

## DM2009 Project Summary

Project Number: 4616      Booth Number: 86

Low-Cost Water Filter Designed to Stem Arsenic Poisoning in Bangladesh

COUNTRY: Bangladesh

ORGANIZATION: Lutheran Health Care Bangladesh (LHCB)

FUNDING REQUEST: \$197,354

**OBJECTIVE:** To educate communities about arsenic, its hazards, and arsenic-borne diseases, motivating them to use these filters and get less arsenic exposure; to modernize communities' knowledge about arsenic-borne diseases and provide arsenic mitigation filters to approximately 10,000 households; and to foster community trust by sharing field/laboratory tests results regarding its effectiveness.

**RATIONALE:** In Bangladesh, arsenic in drinking water makes millions sick and causes about 3,000 deaths annually. Sixty percent of affected people are identified by sores on their chests and blackened knotty palms. Long arsenic exposure causes various cancers, leads to social isolation because of the added burden of poor health; women and children are vulnerable to this. LHCB was installing deep tube-wells, which are expensive, to mitigate arsenic. Therefore, we innovated a low-cost, environmentally friendly technology to reduce arsenic exposure.

**INNOVATION:** Generally, people use a non-hygienic, three-pot filter, which only cleans iron. Our innovative four-layer filter mitigates both arsenic and iron, and lasts longer, with a low maintenance cost. It requires a 24-inch-high plastic drum containing 4 inches of stone at the bottom, 9 inches of red sand above that, and 4 inches of normal sand at the top. In addition, a plastic pot with a 4-inch stone and a tiny hole at its bottom is set on the drum. The top pot holds contaminated water that passes slowly through the hole into its bottom drum. This process removes iron and arsenic, and the outlet tap produces an acceptable standard of drinking water. It is typical to mitigate arsenic using expensive technology, but our modern and low-cost alternative will be acceptable.

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