Expanding biosand filters usage for safe water supply in communities by enhancing its technical design and increasing community awareness and participation

Abstract

Globally more than 800 million people lack access to safe drinking water, which has become a serious challenge in terms of ensuring public health. The Biosand filter (BSF) is one of the effective household level technologies that is rapidly expanding in many developing countries. Currently more than 650,000 BSF units are implemented in 59 countries impacting more than 4 million people. The conventional BSF is effective in removing turbidity and microorganisms. However, it has some limitations in terms of removing other contaminants that are of significant public health risk globally such as arsenic, fluoride, viruses, nitrate and other dissolved contaminants. We propose to enhance the conventional BSF by modifying its design and filter media to significantly improve its performance and enable it to remove multiple contaminants simultaneously. The modification intends to minimize the treatment steps for safe drinking water production that has poor water quality with multiple contaminants.

Although BSFs are thought to be robust and effective in providing safe drinking water, some studies show that significant amount of the filters do not function properly or are abandoned. This is believed to be due to the fact that users lack proper understanding of the technology and limited community engagement in the whole process of planning and implementation of the system. Hence, we plan to assess the social and educational aspects of the technology to improve its sustainable use and acceptability by communities. In this respect, the project includes educational and behavioral change aspects of the technologies and practices to improve user acceptability and sustainability of the systems for better public health outcomes. It will investigate the use of community participatory research to improve the success of small scale technologies in general and BSF in particular. This will target K-12 school children, teachers and community leaders. We plan to demonstrate the technology in selected schools and in areas of disadvantaged communities.

We would like to get support from the Joy McCann Foundation to support graduate and undergraduate students in the development of the modified technology and demonstration activities.

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