapt within their own sealed-off, private atmospheres—purifying the air in their bedrooms, their cars, and in the luxury shopping malls that have

replaced the outdoor promenade. Working- and middle-class Indians receive none of this relief.

This discrimination explains some of our passivity. What explains the rest? One problem is that air pollution is especially resistant to single-shot solutions. Its causes literally shift with the wind, varying by time and location, which makes it easier for interest groups to deflect responsibility onto one another. To truly revitalize our air, we need to change how we cook, build, farm, travel, consume, and produce—bearing in mind, through it all, how we breathe.

Such comprehensive action can seem impossible. Guttikunda's hopeful analogy is to the 2008 Summer Olympic Games, a turning point for Beijing, which had the worst air of any major city before ceding that place to Delhi. "What they did during the Beijing Olympics is what is happening now, though it's been forced," Guttikunda said. "For at least a month before, and then for the entire period of the Games, they really, really reduced pollution levels in Beijing. They cut down fifty per cent of transport, literally shut down all the industries within a hundred kilometres of Beijing, placed serious restrictions on the amount of coal being used in the tri-city region. For two months, people got to see the change possible in the city."

Those two months were an experiment, not just in the technical means to achieve cleaner air but in the public's desire for it. "As soon as the Games were over, the restrictions were lifted and the PM2.5 levels shot back up," Guttikunda said. "But now there was a public outcry saying, 'Look, we could have those blue skies for longer. We don't mind the restrictions.' "

That set China on a path to better regulation, more industrial efficiency, new transport systems, and a sea change in its urban air quality.

In India, a full generation or two has known the city only in crisis. When the lockdown ends, I'll fly back to Delhi, hoping to beat the traffic, the construction work, the factory emissions, and the piles of burning litter. I know that all these activities will resume. But maybe we'll confront them differently this time. The cures of collective action were not well known in India, least of all among the rich. The pandemic, though, has been met with an outsized restraint, and with the sacrifice of income, opportunity, and ego. The reward has been a sane and breathable atmosphere. Like a view of snowcapped peaks above a clothesline, we never imagined it was possible. Now we don't have to imagine.

## A Guide to the Coronavirus

- How to practice <u>social distancing</u>, from responding to a sick housemate to the pros and cons of ordering food.
- How the coronavirus behaves inside of a patient.
- Can survivors help cure the disease and rescue the economy?
- What it means to contain and mitigate the coronavirus outbreak.
- The success of Hong Kong and Singapore in stemming the spread holds <u>lessons for</u> how to contain it in the United States.
- The coronavirus is <u>likely to spread for more than a year</u> before a vaccine is widely available.
- With each new virus, we've scrambled for a new treatment. Can we <u>prepare antivirals</u>
   to combat the next global crisis?
- How pandemics <u>have propelled public-health innovations</u>, <u>prefigured revolutions</u>, <u>and redrawn maps</u>.
- What to read, watch, cook, and listen to under coronavirus quarantine

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