

Pollution causes 40 percent of deaths worldwide, study finds

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About 40 percent of deaths worldwide are caused by water, air and soil pollution, concludes a Cornell researcher. Such environmental degradation, coupled with the growth in world population, are major causes behind the rapid increase in human diseases, which the World Health Organization has recently reported. Both factors contribute to the malnourishment and disease susceptibility of 3.7 billion people, he says.

David Pimentel, Cornell professor of ecology and agricultural sciences, and a team of Cornell graduate students examined data from more than 120 published papers on the effects of population growth, malnutrition and various kinds of environmental degradation on human diseases. Their report is published in the online version of the journal *Human Ecology* (available at www.springerlink.com/content/101592/ , to be published in the December print issue).

"We have serious environmental resource problems of water, land and energy, and these are now coming to bear on food production, malnutrition and the incidence of diseases," said Pimentel.

Of the world population of about 6.5 billion, 57 percent is malnourished, compared with 20 percent of a world population of 2.5 billion in 1950, said Pimentel. Malnutrition is not only the direct cause of 6 million children's deaths each year but also makes millions of people much more susceptible to such killers as acute respiratory infections, malaria and a host of other life-threatening diseases, according to the research.

Among the study's other main points:

-- Nearly half the world's people are crowded into urban areas, often without adequate sanitation, and are exposed to epidemics of such diseases as measles and flu.

-- With 1.2 billion people lacking clean water, waterborne infections account for 80 percent of all infectious diseases. Increased water pollution creates breeding grounds for malaria-carrying mosquitoes, killing 1.2 million to 2.7 million people a year, and air pollution kills about 3 million people a year. Unsanitary living conditions account for more than 5 million deaths each year, of which more than half are children.

-- Air pollution from smoke and various chemicals kills 3 million people a year. In the United States alone about 3 million tons of toxic chemicals are released into the environment -- contributing to cancer, birth defects, immune system defects and many other serious health problems.

-- Soil is contaminated by many chemicals and pathogens, which are passed on to humans through direct contact or via food and water. Increased soil erosion worldwide not only results in more soil being blown but spreading of disease microbes and various toxins.

At the same time, more microbes are becoming increasingly drug-resistant. And global warming, together with changes in biological diversity, influence parasite evolution and the ability of exotic species to invade new areas. As a result, such diseases as tuberculosis and influenza are re-emerging as major threats, while new threats -- including West Nile virus and Lyme disease -- have developed.

"A growing number of people lack basic needs, like pure water and ample food. They become more susceptible to diseases driven by

malnourishment, and air, water and soil pollutants," Pimentel concludes. He and his co-authors call for comprehensive and fair population policies and more conservation of environmental resources that support human life.

"Relying on increasing diseases and malnutrition to limit human numbers in the world diminishes the quality of life for all humans and is a high-risk policy," the researchers conclude.

Source: Cornell University

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