Adapting to Pollution

Reports of air pollution in China made headlines in early January when fine particulate levels spiked to 25 times greater than the World Health Organization’s (WHO) guidelines. Pollution levels have since declined by nearly 50%—to 12 times beyond the WHO guidelines—a level that no longer generates headlines, but continues to contribute to the chronic pollution that shortens lives and increases respiratory diseases.

China’s Air Pollution Emergency

The high levels of air pollution in Beijing, China, caused by a peak in pollution from industry, vehicles, dust, and power plants, and exacerbated by people trying to stay warm during a cold winter, was a modern-day health emergency. Astronomical levels of particulates, exceeding 900 μg/m³ as reported by the Beijing government—far above the WHO “safe” level of 20 μg/m³—have rarely, if ever, been seen here since air pollution began to be systematically monitored in this city of more than 20 million people. As a result, incidences of premature mortality and cardiovascular and respiratory illnesses, such as asthma attacks, can be expected to rise, taking a toll on public health that leads directly to missed work and school days and other social and economic impacts.
Remarkably unreported is news that Delhi, Tarai, and other Asian cities experience nearly similar episodes on a disturbingly frequent basis. In addition, the government of Tehran in the Middle East warned citizens of alarming levels of air pollution as well.

*The Lancet* journal recently released its 2010 Global Burden of Disease study that used the largest global database ever assembled to estimate risks of premature mortality and contributions to global health burden from a wide variety of risks, including smoking, diet, alcohol, HIV AIDS, and household and outdoor air pollution. The study found that mortality from outdoor air pollution in the developing countries of Asia exceeded a remarkable 2.1 million people annually, fully two-thirds of the worldwide burden. As shown in Figure 1, the China-specific impacts are the highest in Asia at 1.2 million.

**Taking Steps to Reduce Pollution**

It is important to recognize that China is beginning to make an effort to reduce air pollution, as it continues rapid economic development. This includes announcing new vehicle emission and fuel standards and stricter coal-fired source standards that would reduce national air pollution significantly, but only when and if they are met. China recently announced a nationwide monitoring program for PM2.5, the pollutant most associated with adverse health effects, with a commitment to make the data it collects available to the public; a major step forward that in and of itself will drive awareness and change.

In Beijing, government regulators demonstrated that progress can be made during the 2008 Olympic Games. Reducing vehicle travel, phasing out “high polluters,” relocating power plants, and requiring other industry to switch to cleaner natural gas, combined with expanded public transportation...
and other measures, led to a decline in pollution and improvements in health. Unfortunately, this progress supported, in part, by temporary measures, has not been sustained in the context of growth and a return to business as usual.

**What Is Needed?**

In the near term context of an acute air pollution emergency such as China will surely experience again, effective tracking and activation of mandatory measures to reduce pollution before “severe” levels are reached need to be in place in major cities. As occurred during the 2008 Olympics and the Shanghai EXPO 2010, weather and pollution forecasting systems should be permanently linked with clear triggers for early action to minimize pollution and avoid emergency situations. Clear strategies communicated to citizens, especially those at high risk of illness, including the elderly, children, and those with preexisting medical conditions, to minimize exposure during high pollution events can help somewhat. However, having to call on emergency government measures to reduce pollution and change personal behavior in hopes of reducing exposure is regrettable, and is the last resort of ineffective public policy rather than a sustainable way forward to achieve clean air and livable cities.

Power plants and industries need to reduce emissions through converting to cleaner burning fuels and technologies; while vehicles need to expand on earlier progress and adopt stricter emission standards and low sulfur fuels that enable emission control technologies. In both industry and transport, there needs to be an increase in efficiency and mass transportation, while at the same time providing additional reductions in greenhouse gases.

Finally, and most importantly, the standards already on the books need to actually be enforced. Study after study document the economic benefits of clean air relative to avoided health costs. China, as a world economic leader, can use this unfortunate event as an opportunity to demonstrate to its Asian neighbors that its leadership can also be applied in the interest of its people’s health and environment.

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**Air Quality Facts**

Seven out of ten cities in developing Asian countries have air that is dangerous to your health. Clean Air Asia. See http://cleanairinitiative.org/portal/node/3962.

Exposure to hazardous emissions from transport can be even worse if you live within 500 m of a major road, as 55% of Delhi and 77% of Beijing residents do. Health Effects Institute. See http://pubs.healtheffects.org/view.php?id=334.

The 2010 Global Burden of Disease study states that outdoor air pollution in the form of fine particles contributes annually to more than 3.2 million premature deaths worldwide and 74 million years of healthy life lost. It now ranks among the top global health risk burdens. See http://cleanairinitiative.org/portal/node/11507.

Beijing Environmental Protection Bureau announced new vehicle emission standards that that would reduce air pollution from Beijing’s 5.2 million vehicles by 40%. See http://www.chinadaily.com.cn/cndy/2013-01/24/content_16167765.htm.