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# Viewpoints: Focusing on cleaning up the air

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Special to The Bee

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High-pollution countries such as China and India have not always seemed willing to clean up their air, which in turns dampens American enthusiasm for investing in pollution control and responses to climate change. But in fact, people like Manisha Panwar make it clear that China and India have huge incentives to reduce air pollution, including greenhouse gases.

Most of Panwar's north Indian home state of Uttarakhand rests on the slopes of the Himalayas. Sixty-five percent of the state's area is forest. Fourteen percent is national park or wildlife sanctuary.

Yet Uttarakhand regularly has pollution levels three times India's national standard because the state, with its population of 10 million, receives 25 million tourists every year, most of whom arrive in heavily polluting vehicles of a kind that have not been allowed on American roads for years.

Los Angeles used to be similarly notorious for its smog, but no more. Dense L.A. basin air pollution still leads to an estimated 4,700 premature deaths a year, but the region's public health problems are not on the scale of India's. The World Health Organization estimates that in India 620,000 people a year die prematurely because of outdoor air pollution. Indoor air pollution kills nearly the same number simply because so many Indian households rely on open-flame cooking and whatever free fuels can be found for cooking, lighting and heat.



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The room-filling smoke targets those who frequent humble Indian kitchens: women and children.

Panwar is Uttarakhand's secretary for public health. She traveled to Oakland recently to make an impassioned plea to bring the emissions control technologies that have improved California's air to her state. She was among experts from India's Energy and Resources Institute, California's Air Resources Board and the University of California, San Diego, along with representatives from central and state governments of India who convened under the new India-California Air-Pollution Mitigation Program.

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As we see the evidence she brought of natural beauty under threat and lives at stake, we Californians know we can help. We've been there before.

California has witnessed ambient levels of black carbon decline by a factor of 10. Black carbon is the dominant component of fine particulate pollution from diesel vehicles. In addition, emissions of air pollutants such as carbon monoxide, sulfur dioxide and nitrogen oxides declined in California by a factor of 4 to 10. This massive cleanup happened over the last 40 years primarily as the result of unremitting efforts of the ARB. In that same time period, the state's population doubled and vehicle miles traveled tripled.

California's success comes just as India and China begin to emulate the car-crazy Golden State. India's vehicle population increased from 20 million in 1991 to 140 million in 2011. New vehicle sales in China grew from 1.4 million in 1994 to 18 million in 2010. As vehicle sales explode in developing nations, California provides proof that air pollution need not follow in their draft.

As it is now, about 40 percent of the world's black carbon comes from Asia and more than half from residential sources and diesel engines. Fine particulate pollution from diesel, coal and biomass burning amasses in a brown haze, rides on the jet stream and is deposited in the western United States. The brown haze also contains other gases that add to smog in California, leading to health impacts and cleanup costs for in-state taxpayers and businesses.

The approach of the Air-Pollution Mitigation Program is to focus primarily at the subnational level – among states, industries, municipalities and even households. Our efforts in India are at the outset, but we are seeing significant potential. Last month in New Delhi, the Air-Pollution Mitigation Program took the first steps to create capacity and demand for clean diesel technologies in Indian states such as Gujarat, Punjab and Uttarakhand.

At the state level, the Air-Pollution Mitigation Program team is advancing reformulation of diesel into ultra-low sulfur diesel, along with the introduction of everyday California technologies and emission standards for big rigs that have led to negligible tailpipe emissions. At the household level, the United Nations and multiple NGOs including the University of California hope to attain equally large impacts.

In India, at least 50 percent of particulate matter pollution comes from residential burning of biomass fuels for cooking and heating. We intend to arm women with tools that can save their lives and those of their children: improved cookstoves that drastically cut fuel consumption and pollution, and cellular

phones that connect them directly to carbon markets that will pay them for their efforts. This mobile technology makes clean cooking a lifestyle switch that the poorest of the poor can afford to make.

These subnational and local efforts in cleaning up the air will also have enormously positive global impacts. Black carbon from diesel engines and from residential burning of biomass is a potent climate-change agent that absorbs heat in the atmosphere and hastens the melting of ice and snow from the Himalayas and beyond. Similarly, ozone produced in smog is an important greenhouse gas and contributes to climate change and glacier melting. If the improved cookstoves are adopted worldwide, the reduction in fuel consumption can reduce emission of the dominant climate warming agent, carbon dioxide, by about 1 billion tons each year.

Efforts like the India-California Air-Pollution Mitigation Program and cleaner cooking practices hold much promise for meaningful, large-scale, replicable solutions across continents. Fortunately, entities like the World Bank and other funders are taking note. Beijing, Delhi and other cities are now world-famous for their air pollution. California knows what that is like. So let's do something about it and help ourselves in the process.

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