

Researchers Warn of Impending Disaster from Mass Arsenic Poisoning

Press Release WHO/55

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The September issue of the *Bulletin of the World Health Organization (WHO)* focuses on current challenges for environmental health. Among the main articles in this issue are:

Contamination of water supplies by arsenic in Bangladesh

Allan H Smith, professor of epidemiology at the University of California at Berkeley, USA, et al report that a long-term epidemic of cancers and other fatal diseases is facing Bangladesh because of contamination of water supplies by naturally-occurring arsenic. The catastrophe is on a vast scale and needs to be declared a public health emergency, the article's authors warn.

Arsenic contamination of ground water has been found in many other countries, including Argentina, Chile, China, India, Mexico, Taiwan, Thailand and the United States, and is a global problem. But Bangladesh's plight is unprecedented, the article says - between 35 and 77 million people of the country's total population of 125 million are at risk of exposure to arsenic in their drinking water. At least 100 000 cases of debilitating skin lesions are believed to have already occurred.

"Bangladesh is grappling with the largest mass poisoning of a population in history...the scale of this environmental disaster is greater than any seen before. It is beyond the accidents at Bhopal, India, in 1984, and Chernobyl, Ukraine, in 1986," says Smith.

Based on information from visits to Bangladesh by Professor Smith between 1997 and 1998, this issue's lead article predicts a major increase in the number of cases of diseases caused by arsenic if the population continues to drink arsenic-contaminated water. These range from skin lesions to cancers of the bladder, kidney, lung and skin, neurological effects, cardiovascular and pulmonary disease, and diabetes. The diseases may develop slowly over many years.

"It is reasonable to expect marked increases in mortality from internal cancers once sufficient latency has been reached," Professor Smith says. Studies in other countries where the population has had long-term exposure to arsenic in groundwater indicate that one in ten people who drink water containing high levels of the poison may ultimately die from cancer. Dramatic increases in such deaths and cases have been reported in Taiwan, Chile and Argentina.

The poisoning in Bangladesh stems from the creation during the last 20 years of millions of small tube-wells which are inserted into the ground at depths of usually less than 200 metres and then capped with a metal hand pump. Ironically, many of the first wells were constructed as part of a programme to provide "safe" drinking water.

At the time, however, arsenic was not recognised as a problem in water supplies and the standard water testing procedures did not include tests for it.

The alarm was first raised when doctors saw cases of arsenic-induced skin lesions in West Bengal, India, in 1983. More than 1.5 million people were thought to be exposed to arsenic there, with more than 200 000 cases of poisoning.

Similar cases then began to appear in neighbouring Bangladesh. Arsenic contamination of water in the wells was first confirmed there in 1993 and in many studies since then. Wells in several hundred villages have been scientifically surveyed as part of a government programme, but Professor Smith says more urgent action is necessary.

"The discovery of arsenic contamination of ground-water in many nations, including Argentina, Chile, China, India, Mexico, Taiwan, Thailand, the United States and now Bangladesh, shows that this is a global problem," he writes.

Professor Smith believes that had a public health emergency been declared, this "might have prompted a more rapid response to the problem...millions of wells and people remain to be examined."

"The response to arsenic contamination is clear-cut," he notes. "Provide arsenic-free water...the health of the population is at risk and relief cannot wait for further surveys."

Unlike other major health problems in Bangladesh, arsenic-caused diseases can be eradicated at relatively low cost, according to Professor Smith. The core activity of an emergency action plan should be rapid case ascertainment and immediate provision of arsenic-free water, followed by treating and monitoring patients, the education of communities about the risks and the provision of information about medical care.

The harm and good done by cities

Cities are the driving force of economic growth, but they are also sources of poverty, inequality and environmental health hazards. For developing countries, the problems of urban environmental health are considerable. On pages 1117-1126, McMichael discusses the issues for low-income countries and argues that long-term solutions require radical social and technological changes.

Understanding El Niño

Kovats (pp. 1127-1135) explains how El Niño is directly linked to weather changes all over the world, which in their turn cause floods, drought, famine, forest fires and epidemics of vector-borne and hygiene-related diseases. El Niño causes the occasional long warm periods occurring around the Equator in the Pacific. The deaths caused by El Niño are estimated in thousands, and the disaster-related damage in billions of dollars.

But seasonal forecasting is becoming possible and early warning systems for disasters and epidemics are gradually taking shape.

Indoor air pollution kills

Indoor air pollution may well account for nearly 2 million deaths a year in developing countries and some 4% of the global burden of diseases. Bruce et al. review evidence for the association between this common environmental defect and bad health (pp. 1078-1092).

Burning questions

An environmental health movement is gathering strength in industrialized countries. Opinions differ as to whether it is overriding the needs of developing countries or helping to meet them. Some of the issues are discussed in the Round Table (pp. 1156-1161).

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