

Controlling Mercury Pollution in China and India

How the Minamata Convention on Mercury could affect emissions from coal power plants

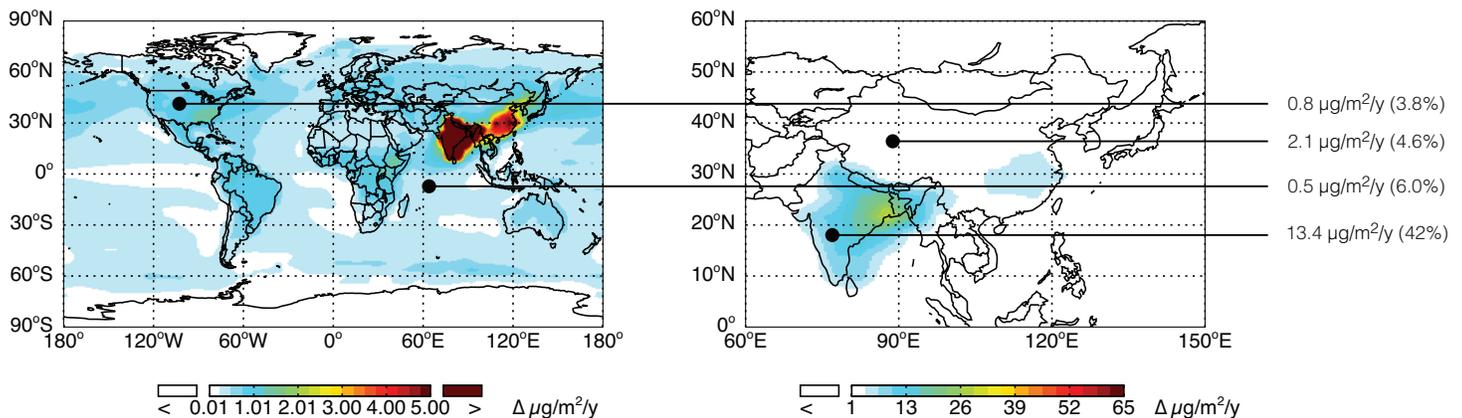


Figure: Avoided 2050 mercury deposition from adopting moderate pollution control technology. Numbers indicate average avoided deposition for select regions, and the percent of present-day deposition this corresponds with.

Key Findings

Pollution control technologies have big benefits.

Technologies that India and China would likely adopt if given flexibility avoid about 12 percent of present-day emissions. Requiring stronger but technologically feasible pollution control methods avoids another 8 percent—an amount equivalent to India's total present-day emissions.

An energy-systems approach has even bigger benefits.

A global transition away from coal would be even more beneficial for mercury pollution. Even assuming that no new pollution control technologies are adopted, transitioning away from coal avoids 6 and 36 percent more mercury emissions in China and India, respectively, than strong technology standards with heavy coal use.

Reducing emissions lowers domestic pollution.

While mercury emissions contribute to global mercury pollution, emissions from coal power plants are also deposited as local pollution. As a result, the benefits from reduced mercury emissions will be felt most strongly in the countries making the reductions, in addition to at the global level.

What is the Minamata Convention?

The Minamata Convention on Mercury, adopted by the UN in 2013, aims to reduce global mercury pollution and protect human health by setting limits on specific pollution sources and prohibiting new mercury mining. Some specifics of the treaty requirements are still being determined. For instance, the convention gives nations the flexibility to create their own plans for reducing mercury emissions from some sources, like coal-fired power plants. How nations choose to address these emissions will impact global and regional mercury pollution, since coal-fired power plants are responsible for about a quarter of mercury emissions worldwide.

Why are India and China important?

China is currently estimated to emit about a third of global emissions, and India is the second largest source at 7 percent. These emissions come from a variety of activities—mining, cement production, metal smelting—but coal combustion for industry and electricity generation is one of the biggest sources in these countries, and this source is expected to grow as economies develop.

Study Methodology

Researchers evaluated different methods of reducing mercury emissions from coal-fired power plants, and how emissions travel through the atmosphere and enter ecosystems. Through analysis of existing studies, policies, and interviews with Convention negotiators, researchers identified technologies that India and China would likely adopt if given flexibility. They also studied the effect of stronger technology requirements and an energy system shift away from coal toward low-carbon energy sources.

More information:

MIT Joint Program on the Science and Policy of Global Change



@MITGlobalChange

MITGlobalChange

<http://globalchange.mit.edu>

The Selin Group at MIT

<http://mit.edu/selingroup>

This research was supported in part by the U.S. National Science Foundation.

Study: Giang, A., L.C. Stokes, D.G. Streets, E.S. Corbitt and N.E. Selin, 2015: Impacts of the Minamata Convention on mercury emissions and global deposition from coal-fired power generation in Asia. *Environmental Science & Technology*. (Joint Program Reprint 2015-6: <http://globalchange.mit.edu/research/publications/2898>)