

Removing Arsenic and Saving Lives in West Bengal, India

By John Kayser

Arsenic is a naturally occurring, semi-metallic compound commonly found in water in many parts of the world, including India, Bangladesh, Taiwan, Japan, Mexico and some parts of the US. It requires water testing and analysis to detect as it is usually tasteless and odorless. Arsenic causes a sure and rapid death at high doses; ingested at lower doses over an extended period, it can cause a host of ailments, including skin disorders, cancers (particularly of the bladder and lungs) and eventually, death.¹

Defining a crisis

An environmental health crisis of disturbing proportions continues to unfold in the West Bengal region of India where eight of 19 districts have reported high arsenic concentrations. India's maximum permissible limit is 0.05mg/L; World Health Organization's (WHO) established limit is 0.01 mg/L.

A population of more than 30 million lives in the affected area, which spans 13,000 square miles. The number of inhabitants actually using contaminated water as a primary source is esti-

imated at more than 1.3 million, although the numbers have improved somewhat with awareness and mitigation efforts. Hundreds of thousands have been diagnosed with chronic arsenic poisoning; millions more are thought to be at risk. Studies in the region indicate that hundreds of thousands of people are demonstrating late-stage manifestations of chronic arsenic poisoning. Extreme poverty compounds the problem as few victims seek medical attention until the damage is done.

The first visible sign of chronic arsenic poisoning is melanosis (dark spots) on the chest, back, limbs and gums. In the more advanced stages, wart-like skin eruptions develop on the hands, feet and torso, which can lead to skin cancers. Continuing arsenic exposure may result in the enlargement of the liver, kidneys and spleen, which often develop malignant tumors. Long-term exposure can also result in disorders of the gastrointestinal, circulatory and nervous systems.

Arsenic hasn't always been a water problem in West Bengal. It is, in fact, the by-product of attempts to solve other problems inherent with the surface wa-

ter in the region, which is contaminated with microbiological, industrial and agricultural agents. Over the past several decades, the installation of shallow tube wells was heavily promoted as a safe alternative to the contaminated surface water. In the 1980s, scientists began finding evidence of arsenic contamination in this groundwater; it wasn't until the mid-1990s that the dilemma became widely recognized.

Designing a solution

Water for People intervened in response to the crisis. Dr. Arun Deb, a former member of the organization's Board of Directors, initiated work in the West Ben-



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