

The health consequences of inadequate water and sanitation services include an estimated 4 billion cases of diarrhea and 1.9 million deaths each year, mostly among young children in developing countries. Diarrheal diseases lead to decreased food intake and nutrient absorption, malnutrition, reduced resistance to infection, and impaired physical growth and cognitive development. Water and sanitation interventions to reduce diarrheal disease incidence in developing countries fall into four general categories: water provision, household water treatment, handwashing promotion, and sanitation. Each of these interventions is proven to reduce diarrheal disease incidence. Organizations are often faced with the difficult decision of where to focus limited resources in order to improve water and sanitation conditions. Selecting the most appropriate intervention for a specific location depends on existing water and sanitation conditions, cultural acceptability, hydrology and water quality, implementation feasibility, and local conditions.

### Water Provision

Currently, 1.1 billion people worldwide lack access to safe water supplies. The Millennium Development Goal (MDG) target is to “halve, by 2015, the proportion of people without sustainable access to safe drinking water,” as measured by access to an improved supply. The world is on schedule to meet the MDG target; however, success will leave over 600 million people without access to improved water supplies in 2015 and the target does not address safety of the water. Improved supplies include household connections, public standpipes, boreholes and protected dug wells, protected springs, and rainwater collection. Understanding local hydrological conditions is key to selecting the appropriate improved water supply. Water from improved supplies can be treated at the community level to ensure it is safe to drink.



An Improved Well in Haiti, D. Lantagne

### Household Water Treatment

Household water treatment and safe storage (HWTS) interventions are proven to improve water quality and reduce diarrheal disease incidence in developing countries. Four HWTS options – chlorination, solar disinfection, ceramic filtration, and PuR – are proven to be effective at treating untreated unimproved and improved water supplies to improve the microbiological safety of the water during transport and storage. Successful HWTS programs select a high-quality, culturally-appropriate option, distribute the products reliably, and work with trusted local community educators to encourage healthy water practices. [http://www.who.int/household\\_water](http://www.who.int/household_water).



A Woman Using HWTS, P. Vidot



Washing Hands with Soap, A. Parker

### Handwashing Promotion

Handwashing with soap and water is critical to the reduction of many infectious diseases. Successful handwashing promotion programs focus on establishing a reliable soap supply and teaching people to wash hands correctly at critical times through demonstration. Critical handwashing times include before eating and cooking, after toileting, and after changing a baby’s diaper. Handwashing education can be included in all health programming.



Latrine, D. Lantagne

### Sanitation

Currently, 2.4 billion people worldwide lack access to improved sanitation. The Millennium Development Goal target is to “halve, by 2015, the proportion of people without sustainable access to safe sanitation”, as measured by access to an improved sanitation facility. Improved sanitation facilities include public sewer connections, septic system connections, pour-flush latrines, pit latrines, and ventilated pit latrines. Many organizations now focus on step-wise sanitation improvements, working with communities to move from open defecation and poor hygiene toward total sanitation. Successful programs focus on educating communities to use local resources and knowledge to cost-effectively improve sanitation throughout the community.