

JOINING THE DOTS

Why better water, sanitation and hygiene are necessary for progress on maternal, newborn and child health



Joining the dots

**Why better water, sanitation and hygiene are necessary
for progress on maternal, newborn and child health**

Written by Sue Yardley

Front cover photos by Layton Thompson / Tearfund

Back cover photo by Geoff Crawford / Tearfund

Design: Wingfinger Graphics

With thanks to George Yap, Alan Etherington and Andrés Sánchez (Sanitation & Water Action Network Canada), Ian Ross and Ollie Cumming (WaterAid), Kate Eardley (World Vision UK) and Mari Williams and Laura Webster (Tearfund), for their input and comments on earlier drafts.

Tearfund contact: ppadministrator@tearfund.org

© Tearfund 2010

Tearfund is a Christian relief and development agency building a global network of local churches to help eradicate poverty.

Endorsed by:



Joining the dots

Why better water, sanitation and hygiene are necessary
for progress on maternal, newborn and child health

Contents

Introduction	2
Current situation	2
The links between WASH and maternal, newborn and child health	3
Maternal health	3
Newborn and child health	3
Current progress on MDGs 4, 5 and 7	5
Spotlight on Africa	6
What needs to be done?	6
Funding	6
Integrated approach	7
Health	7
WASH	7

Introduction

'Clean water and sanitation are vital prerequisites for improved nutrition, reductions in child and maternal mortality and the fight against disease.'

UNICEF Executive Director Ann Veneman¹

As attention increasingly focuses on the Millennium Development Goals (MDGs) which are most off track and, in particular, on health-related ones, it is vital that the interconnectedness of the MDGs is not ignored. This paper highlights key links between improved WASH (access to clean water, basic sanitation and hygiene education) and maternal, newborn and child health. Progress on the MDG 7 targets on WASH would bring great health benefits for women, babies and children and support efforts towards achieving MDGs 4 and 5 to reduce child and maternal mortality. Conversely, if the WASH targets, and in particular sanitation, are neglected, progress towards these other MDGs will be compromised.

The relevant
Millennium
Development Goals

MDG 4, target 4A: reduce by two-thirds, between 1990 and 2015, the under-five mortality rate.

MDG 5, target 5A: reduce by three-quarters, between 1990 and 2015, the maternal mortality rate.

MDG 7, target 7C: halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation.

Current situation

The world continues to face a huge poverty crisis, with many of the MDG targets off track. A staggering 2.6 billion people lack access to basic sanitation, while 884 million people lack access to safe drinking water.² Each year, at least 340,000 women die from pregnancy- or child-related issues, leaving hundreds of thousands of children motherless.³ Evidence shows that children who lose their mother are ten times more likely to die before their second birthday, contributing to a situation where 8.8 million children under five die from preventable diseases each year.⁴

1 Quote referenced at: <http://www.stwr.org/health-education-shelter/children-pay-the-price-for-lack-of-safe-water-and-sanitation.html>

2 UNICEF and WHO Joint Monitoring Programme for Water Supply and Sanitation (2010) *Progress on drinking water and sanitation*. UNICEF, New York, and WHO, Geneva

3 Based on new figures recently published in *The Lancet*: Hogan M et al (2010) 'Maternal mortality for 181 countries, 1980-2008: a systematic analysis of progress towards Millennium Development Goal 5.' *The Lancet*, early online publication, 12 April 2010

4 UNFPA (2007) *Giving birth should not be a matter of life and death*, UNFPA

The links between WASH and maternal, newborn and child health

The crisis in WASH has a disproportionate impact on women and girls, affecting the time they spend collecting water, reducing their ability to attend school or earn a livelihood and adding to their burden of caring for the sick.

Maternal health

WASH is extremely important for health generally and the effects of poor WASH in the developing world represent a significant burden for health systems. For example, at any given time, half of the developing world's hospital beds are occupied by patients suffering from diseases related to inadequate water and sanitation.⁵ During pregnancy and childbirth, women are particularly vulnerable to WASH-related diseases such as anaemia, vitamin deficiency, trachoma and hepatitis, which continue to contribute to maternal mortality.⁶ Anaemia, for example, although often associated with nutrition deficiency, can also be caused by WASH-related infections such as intestinal worms or malaria. Anaemia causes weakness and fatigue, it can affect foetal development, and it contributes to up to 20 per cent of maternal deaths.⁷

It is estimated that only 59 per cent of women giving birth in developing countries have access to skilled care, dropping to as low as 41 per cent for South Asia and 43 per cent for sub-Saharan Africa.⁸ Many barriers prevent women from accessing this care, such as shortages of trained staff, insufficient health centres, healthcare and transport fees, the distances they need to travel or women simply not understanding the importance of such care. Giving birth at home poses significant risks for both mother and baby, particularly in relation to poor infection control. However, even women who are fortunate enough to give birth in health centres are often exposed to unsafe water and sanitation and poor management of medical waste. Fifteen per cent of all maternal deaths are caused by infections in the six weeks after childbirth, mainly due to unhygienic practices and poor infection control during labour and delivery.⁹ Half of all infection-related deaths could be averted if skilled birth attendants adopted hygienic childbirth techniques.¹⁰ It is therefore essential that women going into labour are able to access a health centre with a skilled birth attendant, and that staff have access to sufficient clean water.

Newborn and child health

Babies are particularly susceptible to poor WASH which is one cause of the high neonatal mortality rates globally. Deaths within this crucial first month account for an estimated 42% of all under-five deaths.¹¹ Basic interventions involving WASH could save many babies' lives. For example, a study carried out in Southern Nepal provides

-
- 5 UNDP (2006) *Human development report 2006*, p45. UNDP, New York
- 6 Ibid p23 and WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation (2005) *Water for life: making it happen*, p20. UNICEF, New York, and WHO, Geneva
- 7 WHO's *Water-related diseases* fact sheet, accessed on 28/4/10 at: http://www.who.int/water_sanitation_health/diseases/anemia/en/
- 8 UNICEF (2007) *Progress for children: a world fit for children. Statistical review*, p24–28
- 9 Goodburn E, Campbell O (2001) 'Reducing maternal mortality in the developing world: sector-wide approaches may be the key'. *BMJ* 2001: 322. 917-920, quoted in WSSCC (2006) *For her, it's the big issue: putting women at the centre of water supply, sanitation and hygiene*. Evidence report. WSSCC, Geneva
- 10 WSSCC (2006) *For her, it's the big issue: putting women at the centre of water supply, sanitation and hygiene*. Evidence report, p12. WSSCC, Geneva
- 11 3.8 million babies die within 28 days of birth, out of a total of 9 million under-five deaths annually. Calculated from figures in UNICEF (2009) *State of the world's children. Maternal and newborn health*. UNICEF, New York

Integrating health and hygiene education in South Sudan

In Motot, South Sudan, Tearfund's Disaster Management team runs one of the few health centres in the area.

Here, many mothers take their young children to the centre for tetanus injections and immunisation against diphtheria, tuberculosis, polio and measles. While the women wait, community health workers provide vital hygiene education on how to prevent diarrhoea, such as washing hands with soap after dealing with babies' faeces or before eating.

Local tradition dictates that villagers go to the toilet in the bush, but this is beginning to be recognised as a problem, as a local chief explained: 'Sanitation is poor here, so people are being taught about sanitation in churches and community meetings. Tearfund sends workers to these meetings to give education.' Changing such ingrained and widespread behaviour is difficult, but a joined-up preventative approach such as this, linking health with sanitation and hygiene work, is both necessary and effective.

evidence that hand washing by birth attendant and mother can dramatically lower the risk of mortality among newborns, improving survival rates by up to 44 per cent.¹²

Access to both clean and safe water is vital for mothers who cannot or choose not to breastfeed their babies, and the use of unclean water and dirty containers poses a significant risk. Babies who are not breastfed are six times more at risk of dying from infectious diseases, including from diarrhoea, in the first two months of life than those who are breastfed.¹³

The risk of WASH-related illness and death continues past the newborn stage. Diarrhoea – 88 per cent of which is caused by poor WASH¹⁴ – kills about 1.5 million children under five each year, which is greater than the death toll of AIDS, malaria and measles combined.¹⁵ Children are also more susceptible to life-threatening dehydration caused by diarrhoea due the fact that water accounts for a higher percentage of their overall body weight compared with adults.¹⁶ But this is preventable: the simple practice of hand washing with soap can reduce diarrhoea morbidity by nearly 40 per cent and has been found to be the most cost-effective health intervention available.¹⁷ Improved sanitation can also reduce diarrhoeal deaths by 34 per cent.¹⁸

Diarrhoea also contributes to the undernutrition which is an underlying cause in 3.5 million under-five deaths every year. More than half of all mortality associated with undernutrition is attributable to diarrhoea and nematode (worm) infections caused by poor sanitation.¹⁹ In the absence of diarrhoeal infections, the

-
- 12 Rhee V, Mullany LC et al (2008) 'Maternal and birth attendant hand washing and neonatal mortality in southern Nepal.' *Archives of Paediatrics and Adolescent Medicine* 2008;162(7):603-608
- 13 WHO Collaborative Study Team on the Role of Breastfeeding on the Prevention of Infant Mortality: 'Effect of breastfeeding on infant and child mortality due to infectious diseases in less developed countries: a pooled analysis.' *The Lancet* vol 355, no 9202, 2000 p451-455, quoted in UNICEF/WHO (2009) *Diarrhoea: why children are still dying and what can be done*. UNICEF, New York, and WHO, Geneva
- 14 Prüss-Üstün A, Bos R, Gore F, Bartram J (2008) *Safer water, better health: costs, benefits and sustainability of interventions to protect and promote health*, p7. WHO, Geneva
- 15 UNICEF/WHO (2009) op cit, p5
- 16 Ibid, p10
- 17 Waddington H et al (2009) *Water, sanitation and hygiene interventions to combat childhood diarrhoea in developing countries*. International Initiative for Impact Evaluation. Also Cairncross S, Valdmanis V (2006) 'Water supply, sanitation and hygiene promotion,' quoted in Jameson et al (eds) *Disease control priorities in developing countries*, 2nd edition. World Bank, Washington DC
- 18 Waddington H et al (2009) op cit
- 19 Prüss-Üstün A et al (2008) op cit

nutritional status of undernourished children quickly improves, with several studies finding virtually no severe malnutrition in children without diarrhoea.²⁰

As mentioned above, nematode infections are a serious cause of illness in children and can be attributed wholly to inadequate sanitation and hygiene.²¹ Of the estimated 181 million school-aged children in sub-Saharan Africa, 93 per cent are believed to be infected with either round worms, hook worms or whip worms. Infection is caused by ingestion of eggs from contaminated soil (round and whip worms) or by active penetration of the skin by larvae in the soil (hook worms).²² Nematodes have a direct impact on physical growth and impair intellectual development.²³ Such worm infections and concurrent diarrhoeal diseases also form a vicious cycle with malnutrition: malnutrition is exacerbated by worm infections, as well as by each episode of diarrhoea, and this in turn reduces a child's ability to resist infections.²⁴

So there is clear evidence of the importance of tackling the root causes of much morbidity and mortality experienced in women and children by addressing the issues of poor sanitation, water and hygiene. This must translate into firm action towards achieving the related MDG targets.

Current progress on MDGs 4, 5 and 7

Although there has been some progress on all these MDGs, they represent some of the goals and targets which are most off track. At current rates of progress, they will not be met in most countries by 2015. With less than five years to go, here is a summary of current progress:

- The global under-five mortality rate fell from 95 per 1,000 live births in 1990 to 65 in 2008 but, unless efforts increase rapidly, the child mortality rate will only be reduced by a quarter instead of the intended two-thirds.²⁵
- Maternal mortality rates are declining but progress is extremely slow and uneven. At a global level, maternal mortality rates declined by less than one per cent per year from 1990 to 2007, much less than the 5.5 per cent annual decline required to achieve this MDG.²⁶ New estimates on maternal mortality suggest that this is still the MDG furthest off track.
- Globally, people's access to clean water has improved from 77 per cent in 1990 to 87 per cent in 2008, but 884 million people continue to go without. For sanitation, progress is much slower, with access increasing from 54 per cent to 61 per cent over the same period, which still leaves 2.6 billion people lacking improved sanitation.²⁷

20 World Bank (2008) *Environmental health and child survival*. World Bank, Washington DC

21 Prüss-Üstün A et al (2008) op cit

22 Hotez PJ, Kamath A (2009) 'Neglected tropical diseases in sub-Saharan Africa: review of their prevalence, distribution, and disease burden.' *PLoS Negl Trop Dis* 3(8): e412. Also Hall A, Hewitt C, Tuffrey V, de Silva N (2008) 'A review and meta-analysis of the impact of intestinal worms on child growth and nutrition.' *Maternal and Child Nutrition* 4 (s1) 118-236

23 Drake LJ, Jukes MC, Sternberg RJ, Bundy DAP (2000) 'Geohelminth infections (ascariasis, trichuriasis, and hookworm): cognitive and developmental impacts' in *Semin Pediatr Infect Dis* 11(1): 245-251. Also Nokes C et al (1992) 'Moderate to heavy infections of *Trichuris trichura* affect cognitive function in Jamaican school children.' *Parasitology*, 104:539-547

24 Ejemot R et al (2008) 'Hand washing for preventing diarrhoea.' *Cochrane Database of Systematic Reviews* 2008 issue 1

25 UNICEF press release 'Global child mortality continues to drop', 10/2/09, at: http://www.unicef.org/media/media_51087.html

26 UN (2008) *The Millennium Development Goals report*. UN, New York

27 UNICEF and WHO Joint Monitoring Programme for Water Supply and Sanitation (2010) op cit

Spotlight on Africa

A characteristic that all these targets have in common is how slow progress has been in sub-Saharan Africa. This region accounts for half of all under-five deaths.²⁸ Ninety-nine per cent of all maternal deaths are in developing countries and, again, half are in sub-Saharan Africa. This region also has the slowest rate of decline in maternal deaths and the slowest progress in improving access to basic sanitation and water. At present rates, the sanitation target is unlikely to be met in sub-Saharan Africa until the 23rd century, while the water target is likely to be met 20 years too late.

What needs to be done?

'Increasing access to safe drinking water, sanitation and hygiene will help save lives that are now being lost to preventable diseases.'

Hillary Clinton, US Secretary of State²⁹

The evidence is compelling, the arguments are solid, and the interventions required are feasible and cost-effective. Yet the links between WASH and maternal, newborn and child mortality have not yet been made and prioritised, either in health systems strengthening or in global initiatives to address poverty. Below are recommendations for donors and developing country governments about how to address this issue.

Funding

Firstly, **donors must fulfil their current commitments**, including the EU Agenda for Action on MDGs, and they must implement the Consensus on Maternal Newborn and Child Health, including filling the US\$30 billion funding gap identified by the High Level Task Force on Innovative International Financing for Health Systems.

Currently, funding for WASH is not going where it is most needed. The 2010 Global Annual Assessment of Sanitation and Drinking Water reports that most ODA for WASH goes to middle-income countries and for sophisticated systems: from 2003 to 2008, only 42 per cent of aid for WASH went to low-income countries.³⁰ **Aid should be re-directed to favour basic systems in the poorest countries.**

Aid must also better reflect need and evidence in order to redress the imbalance in funding between health generally and WASH. This is not to say that funding should be diverted away from health, but in the context of increasing global funding for health, WASH interventions which can be delivered by Ministries of Health should be identified and funded. Funding must also be targeted to the MDG targets and geographical regions which are most off track, and more effort should be made to track and document the health and social development outcomes from these aid investments.

28 UN (2009) *UN Millennium Development Goals report 2009*, p25. UN, New York

29 Address to the National Geographic Society, Washington DC, 22 March, 2010 – World Water Day. Quote referenced at <http://www.state.gov/secretary/rm/2010/03/138737.htm>

30 UN Water (2010) *Global annual assessment of sanitation and drinking water: targeting resources for better results*. WHO, Geneva

Integrated approach

Overall, **a commitment is needed by donors and national governments to tackle the MDGs in an integrated manner.** As the focus increases on maternal, newborn and child health, the contribution of WASH to achieving both MDG 4 and 5 must not be ignored, and specific actions to increase access to WASH must be included when addressing these MDGs in any global action plan.

There should be increased collaboration between the health sector, the WASH sector and other relevant sectors. **The health sector needs to make greater efforts to target WASH as a central element of health improvement, and the WASH sector needs to collaborate more closely with the health system.**

Nevertheless, specific sector actions are also required.

Health

Building strong health systems, alongside disease-specific interventions, is vital for effective progress and the sustainability of the health MDGs. To prevent the many unnecessary deaths in pregnancy, childbirth and early childhood, the role the health sector can play in improving sanitation and hygiene within public and environmental health measures should be clearly identified.

It is important to address both preventative and curative measures, not only to reduce deaths but also to ease the health burden of illnesses such as diarrhoea and nematode infections on health agencies, communities and individuals.³¹ Donor and developing countries need to restate their commitment to primary healthcare and preventative measures made in the Alma-Ata Declaration in 1978, which included sanitation as a key priority.

WASH

The importance of investing in sanitation needs greater political recognition and financial priority. To this end, the international community should continue to support and strengthen 'Sanitation and Water for All – A Global Framework for Action' as the new international platform that provides leadership, coordination and accountability for the sector.

The allocation of aid for water and sanitation needs to reflect where the need is greatest. At least 70 per cent of aid for sanitation and water should be directed to low-income countries and, of this, 50 per cent should target the provision of basic services. Donors need to support the development of national WASH planning frameworks in countries where they do not currently exist, and they should commit to leveraging additional resources so that no credible WASH plan should fail for lack of funds.

31 Taken from the seven-point plan in UNICEF/WHO (2009) op cit



tearfund

www.tearfund.org

100 Church Road, Teddington, TW11 8QE, United Kingdom

Tel: +44 (0)20 8977 9144

Registered Charity No. 265464 (England and Wales)

Registered Charity No. SC037624 (Scotland)

20066-(0610)