

Global Food Security: The Critical Role of Water, Sanitation, and Hygiene (WASH)

Background

Global health experts are recognizing that food security challenges cannot be met until safe drinking water, sanitation, and hygiene (WASH) are available in the world's poorest communities. The World Health Organization defines food security as "when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life."¹ The three main aspects of food security are: food availability, food access, and food use.²

Food Availability

Because women make up 43 percent of the agriculture workforce in the developing world,³ they are disproportionately affected by lack of access to safe drinking water and sanitation. In almost two-thirds of households surveyed in 2010 from 45 developing countries, women were the primary collectors of water,⁴ spending up to six hours each day on this task.⁵ Women cannot contribute to the agricultural sector when they are devoting so much time to collecting water and caring for family members who are sick from contaminated water, lack of sanitation, and poor hygiene.

Wastewater containing untreated human feces is often used by farmers because of its high nutrient composition. Sometimes it is used because it is the only reliable supply of water.

WASH and Food Security

- While using wastewater provides higher financial returns on crops, the higher returns also bring a higher risk of exposure to microbial contaminants.
- Food safety through safe WASH practices can reduce fecal food contamination by approximately 96 percent.

While using wastewater provides higher financial returns on crops,⁶ the higher returns also bring a higher risk of exposure to microbial contaminants. The use of untreated wastewater increases the risk of infection for both farm workers⁷ and those who consume their crops.⁸ Open defecation and poor waste disposal can also contaminate crops.

Food Access

Lack of basic water and sanitation services perpetuates cycles of gender inequality and poverty, reducing household resources and opportunities to access and afford nutritious foods. One study⁹ found that when the poorest households in Sudan spend their income on water, that money is often taken from their food budget.

Even when food is available, households cannot afford to purchase it when much of their income is spent securing water for their families. When women spend much of their time collecting water and/or caring for family members made sick by contaminated water, they lose

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opportunities to participate in income-generating activities, further decreasing households' abilities to purchase nutritious foods.

Food Use

Without access to safe drinking water, proper sanitation, and proper hygiene, food is easily contaminated through exposure to unsafe drinking water, pathogens on hands and from flies, and unclean surfaces. This can cause diarrhea, environmental enteropathy and other intestinal diseases and eventually undernutrition. It is a vicious cycle: intestinal diseases contribute to undernutrition through decreased nutrient absorption,¹⁰ while undernutrition reduces the body's ability to fight off further infections.¹¹

Infants in the developing world who not exclusively breastfed and provided supplemental liquids or foods are at a higher risk for diarrhea due to exposure to contaminated water or lack of sanitation.¹² A study in Bangladesh found that proper disposal of child feces in an isolated space resulted in a 35 percent reduction in intestinal parasite infection.¹³ Handwashing with soap, a basic hygiene practice, can reduce the risk of diarrheal disease by approximately 45 percent,¹⁴ and handwashing practiced at critical times such as before preparing a meal or feeding a child, along with using safe drinking water to wash utensils and prepare food, reduced food contamination by approximately 96

percent for babies in Bangladesh.¹⁵ Food safety in the home, at school lunch programs, and in the workplace through the use of safe drinking water and handwashing practices consequently is imperative for food security and disease prevention.

¹ WHO, 2012. [Trade, foreign policy, diplomacy and health: food security.](#)

² Ibid.

³ FAO, 2011. [The role of women in agriculture.](#) ESA Working Paper No. 11-02.

⁴ WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation, 2010. [Progress on Sanitation and Drinking-Water. 2010 Update.](#)

⁵ Lenton, R., et al., 2005. [Health, Dignity, and Development: What Will it Take?](#)

⁶ Dreschel, P., et al., 2006. [Recycling realities: managing health risks to make wastewater an asset.](#)

⁷ Mara, D. & Sleigh, A., 2010. [Estimation of norovirus and Ascaris infection risks to urban farmers in developing countries using wastewater for crop irrigation.](#) *Journal of Water and Health* 8(3): 572-576.

⁸ Drechsel, P., et al., 2009. [Wastewater irrigation and health.](#)

⁹ Cairncross, S. & Kinnear, J., 1992. [Elasticity of demand for water in Khartoum, Sudan.](#) *Social Science & Medicine* 34(2):183-189.

¹⁰ Braghetta, A., 2006. [Drawing the connection between malnutrition and lack of safe drinking water in Guatemala.](#) *Journal AWWA* 98(5):97-106.

¹¹ Guerrant, R., et al., 2008. [Malnutrition as an enteric infectious disease with long-term effects on child development.](#) *Nutrition Reviews* 66(9):487-505.

¹² Ahiadeke, C., 2000. [Breast-feeding, diarrhoea, and sanitation as components of infant and child health: a study of large scale survey data from Ghana and Nigeria.](#) *Journal of Biosocial Science* 32(1):47-61.

¹³ Roy, E., et al., 2011. [Patterns and risk factors for helminthiases in rural children aged under 2 in Bangladesh.](#) *The South African Journal of Child Health* 5(3):78.

¹⁴ Curtis, V. & Cairncross, S., 2003. [Effect of washing hands with soap on diarrhoea risk in the community: a systematic review.](#) *Lancet Infectious Diseases* 3(5):275-281.

¹⁵ Islam, M., et al., 2013. [Hygiene intervention reduces contamination of weaning food in Bangladesh.](#) *Tropical Medicine and International Health* 18(3):250-258.