Under-nutrition and Water, sanitation and hygiene

Water, sanitation and hygiene (WASH) play a fundamental role in improving nutritional outcomes. A successful global effort to tackle under-nutrition must include WASH.

What are the links between undernutrition and WASH?

Direct links: The World Health Organisation (WHO) estimates that 50% of malnutrition is associated with repeated diarrhoea or intestinal worm infections as a result of unsafe water, inadequate sanitation or insufficient hygiene[1].

- Diarrhoea, largely caused by a lack of water, sanitation and hygiene, is a leading cause of death in children under-five globally[2], and its constant presence in low-income settings may contribute significantly to under-nutrition.
- Parasitic infections, such as soil-transmitted helminths (worms), caused by a lack of sanitation and hygiene, infect around 2 billion people globally[3], while an estimated 4.5 billion people are at risk of infection[4]. Such infections can lead to anaemia and reduced physical and cognitive development[5].

Indirect links: A lack of sufficient, safe water close to home has many indirect effects on nutrition. People are often left with no choice but to drink unsafe water from unprotected sources. Where safe water is available to purchase from vendors, a limited quantity leaves little for good hygiene practices. The time wasted collecting water or suffering from water-related illnesses prevents young people from getting an education, which has a significant impact on their health, wellbeing and economic status.

A growing evidence base

To date, there have been very few rigorous trials to determine the magnitude of the effect of WASH on under-nutrition, due to the relatively low priority given to WASH in medical research. However, in recent years, there has been increasing recognition of the need for better evidence in this area in light of a suggestive causal link.

- A hypothesis published in *The Lancet* in 2009 argued 'that prevention of tropical enteropathy[6] which may afflict almost all children in the developing world, will be crucial to normalise child growth, and that this will not be possible without provision of toilets'[7].

- A forthcoming systematic review conducted by the London School of Hygiene and Tropical Medicine through the Cochrane Collaboration will consider the current available evidence for the effects of WASH on childhood under-nutrition[8].
- A number of large trials are currently being conducted to address the evidence gap (Clasen et al, Orissa, India; Luby et al, Bangladesh; and Humphrey et al, Zimbabwe).

What role for WASH in global nutrition frameworks and post-2015 goals?

- Clear outcome goals are essential for generating the political will, accountability and resources needed to tackle global development issues. An outcome goal that clearly sets out the vision for reducing global under-nutrition should therefore form part of the post-2015 development framework. However, outcome goals alone will not be enough to ensure effective development, or address inequalities within and between countries.
- A goal on nutrition should be accompanied by time-bound targets for addressing the challenges that contribute to under-nutrition, including those linked to sanitation and hygiene behaviour change. Given the considerable impact of WASH on nutritional outcomes, it is crucial that such targets include WASH. The 'results frameworks' advocated by the Scaling Up Nutrition Movement[9] offer a useful example of setting goals on universal access to affordable, nutritious food, clean water, sanitation, healthcare and social protection at the national level.
- Although the current MDG framework includes a standalone target on drinking water and sanitation, its separation from the outcome goals on health, nutrition and education contributed to a fragmented approach. This discouraged integrated, cross-sectoral approaches that could deliver a greater and more sustainable impact. It is essential that the current discussions on the post-2015 development framework address these challenges by building in integrated planning approaches into the indicators for outcome based goals. A framework is needed that results in long-lasting improvements in nutrition and health, and ultimately, in the elimination of poverty and attainment of overall wellbeing.
- The successful implementation of such a framework for achievement of improved nutritional outcomes will require a commitment from aid agencies to support programmes that respond to the national context and causes of undernutrition, as well as commitment by national governments to prioritise, demonstrate and evaluate an integrated package of water, sanitation and hygiene interventions alongside direct interventions such as feeding and micronutrient supplementation.

Yael Velleman (WaterAid)
Isabelle Pugh (SHARE)

January 2013

Who we are

WaterAid is an international organisation working to transform lives by improving access to safe water, sanitation and hygiene in the world's poorest communities. We work with partners in 27 countries in Africa, Asia, Latin America and the Pacific region, and influence decision-makers to maximise our impact. In addition to the contribution that WaterAid's programmes make to the health and wellbeing of the communities in which we work, an important strand of WaterAid's advocacy work is to promote the positive health impacts of access to WASH, and highlight the importance of access to WASH in realising the Millennium Development Goals, particularly those relating to health and nutrition. WaterAid contributes to the generation of evidence on the links between health and WASH through its research initiatives and partnerships.

The Sanitation and Hygiene Applied Research for Equity (SHARE) consortium is a consortium of five organisations that have come together to generate rigorous and relevant research for use in the field of sanitation and hygiene. SHARE is a five year initiative (2010-2015) funded by the UK Department for International Development. The purpose of SHARE is to join together the energy and resources of the five partners in order to make a real difference to the lives of people all over the world who struggle with the realities of poor sanitation and hygiene.

Endnotes

[1] World Health Organisation (2008c) *Safer water, better health: Costs, benefits and sustainability of interventions to protect and promote health*. Available at: http://whqlibdoc.who.int/publications/2008/9789241596435_eng.pdf

[2] Liu L, Johnson H L, Cousens S, Perin J, Scott S, Lawn J E, Rudan I, Prof Campbell H, Cibulskis R, Li M, Mathers C and Prof Black R E for the Child Health Epidemiology Reference Group of the World Health Organisation and UNICEF (2012) Global, regional, and national causes of child mortality: An updated systematic analysis for 2010 with time trends since 2000. *The Lancet* [online], 11 May 2012, doi: 10.1016/S0140-6736(12)60560-1

[3] Brooker S, Clements A C and Bundy D A (2006) Global epidemiology, ecology and control of soil-transmitted helminth infections. *Adv Parasitol*, 62: 221-61. See also, World Health Organisation (2012) *Eliminating soil-transmitted helminthiases as a public health problem in children: Progress report 2001-2010 and strategic plan 2011-2020*. Available at: http://whqlibdoc.who.int/publications/2012/9789241503129_eng.pdf

[4] Ziegelbauer K, Speich B, Ma¨usezahl D, Bos R, Keiser J et al (2012) Effect of sanitation on soil-transmitted helminth infection: Systematic review and meta-analysis. *PLoS Med*, 9(1): e1001162, doi: 10.1371/journal.pmed.1001162

[5] Ziegelbauer K, Speich B, Ma¨usezahl D, Bos R, Keiser J et al (2012) Effect of sanitation on soil-transmitted helminth infection: Systematic review and meta-analysis. *PLoS Med*, 9(1): e1001162, doi: 10.1371/journal.pmed.1001162

[6] Or environmental enteropathy, a syndrome causing changes in the small intestine of individuals lacking basic sanitary facilities and chronically exposed to faecal contamination.

[7] Humphrey J H (2009) Child undernutrition, tropical enteropathy, toilets, and handwashing. *The Lancet*, 374: 1032–35

[8] Dangour A D, Watson L, Cumming O, Boisson S, Velleman Y, Cavill S, Allen E and Uauy R (forthcoming) *Interventions to improve water quality and supply, sanitation and hygiene practices, and their effects on the nutritional status of children – systematic review and meta analysis*. Protocol available at the Cochrane Library: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD009382/abstract

[9] The Scaling Up Nutrition Movement (2012) *Strategy 2012-2015*. Available at: http://scalingupnutrition.org/wp-content/uploads/2012/10/SUN-MOVEMENT-STRATEGY-ENG.pdf