BRIEFING PAPER

# GREATER INVESTMENT IN WATER, SANITATION AND HYGIENE IS KEY TO THE FIGHT AGAINST UNDERNUTRITION

Despite the number of children who die every year as a consequence of undernutrition, and the research demonstrating the major impact that Water, Sanitation and Hygiene (WASH) interventions have on undernutrition, the WASH sector is still sometimes overlooked when it comes to setting international priorities, and is thus accorded varying degrees of importance within national strategic objectives. In order to overcome this situation:

1. **the WASH sector must be funded at levels that reflect its impact on undernutrition;**
2. **strategies and programmes for fighting undernutrition must incorporate a long-term multi-sector component and include WASH targets and indicators.**

ACF INTERNATIONAL

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# INTRODUCTION

Undernutrition kills 3.1 million children aged under five every year as well as impairing the physical development and mental faculties of millions more (161 million children suffer from chronic malnutrition, 51 million from acute malnutrition and 99 million are underweight)[1]. At the same time, 16% of deaths in the under-five age group are the result of diarrhoea or malaria[2]. This highlights the fact that other types of interventions are needed, beyond simply providing nutritional supplements, particularly interventions that focus on Water, Sanitation and Hygiene (WASH). Lack of access to drinking water and sanitation, coupled to an absence of good hygiene practices, figure among the underlying causes of undernutrition and are regularly pinpointed by Nutritional Causal Analysis field studies. Nevertheless, WASH is at times overlooked in national policies to fight undernutrition and international funding remains inadequate.

For ACF, *"the ultimate goal of wash programmes is to contribute to the reduction of mortality and morbidity rates, especially in under-five children, by: contributing to prevent and treat acute under nutrition, addressing the survival needs of populations, reducing the risk of the spread of and vulnerability to WASH-related diseases, supporting food security, livelihoods and socio-economic development of vulnerable communities, building population's resilience to crisis."*[3] This definition covers many different types of intervention, from building sanitation infrastructure and hygiene education to providing soap for hand-washing and improving access to drinking water. These actions are designed in particular to prevent diarrhoea, malaria, hepatitis A and pneumonia.

The first section of this document explains the links between WASH interventions and undernutrition as well as the important role the WASH sector has to play within a strategy to combat undernutrition. The second section highlights the low priority and poor funding that the WASH sector obtains within national and international nutrition programmes.

*1 - The Lancet, Maternal and Child Nutrition, 6 June 2013. http://www.thelancet.com/series/maternal-and-childnutrition*

*2 - WHO figures from 2014 (2012 data).*

*3 - 2011 revised versions of the 2006 ACF WaSH Policy. http://www.actionagainsthunger.org/sites/default/files/publications/WASH_Policy_En.pdf*

PART I

# DEMONSTRATION OF THE LINK BETWEEN WASH, INFECTION AND UNDERNUTRITION

A number of studies in recent years have measured the impact WASH interventions have on undernutrition[4]. These studies highlight the impact of WASH interventions on the reduction of certain causes of undernutrition. The Cochrane review (2013) analysed data from 14 studies and demonstrated how access to clean water and regular use of soap resulted in a long-term increase in growth in children aged under five, and that there was therefore a link to their nutritional status[5].

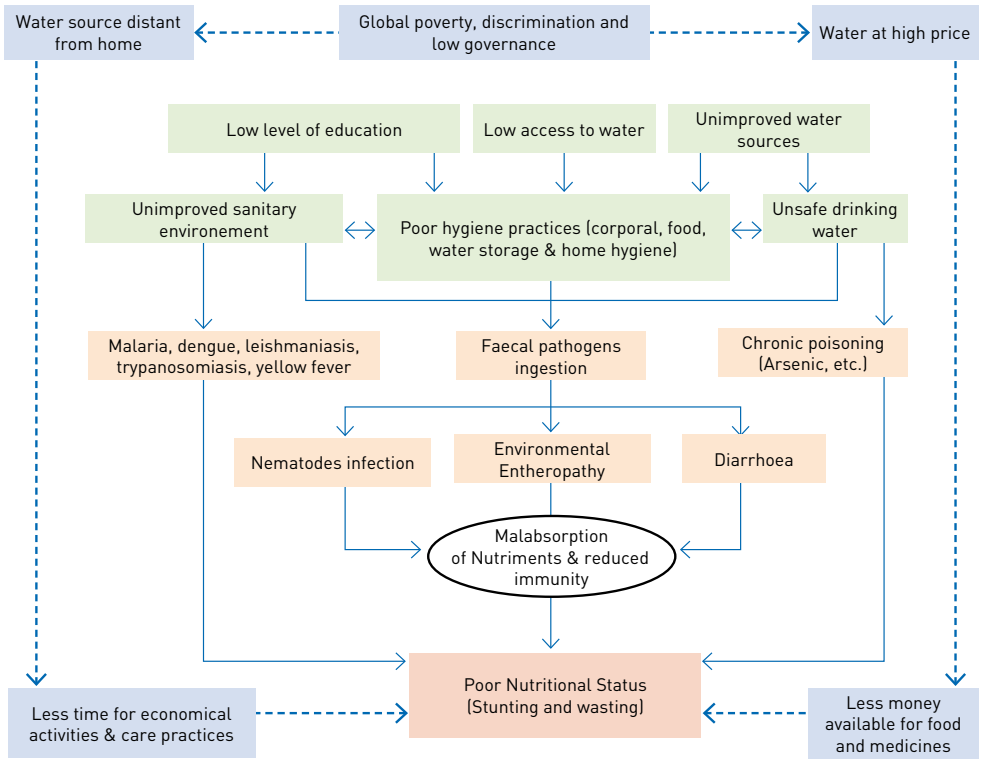


*Figure 1: Causal chain showing the link between an inadequate sanitation environment, illness and malnutrition*

*Source: Adapted from Dangour et al. 2013*

The underlying causes of undernutrition are poor sanitary and hygiene conditions coupled to a lack of access to safe water. This causal link may be expressed directly, with immediate consequences on people's health, or indirectly, creating a long-term risk to people's nutritional status. The process works both ways: poor nutritional status reduces immunity and weakens the body's natural defences (skin, intestinal membranes), creating a predisposition for infections (such as diarrhoea) and entrenching undernutrition by reducing intestinal absorption.

*4 - See: WaSH and Nutrition studies: http://washnutrition.wordpress.com/*

*5 - Clean water and soap may help improve growth in children, Water Aid article, accessed 5 August 2013. http://www.wateraid.org/uk/news/news/clean-waterand-soap-may-help-improvegrowth-in-young-children*

## I / DIRECT IMPACT OF INFECTIONS ON NUTRITIONAL STATUS

The WHO estimates that 50% of cases of child undernutrition are the result of repeated diarrhoea and intestinal infections caused by poor sanitation and hygiene conditions or lack of safe water.[6] Similarly, 25% of cases of chronic malnutrition can be attributed to children suffering five or more episodes of diarrhoea before the age of 2.[7]

Poor sanitation is also a source of frequent infections caused by intestinal parasites.[8, 9] Intestinal parasites have an immediate harmful effect on nutritional status, including increases in cases of emaciation and low birth weight or even of premature birth.

## II / MORE GENERALISED HEALTH IMPACTS

In general terms, the lack of decent sanitation, satisfactory hygiene conditions and access to safe water are among the principal factors leading to a deterioration in people's nutritional status, since they pave the way for the development of intestinal ailments, limit the absorption of nutrients, delay growth and reduce the effectiveness of oral treatments.[10, 11] Resulting infections can have long-term consequences and may lead to poor cognitive development, which in turn leads to higher rates of children dropping out of school and faster rates of development of certain illnesses such as HIV. Young children suffering from insalubrious sanitation conditions and poor care practices face particularly high risks, leading them to absorb pathogens present in the soil (notably E. coli present in poultry faeces ingested by young children); this leads to the development of environmental enteropathy which reduces the ability of the intestinal lining to absorb nutrients by causing damage to intestinal microvillus, triggering an immune reaction and ultimately resulting in chronic malnutrition.

The absence of a source of safe drinking water close to where people live also has a devastating effect on people's nutritional status: the greater the distance to the water source, the more that people cut their water use.[12] This situation often leads them to choose a water source that is unfit for consumption and to reduce activities that use water, such as hygiene practices. It is currently estimated that 1.8 billion people rely on unsafe water sources, 28% of the world population.[13] The time spent fetching water (usually by women and children) reduces the time available for appropriate care practices,[14] and therefore has a significant impact on children's health and development.[15] Furthermore, vulnerability to enteric infections (associated with lower immunity that may be caused by nutritional status) leads to greater vulnerability to other diseases such as pneumonia (it is estimated that the two are associated in 26% of cases).[16]

## III / SIMPLE, EFFECTIVE AND INEXPENSIVE TREATMENTS "60% OF WATER-RELATED DEATHS ARE PREVENTABLE"

60% of diarrhoea-related deaths are caused by pathogen contamination of water or food as a result of poor sanitation and inadequate hygiene practices, and are therefore preventable[17]. Simple WASH techniques (washing hands, using latrines, etc.) greatly cut the risk of infection. These techniques are generally effective, sustainable and inexpensive, with a very positive cost-to-benefit ratio (washing hands is the cheapest and most effective intervention in the prevention of undernutrition[18]).

***Some evidence remains to be proven***

*Although the links cited above have been clearly and scientifically demonstrated, others are less well known at present. The impact of various WASH interventions in cases of severe acute undernutrition remains to be proven, and research into this is underway at present, including by ACF in Chad and Pakistan. The same applies to the respective roles of the various infections (diarrhoeas, intestinal parasitic infections, malaria, etc.) in acute and chronic undernutrition.*

*6 - World Health Organisation, Safer water, better health: Costs, benefits and sustainability of interventions to protect and promote health. 2008. http://whqlibdoc.who.int/publications/2008/9789241596435_eng.pdf*

*7 - Checkley W, Buckley G, Gilman RH, Assis AM, Guerrant RL, Morris SS, et al. Multi-country analysis of the effects of diarrhoea on childhood stunting. Int J Epidemiol. 2008;37(4):816–30. doi: 10.1093/ije/dyn099. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2734063, accessed 21 April 2014.*

*8 - Ziegelbauer K, Speich B, Mausezahl D, et al. Effect of sanitation on soil-transmitted helminth infection: systematic review and meta-analysis. 2012.*

*9 - Ensink JHJ, Blumenthal UJ, Brooker S. Wastewater quality and the risk of intestinal nematode infection in sewage farming families in Hyderabad, India, 2008.*

*10 - Armah GE, Sow SO, Breiman RF, et al. Efficacy of pentavalent rotavirus vaccine against severe rotavirus gastroenteritis in infants in developing countries in sub-Saharan Africa: a randomised, double-blind, placebo-controlled trial. Lancet 2010.*

*11 - Vesikari T, Matson DO, Dennehy P, et al. Safety and efficacy of a pentavalent humanbovine (WC3) reassortant rotavirus vaccine. 2006.*

*12 - Geere JA, Hunter PR, Jagals P. Domestic water carrying and its implications for health: a review and mixed methods pilot study in Limpopo Province, South Africa. Environ Health 2010.*

*13 - Onda K, LoBuglio J, Bartram J. Global access to safe water: accounting for water quality and the resulting impact on MDG progress. 2012.*

*14 - UNICEF and WHO. Progress on drinking water and sanitation, in Joint Monitoring Programme for Water Supply and Sanitation, 2012.*

*15 - MSF case study in Niger "Does Village Water Supply Affect Children's Length of Stay in a Therapeutic Feeding Program in Niger?"*

*16 - Schmidt WP, Cairncross S, Barreto ML, Clasen T, Genser B. Recent diarrhoeal illness and risk of lower respiratory infections in children under the age of 5 years. Int J Epidemiol. 2009;38(3):766–72. http://www.ncbi.nlm.nih.gov/pmc/articles/vPMC2689396/?tool=pubmed, accessed 21 April 2014.*

*17 - Prüss-Üstün A, Corvalán C. Preventing disease through healthy environments: towards an estimate of the environmental burden of disease. Geneva: World Health Organization; 2006. http://www.who.int/quantifying_ehimpacts/publications/preventingdisease/en, accessed 21 April 2014.*

*18 - Cairncross and Valdmaris, Water Supply, Sanitation and Hygiene Promotion, World Bank Report, 2006.*

More account needs to be taken of the link between WASH interventions and reductions in undernutrition since, if implemented in a timely manner and on the correct scale, these interventions constitute particularly effective tools.

Furthermore, since the fight against malnutrition demands an integrated and multi-sector approach, the absence of WASH interventions may limit the effectiveness of nutrition-support programmes implemented in other sectors (for example, inadequate WASH conditions can limit the effectiveness of oral treatments[19]).

19 - See The Lancet (2010).

PART II

# THE WASH SECTOR IS AN INTEGRAL COMPONENT OF NATIONAL AND INTERNATIONAL ACTIONS TO COMBAT UNDERNUTRITION

## I / THE WASH SECTOR AS PART OF NATIONAL ACTION PLANS

Launched in 2008, Scaling Up Nutrition (SUN) is an international movement that aims to mobilise a community of actors (UN, donors, states, NGOs and the private sector) to make a collective effort to improve nutrition. Today, 54 countries are committed to the SUN Movement and they work together on plans of action to fight undernutrition. Nineteen SUN member countries have published budgets for their national plans to combat undernutrition. Of these, seventeen countries have included the WASH sector as part of their plans.[20] The share of budgets allocated to WASH interventions is growing all the time: **on average, the sector represents 40% of the budget for nutrition-sensitive actions[21] in these 17 countries and 12% of the total budget allocated to fighting undernutrition.**[22]

These figures are rising constantly and they show that the WASH sector increasingly features as part of these countries' efforts to combat undernutrition. However, a closer examination of nutrition plans reveals the need to put more emphasis on the links between the WASH sector and undernutrition. For example, the Bangladeshi 2008-2015 roadmap fails to mention sanitation, and poor hygiene is mentioned only in terms of being an impediment to good health. In addition, scheduled interventions covering water access and quality are almost entirely focused on farming (irrigation and fisheries).[23] Sierra Leone's plan goes further in incorporating WASH components, featuring clearly listed targets, such as increasing the percentage of the population using soap for hand washing from 13% (2012) to 50% (2016).[24] However, these activities are listed under the priority are Improve Diarrhoea and Parasite Control; the Treatment of Acute Malnutrition priority area contains no reference to the WASH sector. This is troubling as good hygiene conditions and access to drinking water and sanitation are indispensable in the treatment of undernutrition, both in health centres and people's homes.

20 - Bangladesh, Burkina Faso, Guatemala, Indonesia, Kenya, Malawi, Peru, Rwanda, Tanzania, Haiti, Madagascar, Mozambique, Nepal, Sierra Leone, Gambia, Uganda and Yemen.

21 - Nine Nutrition-Sensitive Activities (The Lancet Series, 2013): agriculture and food security; social safety net; early child development; maternal mental health; enhance women's capacities; child protection; education; family planning and – finally – water, sanitation and hygiene.

22 - ACF calculations based on SUN country budgets.

23 - Bangladesh Country Investment Plan, A road map towards investment in agriculture, food security and nutrition http://scalingupnutrition.org/wp-content/uploads/2013/02/Bangladesh-Food-security-CIP-2011-Final.pdf.

24 - Sierra Leone Food and Nutrition Security Policy Implementation Plan http://scalingupnutrition.org/wp-content/uploads/2013/04/Sierra-Leone-Food-and-Nutrition-Policy-Implementation-Plan-2012-2016.pdf

## II / THE WASH SECTOR AS PART OF DONOR STRATEGIES

While in 2013, 783 million people were still without access to an improved drinking water source and 2.5 billion lacked access to basic sanitation[25], the 2013 Millennium Development Goals Report underlines the fact that insufficient progress has been made in terms of access to water and sanitation. The 2014 GLAAS report, using data from 2012, shows that the WASH sector is the recipient of just 6.1% of Official Development Assistance, a total of US$10.9 billion, behind health, transport, energy, education and agriculture. An additional one billion people

25 - WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation report: Progress on drinking water and sanitation: 2012 update. http://www.who.int/water_sanitation_health/monitoring/jmp2012/fast_facts/en/

will need to gain access to improved sanitation facilities if Target 7C (the Millennium Development Goals' sanitation objectives) is to be achieved. The WHO estimates that achieving this will require an annual investment of US$190 billion, compared to the current 7.8 billion.[26] Furthermore, analysis of funding reveals that the majority is earmarked for large-scale infrastructure (53% of the total) whereas the share of total budget allocated to basic structures that improve the lives of the most isolated communities and semi-urbanised dwellers is under 26%.

The WASH sector also occupies a lowly ranking in terms of humanitarian funding. The Financial Tracking Service of the UN Office for the Coordination of Humanitarian Affairs estimates that in 2013 the WASH sector accounted for 3.4% of emergency funding, whereas food aid attracted 24.5% of funding.[27] The WASH sector is both under-funded and under-represented within the activities of a major donor such as the European Union: it is not included in the Global Public Goods and Challenges programme's priorities and there is no WASH element in the Financing Instrument for Development Cooperation (DCI). Lastly, it is a matter of regret that the European Union's Water Facility mechanism (2004 and 2006) appears to have been discontinued, notwithstanding its effectiveness: the first Water Facility brought safe water to 14.5 million people and improved sanitation to a further 3.5 million.[28]

However, progress has been made in recent years: most donors accept the links that exist between the WASH environment and undernutrition, and there is a definite trend for their nutrition strategies to integrate this sector, especially USAID[29] and UNICEF[30]. This position is more nuanced regarding the UK's Department for International Development, which treats the WASH sector only as a subsidiary objective within its multi-sector approach to undernutrition[31]. Although the nutrition strategy refers to greater funding for the WASH sector, no examples of interventions are provided. For the EU, in emergency situations[32], WASH interventions form part of priority interventions for combatting undernutrition, and it suggests several types of activities (WASH minimum package in health centres, access to safe water and latrines, hygiene promotion). As regards development, the EU Plan of Action on Nutrition, scheduled for official adoption in December 2014, explicitly recognises the nutritional gains that sanitation and hygiene programmes offer.

## RECOMMENDATIONS

Despite the number of children who die every year as a consequence of undernutrition, and the research demonstrating the major impact that WASH interventions have on undernutrition, the WASH sector is still sometimes overlooked when it comes to setting international priorities, and is thus accorded varying degrees of importance within national strategic objectives. In order to overcome this situation:

**1. THE WASH SECTOR MUST BE FUNDED AT LEVELS THAT REFLECT ITS IMPACT ON UNDERNUTRITION WASH.**

Donors and humanitarian agencies must use their funding to encourage better integration of WASH and nutrition actions. Funding needs to correspond more closely to Target 7.C. of the Millennium Development Goals, which is currently far from being attained, especially in terms of sanitation and hygiene. The proposed introduction of a specific target for the sector as part of the MDG revision process, featuring detailed objectives in terms of access to water, sanitation, hygiene and fairness, is another strategy designed to gain greater recognition and funding for the sector. This initiative has received backing from 120 states so far;

**2. STRATEGIES AND PROGRAMMES FOR FIGHTING UNDERNUTRITION MUST INCORPORATE A LONG-TERM MULTI-SECTOR COMPONENT AND INCLUDE WASH TARGETS AND INDICATORS.**

SUN member countries and donors, in particular, must continue their efforts to incorporate WASH components into their plans for combatting undernutrition. In parallel, multi-lateral donors need to incorporate this multi-sector aspect into their strategies and make sure these lines of action are reflected in their programmes.

*26 - See WHO/UNICEF (2012).*

*27 - Financial Tracking Service, Global humanitarian contributions in 2013 totals per sector http://fts.unocha.org/reports/daily/ocha_R16_Y2013___1409291219.pdf*

*28 - European Commission, Development & Cooperation - Europaid: The Water Facility under the 9th EDF; http://ec.europa.eu/europeaid/regions/african-caribbean-and-pacific-acp-region/acp-multi-country-cooperation/acp-eu-water-facility_en*

*29 -Integrating Water, Sanitation and Hygiene into Nutrition programming, USAID, 2013. http://www.washplus.org/sites/default/files/wash_nutrition2013.pdf*

*30 -Improving child nutrition, the achievable imperative for global progress, UNICEF, 2013. http://washnutrition.files.wordpress.com/2013/05/unicef nutrition_report_final_2013.pdf*

*31 - DFID, UKAID, The neglected crisis of undernutrition: DFID's strategy file:///C:/Users/hyd2/Downloads/dfid_nutrition_strategy%20(1).pdf*

*32 - European Commission, Addressing undernutrition in Emergencies http://ec.europa.eu/echo/files/news/201303_SWDundernutritioninemergencies.pdf*

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