



Water, Sanitation, and Hygiene in Nutrition Efforts: A Resource Guide



Each year, more than one third of child deaths around the world are attributable to undernutrition.¹ The dearth of water, sanitation, and hygiene (WASH) education and essential WASH services frequently contributes to malnourishment, and recent initiatives have provided the impetus for enhanced WASH and nutrition programming efforts. The World Health Organization (WHO) estimates that 50% of malnutrition is associated with recurrent bouts of diarrhea, which often result from unsafe water, insufficient sanitation, and inadequate hygiene.² There is growing evidence that environmental enteropathy, an intestinal disease caused by chronic exposure to fecal bacteria, contributes to stunting through diverting energy toward fighting infection and away from growth. Safe drinking water, adequate sanitation, and proper hygiene can prevent undernutrition and stunting in children by inhibiting environmental enteropathy and diarrheal diseases. WASH can prevent protracted morbidity and reduce the 860,000 undernutrition-related child deaths that occur each year.²

Researchers have estimated that WASH interventions reduce diarrheal disease by 30% to 60%, systematically reducing the prevalence of early childhood stunting.^{2, 3, 4, 5} While there is a clear link between WASH and undernutrition, there is limited research on the impact of WASH interventions on nutrition. Studies have shown, however, that the most effective interventions are likely to be those that combine both improved nutrition and infection control and prevention efforts.⁶ Although program integration is not an emergent concept in public health, its vast potential has yet to be realized by the WASH and nutrition sectors.

This resource guide includes manuals, reports, academic studies, and organizations working on WASH and nutrition. The guide can serve as a tool for implementers and advocates in the WASH/Nutrition nexus looking to pursue and promote integrated programming.

Acknowledgements: This resource guide was compiled by Irene Neequaye and Case Keltner, with guidance from Jordan Teague and Elynn Walter.

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¹ Mara, D., Lane, J., Scott, B., & Trouba, D. (2010). Sanitation and Health. *PLoS Medicine*, 7(11), 1-7.

² WHO. (2008). Safer Water, Better Health. http://whqlibdoc.who.int/publications/2008/9789241596435_eng.pdf#page=11.

³ Pickering, A. & Davis, J. (2012). Freshwater availability and water fetching distance affect child health in sub-Saharan Africa. *Environmental Science and Technology*, 46(4), 2391-2397.

⁴ Norman, G., Pedley, S., & Takkouche, B. (2010). Effects of sewerage on diarrhoea and enteric infections: a systematic review and meta-analysis. *Lancet Infectious Diseases*, 10(8), 536-544.

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

⁶ Dewey, K. & Mayers, D. (2011). Early child growth: how do nutrition and infection interact? *Maternal and Child Nutrition*, 7(3), 192-142.

WASH and Nutrition Integration: Reports

WASH and Nutrition (*WaterAid, 2014*)

This brief guide offers an overview of WASH and nutrition, and a recommended post-2015 framework encouraging an integrated approach, which acknowledges the inter-linkages between WASH and nutrition targets and indicators. WaterAid hopes this guide can lead to progress towards outcome-based goals.

Improving Child Nutrition: The achievable imperative for global progress (*UNICEF, 2013*)

This report provides an overview of the myriad of challenges facing the nutrition sector. UNICEF outlines potential ways to ensure children receive adequate nutrition in the vital first 1,000 days of their lives, while also highlighting the importance of improved water and sanitation and proper handwashing techniques.

The Time Is Now: Improving Food Security and Nutrition For the Poorest (*Concern Worldwide, 2012*)

This report shows how Concern Worldwide is combatting malnutrition and child hunger by using integrated strategies that include WASH education efforts.

WASH and Nutrition Integration: Studies

WASH Benefits Study (*University of California, Berkeley, 2014*)

The study aims to measure the benefits of water quality, sanitation, handwashing, and nutritional interventions to improve child health and development.

SHINE Sanitation, Hygiene, Infant Nutrition Efficacy Project (*Johns Hopkins Bloomberg School of Public Health, 2012-2016*)

This study is attempting to link the myriad conditions associated with undernutrition with the lack of WASH services.

Water, sanitation, and hygiene (WASH), environmental enteropathy, nutrition, and early child development: making the links (*Annals of the New York Academy of Sciences, 2014*)

This study reviews evidence linking WASH, anemia, and child growth, and highlights pathways through which WASH may affect early child development, primarily through inflammation, stunting, and anemia.

Water, sanitation, hygiene, and nutrition: successes, challenges, and implications for integration (*International Journal of Public Health, 2014*)

This study explores the integration of WASH and nutrition programming for improved child health outcomes and aims to identify barriers to and necessary steps for successful integration.

Investing in the Next Generation: Children grow taller, and smarter, in rural, mountainous villages of Vietnam where community members use improved sanitation (*Water and Sanitation Program, 2014*)

This research brief examines the use of unimproved latrines in rural villages in mountainous regions of Vietnam and suggests developing community-wide sanitation interventions that integrate nutrition programs to support stunting prevention.

Household environmental conditions are associated with enteropathy and impaired growth in rural Bangladesh (*American Journal of Tropical Medicine and Hygiene*, 2013)

The study concludes that environmental contamination and poor sanitation cause growth faltering mediated through environmental enteropathy.

How Much International Variation in Child Height Can Sanitation Explain? (*The World Bank*, 2013)

According to this policy research working paper, open defecation, an exceptionally widespread practice in many underdeveloped countries, can account for much or all of the excess stunting in India.

The Lancet Series: Maternal and Child Nutrition (*The Lancet*, 2013)

Five years after the initial series, researchers have re-evaluated problems associated with maternal and child undernutrition. The series focuses on the potential effects of nutrition-sensitive interventions, including WASH, that address the underlying determinants of malnutrition and incorporate specific nutrition goals and actions.

Global burden of childhood pneumonia and diarrhoea (*The Lancet*, 2013)

In this study, various factors such as zinc deficiency, suboptimal breastfeeding, and undernutrition are shown to contribute to pneumonia and diarrheal disease.

Interventions to improve water quality and supply, sanitation and hygiene practices, and their effects on the nutritional status of children (*Cochrane Database of Systematic Reviews*, 2013)

The study highlights how WASH interventions are frequently implemented to reduce infectious diseases, and may be linked to improved nutrition outcomes in children.

Does Village Water Supply Affect Children's Length of Stay in a Therapeutic Feeding Program in Niger? Lessons from a Medecins Sans Frontieres Program (*PLOS ONE*, 2012)

In this study, poor-quality of the water supply was associated with higher rates of secondary infection and longer stays of undernourished children in feeding programs. This study suggests that therapeutic feeding programs using an outpatient model should routinely evaluate the water supply in their target children's villages if they are to provide optimal care.

An evaluation of an operations research project to reduce childhood stunting in a food-insecure area in Ethiopia (*Public Health Nutrition*, 2012)

The study suggests that an improvement in hygiene practices has a significant impact on stunting levels.

Enteropathies in the developing world: neglected effects on global health (*American Journal of Tropical Medicine and Hygiene*, 2012)

The interacting effects of infection and enteropathy, exacerbated by the unavailability of WASH services, drive a vicious cycle that can propagate severe acute malnutrition, which underlies almost half of under-5 deaths.

Freshwater availability and water fetching distance affect child health in sub-Saharan Africa (*Environmental Science and Technology*, 2012)

This study revealed that a 15-minute decrease in one-way walk time to a water source is associated with a 41% average relative reduction in diarrhea prevalence, improved anthropometric indicators of child nutritional status, and an 11% relative reduction in under-five child mortality.

Child undernutrition, tropical enteropathy, toilets, and handwashing (*The Lancet, 2009*)

The author asserts that prevention of tropical enteropathy, which afflicts almost all children in the developing world, will be crucial to normalize child growth, and that this will not be possible without provision of toilets.

WASH and Nutrition Integration: Manuals

Integrating Water, Sanitation, and Hygiene into Nutrition Programming (*WASHplus, 2013*)

In collaboration with USAID, WHO, and UNICEF, WASHplus highlights low-cost, high impact programming actions to integrate WASH and nutrition. This manual includes some practical information on key WASH practices and guidance, integrating WASH into nutrition assessments, targeted health activities, nutrition counseling and promotion, community services, and maternal and neonatal programs.

How to Better Link WASH and Nutrition Programmes (*Concern Worldwide, 2014*)

This brief provides some practical guidance on how water sanitation and hygiene (WASH) programs can be more nutrition-sensitive and how nutrition programs can incorporate more WASH aspects.

Nutrition, Hygiene and Health Promotion Training: Training for Trainers Guide (*United Nations Office for the Coordination of Humanitarian Affairs, 2012*)

This manual serves as a guide for WASH and nutrition professionals as they attempt to educate underserved populations on proper sanitary practices.

WASH and Nutrition Integration: Strategies

USAID Multi-Sectoral Nutrition Strategy 2014-2025 (*USAID, 2014*)

USAID's overarching nutrition strategy for the next decade encompasses both preventive and reactive interventions in the nutrition and WASH nexus.

World Vision 7-11 Approach (*World Vision, 2014*)

This approach is the heart of World Vision's Global Health and Nutrition Strategy and is a package of preventive interventions targeted to mothers and children under two years old. The package aims to improve the health and nutrition of women and children and includes handwashing with soap as a key intervention. World Vision aims to integrate WASH with this approach to address local causes of water-related illness and malnutrition.

Multi-sector Nutrition Plan For Accelerating the Reduction of Maternal and Child Under-nutrition in Nepal (*Government of Nepal, 2012*)

This plan offers a package of focused interventions to attain priority strategic objectives for both WASH and nutrition sectors. The plan includes actions to enhance inter-sector collaboration and coordination, strengthen multi-sector monitoring and evaluation mechanisms to track progress, and identifies gaps and future needs for implementing in a sustainable manner.

"WASH in Nut" Strategy (*Regional WASH Working Group, 2012*)

Amidst challenges with systematically integrating WASH into traditionally 'vertical' sectoral programs, this strategy adopts a proactive approach with all WASH, health, nutrition, and food security partners to ensure integration of nutrition goals in all WASH projects from the outset.

Additional Resources for WASH and Nutrition

WASH & Nutrition Online Library (*WASHplus*)

An online library that contains recent WASH and nutrition studies and is updated on a regular basis.

Organizations Involved in WASH and Nutrition Promotion

Action Against Hunger: Action Against Hunger's integrated approach to hunger and malnutrition involves extending water and sanitation services to communities faced with water scarcity, unsafe drinking water, inadequate sanitation, and poor hygiene.

Alive & Thrive: Since 2009, Alive & Thrive has supported nutrition and WASH initiatives in Bangladesh, Ethiopia, and Vietnam.

Bill & Melinda Gates Foundation: A multi-billion dollar foundation that gives grants to organizations committed to providing access to WASH and nutrition services.

CARE: A leading humanitarian organization that focuses on fighting global poverty through working alongside poor women in community-based efforts to provide access to safe water, sanitation, and improve nutrition, among others.

Catholic Relief Services (CRS): An international humanitarian agency whose mission is to assist impoverished and disadvantaged people overseas that focuses on hunger and health through improving nutrition and access to water and sanitation.

Centers for Disease Control and Prevention: A U.S. public health agency that works to reduce malnutrition and promote WASH practices by conducting research, monitoring and evaluation programs, and providing technical assistance to partners.

Concern Worldwide: This organization is dedicated to finding and implementing cost-effective solutions to thwart severe acute malnutrition and address the lack of access to adequate WASH among underserved populations.

FHI360: Addresses WASH and nutrition challenges through the establishment of strong partnerships and innovative projects in underserved communities.

The Hunger Project: The Hunger Project works to empower rural communities to ensure increased access to safe drinking water and improved sanitation, the development of new water and nutritional resources, and the implementation of water conservation techniques.

Maternal and Child Survival Program (MCSP): The MCSP is a USAID cooperative agreement to introduce and support high-impact health interventions in 24 priority countries with the ultimate goal of ending preventable maternal and child deaths within a generation. The program supports programming in maternal, newborn and child health, nutrition, and WASH.

Millennium Water Alliance: An organization that offers sustainable solutions to the WASH and nutrition crises through advocacy, shared knowledge, and collaborative programming.

Plan International: A child-centered community development organization that works with children, their families, communities, organizations, and local governments to bring about positive change, including providing access to safe drinking water and sanitation and improving nutrition.

Save the Children: This organization invests in child nutrition and WASH programming to improve the lives of underserved children through their School Health & Nutrition Division and the USAID-funded MCSP.

SNV World: SNV works to empower local communities to break the cycle of poverty and guide their own sustainable development through implementing innovative solutions in agriculture, renewable energy, nutrition, and water, sanitation and hygiene.

Thousand Days: The organization aims to promote targeted action and investment to improve nutrition for mothers and young children during the critical 1,000 days from pregnancy to age 2, including WASH efforts.

USAID: This federal agency allocates grants for WASH and nutrition interventions and orchestrates strategies to address deficiencies in both sectors.

WASHplus: A project of USAID run by FHI360 that implements several programs and offers various resources on both WASH and nutrition.

WaterAid: An organization that works with local partners to help communities access safe water, sanitation, and nutrition using experience and research to influence decision-makers.

Water and Sanitation Program (WSP): WSP is an international partnership housed in the World Bank that helps marginalized communities gain sustained access to improved water supply and sanitation services.

World Vision: A faith-based organization that focuses on providing access to safe water and sanitation and adequate nutrition and invests about \$70 million per year in more than 50 countries to reach a new person with safe drinking water every 30 seconds.