



The Economic Benefit of Pollution Clean-Up

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BLACKSMITH INSTITUTE.

Blacksmith Institute is a New York based organization formed in 1999 to remove the severe health risk posed to the world's poor by pollution. In its brief history Blacksmith has intervened successfully at more than 50 heavily contaminated sites internationally affecting more than 1 million people. These projects have ranged in size from small scale campaigns aimed at reforming cottage industries, to large 'multi-modal' programs leveraging funds from local governments and multi-lateral donors.

GLOBAL INVENTORY PROJECT.

The Global Inventory Project (GIP) is a partnership between Blacksmith Institute and UNIDO with backing from the European Commission and Asian Development Bank to develop a comprehensive list of polluted places with a clear human health impact. We are hiring a team of investigators in 80 countries to assess hundreds of sites using our Initial Site Assessment protocol (ISA). The result will be a searchable database of polluted sites that can be used by the international community to prioritize sites for remediation. We will use it to leverage funds to remove the health threat pose by pollution around the world.

ECONOMIC COST OF POLLUTION ON HUMAN HEALTH.

The effect of pollution on human health has a societal economic impact. This impact is quantifiable in increased healthcare costs as well as productivity lost due to decreases in IQ, among other factors.

A 2002 study by Landrigan, et al, examined increased pediatric healthcare costs due to environmental exposure in four diseases: lead poisoning, asthma, cancer and developmental disabilities. The study found that environmental exposure in relation to these diseases composed approximately 2.8% of total annual US health care costs, or \$54.9 billion.

Costs can also be measured in productivity lost due to decreased IQ, among other factors. A 2005 study (Trasande 2005) examined the role of decreased brain development due to methyl mercury on lost economic productivity in the US. These analyses found that 600,000 children suffered loss of IQ annually as a result of mercury pollution each year with resulting lost economic productivity of \$8.7 billion annually. These data provided the impetus to prevent efforts to allow coal-fired power plants to emit greater amounts of mercury that were proposed during the Bush Administration, and eventually contributed to a US Federal Court decision to overturn the Clean Air Mercury Rule proposed by the Bush Administration.

The United States and other high-income nations have in large measure adopted pollution control mechanisms and dealt with the issue of legacy wastes. While the studies above indicate that the health impact of pollution in these countries is significant, the reality in the rest of the world is much more grim. Many low- and moderate-income countries have only recently begun to deal with this problem. Indeed, current estimates indicate that up to 40% of deaths globally are attributable to environmental factors (Pimentel 2007).

A detailed analysis of the economic impacts of pollution due to increased healthcare costs and lost productivity in the developing world does not exist. The data from the Global Inventory Project will serve as the basis for such an analysis. What is clear is that current evidence suggests the costs, both actual and opportunity are of an order of magnitude higher than in wealthier nations.

COST EFFECTIVENESS OF DEALING WITH POLLUTION

Relative to other public health interventions, pollution remediation can be very cost effective. Typically, in discussing these issues, effectiveness of interventions is measured using Disability Adjusted Life Years (DALY) or Quality Adjusted Life Years (QALY). These represent calculations of the years of "healthy life" lost due to the impacts of a particular disease or cause, in a specified area. Given the DALY or QALY impact, and the total cost of a project, one can fairly accurately assess the cost effectiveness of a public health intervention.

In 2007, Blacksmith Institute used this methodology to compare some of its projects with other public health interventions. Among other findings, Blacksmith determined that its projects cost between \$1 - \$50 per year of life gained. This compared favorably to the \$35 to \$200 per year of life gained for World Bank estimates on interventions related to water supply, improved cooking stoves and malaria controls.

Landrigan PJ, Schechter CB, Lipton JM, Fahs MC, Schwartz J. Environmental Pollutants and Disease in American Children: Estimates of Morbidity, Mortality, and Costs for Lead Poisoning, Asthma, Cancer, and Developmental Disabilities. *Environmental Health Perspectives*. 2002;110(7):721-8.

Pimentel, D. et al. "Ecology of Increasing Diseases: Population Growth and Environmental Degradation." *Human Ecology*. 35.6 (2007): 653-668. <http://www.news.cornell.edu/stories/Aug07/moreDiseases.sl.html>

Trasande L, Schechter CB, Haynes KA, Landrigan PJ. Mental retardation and prenatal methylmercury toxicity. *Am J Ind Med*. 2006 Mar;49(3):153-8.