



## The Effects of Toxic Pollution in the Developing World

Toxic pollution is a major threat in poor countries, where millions of people are routinely exposed to levels of toxins simply unacceptable in the West. Pollutants include lead, mercury, hexavalent chromium, radionuclides and arsenic, among others. Pollution sources are: *active*, where toxins are currently being released from significant point sources; *legacy*, where pollution is left from old industry; or a combination of the two. Because of greater worldwide focus on environmental issues in recent years, legacy pollution is the major concern today. Approximately 200 million people are acutely affected by toxic pollution in the developing world.

The World Health Organization, in conjunction with the World Bank, estimates that 20% of deaths in the developing world are attributable to environmental factors from pollution. There is an additional, as yet uncounted burden of disease and suffering, specifically:

### Health:

Health effects include cancer; cognitive impairment; organ damage; respiratory issues that can lead to pneumonia; and diarrhea and vomiting that can lead to dehydration. Because of their small size and greater hand to mouth behavior, children, born and unborn, are disproportionately affected by pollutants. Health effects in children from exposures *in utero* include prematurity, low birth weight, blindness, cerebral palsy, and cognitive impairment. There is also some evidence that exposures to pollution may suppress immune function. Some studies indicate greater rates of asthma, influenza, and respiratory and gastrointestinal infections, as well as reduced immune response (that is, reduced effectiveness) to vaccines in children exposed to pollutants.

### Education:

Because pollution can cause cognitive impairment and learning disabilities, it undermines efforts to educate children. This is especially true when pollution is widespread, for example where 100% of 0-2 year olds have blood lead levels above 10ug/dL. It is well established that on a population level, there is a positive linear relationship between educational and health status.

### Economic Development:

Population-wide drop in IQ levels can severely hinder national economies. Under normal circumstances in a population of 100 million, if average IQ is 100, there are 6 million gifted people (IQ above 130) who can be expected to drive the economy forward, and 6 million cognitively impaired (IQ below 70) who will likely depend on social or government welfare. If the average IQ in that population is driven down 5 points to 95 as a consequence of widespread exposure to lead, the number of gifted individuals falls by more than half to 2.4 million, while the number of cognitively disabled persons rises to 9.4 million. This decimates the future leadership of entire countries and further increases disparities between rich and poor nations.

### Ecological:

In addition to damaging human health, toxins can weaken or kill local wildlife and food crops, which can in turn exacerbate food shortages.

Finally, and almost unbelievably, most toxic pollution is **finite** and **fixable**. In general, affected countries do not lack will, but rather funding and technical know how. Legacy contaminants can be cleaned up, and active polluters can be stopped through a mixture of regulation, community education, and use of alternative and modern technologies.

Addressing toxic pollution in the developing world will reduce poverty, maternal and infant mortality and illiteracy, among other issues.