

Environmental Pollution and Occupational Health in a Changing World

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Environmental pollution is the main cause of disease and death in the developing world. In 2012, exposures to polluted soil, water, and air resulted in an estimated 8.4 million deaths worldwide.^{1,2} By comparison, HIV/AIDS is responsible for 1.5 million deaths annually³ and malaria and tuberculosis less than 1 million each.⁴ More than 1 in 7 deaths globally are the result of environmental pollution.

The overwhelming majority—94%—of the disease burden of pollution falls on low- and middle-income countries (LMICs).⁵ These are the countries least well equipped to deal with the problem. Industries that cause pollution are relocating from Europe, Japan, and the United States to poor countries where they expose both workers and communities, often under highly uncontrolled conditions. The Bhopal disaster was a tragic example, but not an isolated episode.⁶ Toxic chemicals, hazardous pesticides, and dangerous wastes banned in Western Europe and North America are manufactured, used, and recycled on an ever-increasing scale in Africa, South Asia, and Latin America. Global asbestos sales, for example, continue at 2 million tons per year, virtually all in LMICs.⁷ Electronic waste (e-waste) is pouring into poor countries at a rate of almost 40 million tons per year.⁸

Residents of poor countries are disproportionately poisoned, suffer disabilities, and die prematurely of pollution. Workers, women, and children are the groups most heavily exposed. The global problem of pollution is environmental injustice on a planetary scale.⁹

Pollution in low-income countries arises from multiple sources. Particulates from power plants, cars, and trucks pollute outdoor air. Cook stoves poison indoor air. Mercury, lead, and other metals from mining, smelting, and recycling contaminate air, soil, and water. Sewage, pesticides, and toxic chemicals pollute waterways. The diseases caused by pollution are diverse. They include pneumonia, asthma, and diarrheal disease. But also on the rise are cardiovascular diseases,¹⁰ cancer,¹¹ and neurodevelopmental disorders.¹² The occupational diseases caused by pollution include lead poisoning, acute and chronic pesticide poisoning, silicosis, byssinosis, and asbestos-related diseases.

The good news is that pollution can be controlled. High-income countries have identified their environmental problems. They have developed practical, cost-effective control strategies to control environmental and occupational diseases. These strategies succeed by controlling exposures. Lead has been removed from gasoline. Asbestos use has been sharply curtailed and in some countries banned. Air and water pollution have been reduced. Highly toxic pesticides have been replaced. These actions have produced tangible health benefits. They have lifted the economies of entire nations.¹³ They provide a blueprint that can be replicated in developing countries.

Despite its importance and preventability, environmental pollution has not received the priority it deserves in the international development agenda. Although international aid through the Global Fund for HIV, Malaria and Tuberculosis exceeded \$28 billion in 2013,¹⁴ less than \$100 million in international aid resources are directed each year toward pollution.

Developing countries are beginning to request international support to help clean up their pollution. International development assistance that supports training, capacity-building, and technology transfer provides a means for achieving this goal. But to be effective, pollution control programs need to be assigned high priority. They need to move beyond their current limited foci on mercury, toxic pesticides, and protection of the ozone layer. And most importantly, they need to be adequately funded.

The post-2015 sustainable development goals (SDGs) currently under discussion in the United Nations¹⁵ offer an unprecedented opportunity to focus the world's attention on the problem of pollution. Like the millennium development goals before them, the SDGs will shape the global development agenda for years to come. They will have enormous influence over the allocation of resources. Unfortunately, this opportunity is in grave danger of being squandered.

SDG 3, the health goal, urges the global community to “attain healthy lives for all.” The latest revision sets bold, specific targets for reducing maternal mortality; preventing infant and under-5 deaths; achieving universal health coverage; and ending the epidemics of HIV/AIDS, tuberculosis, and malaria. These very clear targets will powerfully drive the development agenda. But when it comes to diseases caused by pollution, this goal calls only for their “substantial reduction” and sets no hard targets.

Likewise SDG 12, the sustainability goal, calls for the promotion of sustainable consumption and production patterns. But when it comes to pollution, this goal calls only for “sound management of chemical and hazardous wastes” and for “significant reduction of releases to air, water and soil,” again, no hard targets.

It is time to focus the world’s attention on the great and growing global problem of environmental pollution. It is time to set hard, but feasible numerical targets for pollution control. Pollution deserves as much attention as the infectious diseases. And the global response to pollution deserves the same degree of rigor as has been applied to AIDS, tuberculosis, and malaria.

This special issue of the *Annals of Global Health* focuses on environmental and occupational health on a planetary scale. It presents articles on asbestos, hazardous waste, global climate change, and occupational hazards. It presents strategies for measuring pollution, for disaster response, and for community mobilization to counter environmental degradation. It portrays the complex, multifactorial, and highly inequitable reality that is environmental pollution in the modern world.

Our goal in this issue of *Annals of Global Health* is to persuade our readers of the importance of environmental pollution in global health. We wish to remind our readers of the deep injustices that underlie and shape global patterns of pollution—pollution falls almost always on the most vulnerable persons in the world’s poorest countries. We wish to convince the international development community of the need for massive scale-up and much more carefully formulated strategies for pollution control.

Focus by the international community on environmental pollution can save the lives of millions, cost-effectively and predictably. The need is great. The time is now.

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