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THE OPINION PAGES | OP-ED CONTRIBUTOR

India's Particulate Problem

By MICHAEL GREENSTONE and ROHINI PANDE FEB. 9, 2014

CAMBRIDGE, Mass. — Two years ago, China seemed oblivious to the extraordinary levels of pollution in many of its cities and the health consequences. But over the past six months, there has been an explosion of information on pollution concentrations, warnings from the media and new policies from the government. It took a long time, but change is happening.

Could India be next? In January, India was startled by the release of the annual country rankings of the Yale Environmental Performance Index, which highlighted its troubling air pollution. The calls for change have started: On Monday, the country's powerful Supreme Court will hear an amicus plea on the worsening pollution in New Delhi.

Despite a national election coming in May, air pollution has been largely absent from the debate between the two major political parties, Bharatiya Janata and the Indian National Congress. But many successful Indian environmental policies have come from the Supreme Court, and we encourage it to proceed in this vein by embracing more transparent and flexible market-based regulations to better protect the health of its citizens and allow robust economic growth to continue.

Particulate matter air pollution, which is produced primarily by power plants, industry and vehicles, is deadly, causing short- and long-term cardiorespiratory problems such as strokes, heart attacks and cancer. Throughout India, the extreme levels of this pollution are cause for concern.

According to the most recent data from India's Central Pollution Control Board, the 2010 average for respirable particulate matter concentration across 180 monitored Indian cities was six times what the World Health Organization

considers safe and twice India's own national standards. And the concentration in Delhi is about 13 times higher than the W.H.O. guideline.

A 2013 study (co-written by one of us, Michael Greenstone) measured the effects of particulate matter on life expectancies in China. It found that an additional 100 micrograms per cubic meter of particulate matter in the atmosphere reduced life expectancy at birth by about three years. Using this metric, we estimated that the 200 million people who live in the 180 Indian cities would lose an average of 3.3 years of life because of particulate matter concentrations that exceed India's standards.

This translates into the loss of about 650 million years of life for just the one-sixth of India's population that lives in these cities. Satellite data makes clear that pollution also exists outside the monitored zones where the other one billion people who make up the rest of India live. So the total loss of life expectancy is much greater.

The recent decades of economic growth reflected, in part, significant reductions of regulatory constraints, and the fear of slowing growth has reduced the political will to increase regulations on emissions. But India can continue that growth and provide its citizens with a healthier environment by adopting a regulatory system that is both effective and efficient.

India's current command-and-control style of regulating is handicapped on both counts. It mandates that industrial plants purchase expensive pollution abatement equipment and specifies common pollution standards across the board. Because emissions reductions are much more costly for some plants than for others, these standards are excessively onerous for some and fail to compel the most cost-effective reductions.

Regulators at undersourced pollution control boards must rely on infrequent and often unreliable manual monitoring samplings of emissions by their staffs, which in the best case occur only a couple of times per year, to identify the plants that are violating the standards. As a result, expensive pollution abatement technologies that plants are mandated to install are not used efficiently and sometimes not at all.

So the outcome is doubly bad: Regulations impose substantial costs on the economy while pollution emissions often exceed the state-mandated limit.

Even worse, any violations of these standards are criminal offenses. This

means that to penalize violators, regulators must file and win a criminal case in India's overburdened justice system, making enforcement difficult. So the only potential, swift alternative for regulators is to close down a business — but this, too, is often challenging to enforce.

Cap-and-trade would impose a cost on polluters for every unit of pollution emitted and create incentives to reduce those emissions. At the same time, it would decrease the economic burden of regulation by allowing the regulated firms to coordinate among themselves to hit a specific emissions reduction target in the most cost-effective manner.

In the 1980s, the United States instituted a cap-and-trade market to solve the problem of acid rain; it greatly reduced sulfur-dioxide emissions at a fraction of the projected cost. However, the American experience makes clear that cap-and-trade succeeds only when governments are fully committed to the enforcement of the rules.

India has taken initial steps toward implementing cap-and-trade markets for particulate matter pollution. With guidance from the national regulator, some state regulators are already piloting continuous emissions monitoring and training potential participants for cap-and-trade markets. But more support is necessary to get India's fledgling cap-and-trade markets off the ground.

When the Supreme Court takes this up on Monday, it should consider two key policy changes that would allow India to more efficiently regulate pollution.

First, stationary sources, like power and industrial plants, should be required to install continuous emissions monitoring equipment in order to provide reliable real-time reporting of emissions by polluters and to make these data publicly available. While increased transparency about pollution greatly enhances regulators' effectiveness in its own right, it is also a critical ingredient for a cap-and-trade market.

The second critical ingredient: Instead of having to take polluters to court for breaking the law, regulators should be authorized to impose financial penalties on firms that breach emissions regulations. The United States' successful cap-and-trade markets were, in part, made possible by a little-known but very important part of the 1990 Clean Air Act Amendments that enhanced the Environmental Protection Agency's ability to levy large civil fines on environmental violators.

It is also essential that the pilot markets are rigorously evaluated in stages to ensure that regulators and the public are informed about costs and benefits.

Pollution is not simply an unavoidable side effect of economic growth, but a reflection of societal choices. Seizing these opportunities for reform would lead to longer and healthier lives.

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