



TEN STRESSES ON THE PLANET

Air Pollution

In 2000, an estimated 800,000 people around the world died from health problems worsened by air pollution.ⁱ While some air pollutants, such as sulfur dioxide, nitrogen oxide, ozone, and carbon monoxide, are declining in the US and Europe, they are increasing in other countries. Some northern cities of China experience sulfur dioxide and particulate levels three to eight times those of World Health Organization (WHO) guidelines, and Mexico City's residents breathe ozone levels more than 50 percent above these guidelines. Seven out of ten children in Mexico City are born with higher levels of lead in their blood than WHO standards.ⁱⁱ

SOURCES OF AIR POLLUTION

Burning fossil fuels, such as coal, oil, and natural gas, contributes more to air pollution than any other activity. Emissions include particulates, heavy metals, and acid gases, some of which travel long distances in the upper atmosphere.ⁱⁱⁱ For example, one of the largest sources of the heavy metal cadmium in our air is from fossil-fuel emissions.^{iv} The gases sulfur dioxide and nitrogen oxides, released when fossil fuels are burned, fall back to Earth as acid rain. In southern Norway, 80 percent of lakes are either biologically dead or endangered, and in Sweden 4000 lakes no longer support fish due to acidic conditions. In western Germany, acid rain has damaged more than half the forests. Acid rain has caused considerable damage to conifer forests in the Appalachian Mountains and to sugar maple trees in eastern Canada.^v In the US about 1200 lakes have become so acidified that little can live in them.^{vi} In many developed countries, the situation is expected to improve in the next decade, but elsewhere in the world, it is expected to worsen.

As a result of human impact on land, some natural sources of air pollution, such as forest fires and dust storms, are also becoming a threat to global air quality. With increasing drought conditions, clouds of dust are picked up by winds in Africa and China and carried across the Atlantic or Pacific oceans. The dust often carries with it toxic substances, such as bacteria or pesticides, and is the suspected cause of massive die-offs of soft coral in the Caribbean.^{vii} A substantial source of mercury in Pacific Northwest rivers comes from dust storms that have picked up the pollutant from Chinese coal plants.



EFFECTS ON HUMAN HEALTH

Air pollution's harmful effect on humans was brought to public attention with the Donora and London smog episodes. In 1948, the steel-mill town of Donora, Pennsylvania was blanketed by noxious smog. Residents had to keep their lights on all day. Twenty people died, and 7000 were sickened. Four years later was London's Great Smog in which 4000 people died as a result of

industrial and coal-burning pollutants. These incidents led to the first national clean air legislation that required some controls on industrial and coal-burning emissions.

According to the EPA, motor vehicles are the single largest contributor to cancer risks from exposure to air toxics.^{viii} Diesel exhaust from vehicles, as well as construction and agricultural equipment, is particularly dangerous. In addition to the nearly 40 toxic substances such as metals and gases that diesel exhaust contains are particulates so small that they carry additional toxins to the deepest part of the lungs where the most damage can occur. Children riding diesel school buses increase their cancer risk, according to a California study.^{ix}

Since the 1970s when buildings became air tight, indoor air pollution has become more of a concern for human health. According to the EPA, some offices, schools, hospitals, and nursing homes have levels of formaldehyde, asbestos, pesticides, organochlorines, and endocrine disruptors as high as 100 times the outdoor levels. Some of the sources of these pollutants include carpets and their adhesives, caulk, paints, computer cables, flooring tiles, and particle board.^x

WHAT IS BEING DONE?

In the US, the Clean Air Act of 1970 and subsequent amendments have been effective. Although there is still concern about two of the six major pollutants covered—ozone and particulates—the other four—carbon monoxide, sulfur dioxide, nitrogen dioxide, and lead—are no longer released at unhealthy levels. To supplement the national standards, California's Air Resources Board established vehicle emissions standards stricter than those required by the Clean Air Act, making their emission tests among the strictest in the world. Today, 35 states have adopted measures that are modeled after those of California.^{xi}

ⁱ www.who.int/whr/2002/chapter4/en/index7.html, accessed 3/15/06

ⁱⁱ Iggers, Jeremy, *The Costco Connection*, August 1991

ⁱⁱⁱ Iggers, Jeremy, *ibid.*

^{iv} www.epa.gov/epaoswer/hazwaste/minimize/factshts/cadmium.pdf, accessed 6/20/06

^v *The Earth Report*, 1988

^{vi} Brower, Michael and Leon, Warren, *The Consumer's Guide to Effective Environmental Choices*, 1999

^{vii} Ryan, John C., *WorldWatch*, January/February 2002

^{viii} *EarthWatch Oregon*, October 2002

^{ix} California Air Resources Board, Children's School Bus Exposure Study, www.arb.ca.gov/research/schoolbus/schoolbus.htm, accessed 6/20/06

^x Gettlin, Robert, Newhouse News Service, 1989

^{xi} "Automobile Emissions Control," <http://en.wikipedia.org>, 6/20/06