

The sanitation problem:

What can and should the health sector do?



Summary

Summary recommendations:

1. Global health institutions should acknowledge and address the impact of sanitation on the global disease burden, the contribution of improved sanitation to reducing that disease burden and the potential benefits for public health outcomes.
2. International donors should prioritise support for programmes in countries with low sanitation coverage and high burden of sanitation-related disease and invest in research and evaluation to understand the relative health impacts and additive effects of different types of sanitation intervention.
3. Developing country governments should ensure that sanitation is addressed within all relevant health policies, regulations, guidelines and procedures and establish targets and indicators for monitoring improvements in sanitation related diseases.
4. Developing country governments should strengthen public health legal and regulatory frameworks to improve inter-sectoral coordination between ministries and agencies responsible for sanitation at different levels and enhance accountability for results.
5. National and sub-national health programme priorities should take account of sanitation-related disease burden and ensure that sanitation and hygiene are fully integrated within disease specific and national health programmes.

Half of the people living in developing countries do not have access to even a basic toilet.¹ This presents a major risk to public health. Diseases attributable to poor sanitation currently kill more children globally than AIDS, malaria and measles put together, and diarrhoea is the single biggest killer of children in Africa.² Safe sanitation is widely acknowledged to be an essential foundation for better health, welfare and economic productivity, but progress

in reducing the burden of sanitation-related diseases borne by poor people in developing countries remains slow and is holding back progress on all other development outcomes.

The wider problem of political and financial neglect of sanitation issues has already been well documented³ and the 2008 International Year of Sanitation signalled a concerted effort to try and address the sanitation

problem. But WaterAid's experience on the ground in Africa and Asia has shown that the enduring challenge is not just how to provide infrastructure, but also how to promote uptake and use of facilities. Infrastructure is necessary but not sufficient for better health. There is a critical need to develop better integrated approaches in order to maximise the health gains associated with sanitation interventions in support of the ongoing drive to achieve 'Sanitation and Water for All'.⁴

The health sector has an important role to play in promoting sanitation. Creating demand and changing behaviours are both areas where the health sector has a strong track record and recognised comparative advantage. However, there is a lack of consensus regarding institutional roles and responsibilities for sanitation in developing countries, and the degree of health sector involvement in promoting safe sanitation varies significantly. This report draws upon recent WaterAid-funded research into the different roles played by the health sector in developing countries and makes recommendations for accelerating progress on sanitation and securing related health outcomes.

The report reviews recent trends in health sector policy and programmes in developing countries, confirms the inadequate nature of existing institutional responses to the sanitation problem in these countries, and highlights the absence of strong political leadership and lack of clearly-defined institutional roles and responsibilities. It further notes that health sector planning and funding allocations frequently do not reflect the burden of disease attributable to sanitation in developing countries and that contemporary health systems

are primarily focused on treatment and patient-based interventions while preventive and public health aspects tend to receive less attention.⁵ In developing countries the majority of investment in sanitation is currently channelled through infrastructure ministries where it is mainly focused on providing new facilities. Meanwhile, budget allocations to health ministries for sanitation tend to be less clearly defined and allocation of health system resources for related activities is often diffuse, making it difficult to monitor results.

There is relatively little research on appropriate health sector roles and responsibilities in promoting sanitation but after reviewing existing theory and practice the study focuses on four key 'functional deficits' that characterise existing institutional responses to sanitation and health:

1. norms and regulations
2. inter-sectoral policy and coordination
3. delivery of scaleable sanitation programmes
4. collection and use of data

This report explores the role of the health sector in addressing each of the functional deficits identified, drawing on examples from the four country case studies.

The study concludes that improved collaboration between WASH and health sectors is key to improving sanitation-related health outcomes. It shows that health systems have a critical role to play in promoting sanitation but that existing health sector involvement is frequently sub-optimal. It makes a series of recommendations for health sector stakeholders interested in accelerating progress on sanitation and securing related health gains in developing countries.

A WaterAid report, May 2011. Written by Yael Velleman and Tom Slaymaker.

Acknowledgements: This policy report draws upon the findings of WaterAid-funded research conducted in collaboration with the Water Institute (WI) at the Gillings School of Public Health, University of North Carolina, during 2010. The views expressed here are those of WaterAid and do not necessarily reflect those of the Water Institute.

With particular thanks to WaterAid country programme staff in Malawi, Nepal and Uganda for their support and contributions to this report.

This paper should be cited as WaterAid (2011) *The sanitation problem: What can and should the health sector do?*

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Front cover image of children in Malawi: WaterAid/Layton Thompson

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1. Introduction

WaterAid’s vision is of a world where everyone has access to safe water and sanitation. This vision can only be achieved by working in collaboration with others. This report is part of an ongoing programme of work which seeks to reach out beyond the water, sanitation and hygiene (WASH) sector to engage with actors and agencies from other sectors, particularly health and education, as part of a concerted joint effort to address the lack of access to WASH and the profound impact it has on health, welfare and economic growth in the world’s poorest countries and communities.

Box 1: Health ‘sector’ or health ‘system’?

The terms ‘health sector’ and ‘health system’ are often used interchangeably and are rarely defined. For the purposes of this paper the term ‘health sector’ is used to refer to the various different actors and agencies that play a role in improving health (whether political, financial, technical or administrative), whereas the term health system is used to refer to the system for delivery of healthcare services (mostly understood as curative or palliative services).

According to the World Health Organization (WHO):

“A well functioning health system responds in a balanced way to a population’s needs and expectations by:

- Improving the health status of individuals, families and communities.
- Defending the population against what threatens its health.
- Protecting people against the financial consequences of ill-health.
- Providing equitable access to people-centred care.
- Making it possible for people to participate in decisions affecting their health and health system.”⁶

The report argues that the scale of the financial and human costs of the neglect of sanitation cannot be ignored; and that joint, cross-sector efforts that make better use of existing resources are critical to building on the gains achieved so far in improving global health. Progress on global health, in particular on child health, will require health and sanitation professionals to work together to tackle poor sanitation. This report attempts to provide some practical recommendations on how to facilitate this joint effort.

The report draws on research conducted during 2010 in collaboration with the Water Institute at the Gillings School of Global Public Health, University of North Carolina, USA. The research team investigated the characteristics of health sector involvement in sanitation in developing countries, including governance structures, health sector roles and responsibilities, and current initiatives to link sanitation and health. Four developing countries with differing institutional arrangements for sanitation and varying degrees of sanitation

coverage provided the context for more detailed case studies: Malawi, Nepal, Sri Lanka and Uganda.⁷ Extensive in-country support was provided by local WaterAid staff and partners.

A triangulation approach was used to gain a fuller picture of the interaction of the health sector with sanitation policies, programmes, and implementation. Data were collected using a range of methods including: a review of academic literature and country policies and programmes; expert consultation via in-person field interviews with representatives from the health and WASH sectors (including staff from national government agencies, non-governmental organisations and external support agencies); and development of an interactive online survey using a wiki approach⁸ to elicit responses from stakeholders in a larger number of countries. The full report prepared by the Water Institute, on which this report draws, is available separately as a background paper.

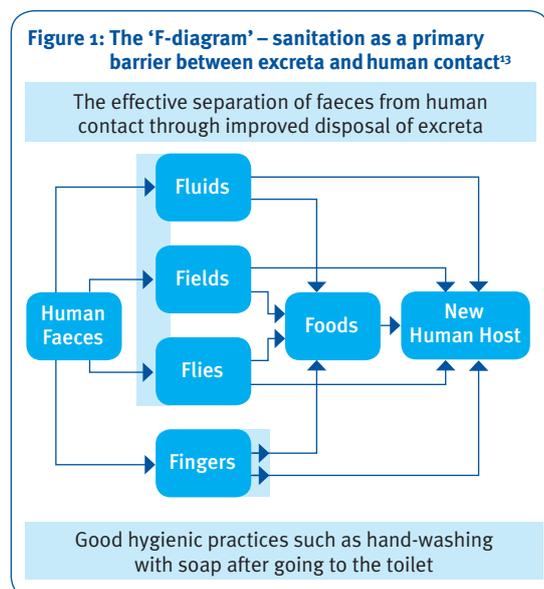
2. The critical role of sanitation in health

More than one third of the world’s population does not have access to improved⁹ sanitation – a sanitation facility that ensures hygienic separation of human excreta from immediate human contact,¹⁰ thereby preventing infection caused by the ingestion or contact with human faeces (the ‘faecal-oral’ route of transmission). At current rates, the sanitation MDG target will not be met globally until 2049; in sub-Saharan Africa, it will not be met until the 23rd century.¹¹

What is sanitation?

Sanitation is the collection, transport, treatment and disposal or reuse of human excreta, domestic wastewater and solid waste, and associated hygiene promotion.¹²

The F-diagram (figure 1) summarises the established means by which sanitation and associated hygiene practices prevent infection.



1.1 billion people practise indiscriminate or open defecation.¹⁴ This situation represents a significant and constant barrier to human and economic development, through direct impact on health, as well as broader impacts on wellbeing and poverty. Although more than 800 million people globally lack access to safe drinking water, this paper will focus specifically on sanitation; this focus is driven by the neglect of the sanitation issue, as well as the particular role of the health sector in sanitation promotion.

The impact of inadequate global sanitation coverage on health is particularly significant: the World Health Organization (WHO) estimates that 7% of the world’s deaths and

8% of the global disease burden are caused by diseases related to unsafe sanitation.¹⁵ Unsafe sanitation is a major risk factor for diarrhoeal disease,¹⁶ the biggest cause of death in children under the age of five in sub-Saharan Africa¹⁷ and the second leading contributor to the global disease burden (see figure 2). Further, poor hygiene practices are a major risk factor for respiratory infections, the leading contributor to the global burden of disease.¹⁸ Lack of access to WASH is strongly associated with further diseases and infections, including intestinal nematode infections, lymphatic filariasis, trachoma and schistosomiasis, among others.¹⁹ As shown in figure 2, diarrhoea causes more deaths in children under five years old than HIV/AIDS, malaria, and measles combined.²⁰

The impacts of WASH on the world's disease burden were critically reviewed by Ustin et al in 2008.²² The review noted that poor WASH causes an estimated 88% of cases of diarrhoea worldwide, and although annual child mortality has decreased since

the report was released in 2008, Ustin and colleagues showed that 28% of child deaths were due to unsafe WASH. Further, an estimated 50% of childhood malnutrition was associated with repeated diarrhoea or intestinal nematode-related diseases. Children in developing countries suffer disproportionately, with models indicating that over 20% of global mortality and disease burden of children 0-14 years old are due to unsafe WASH.²³

In a recent review of survey data from 172 countries, results showed a robust association between access to sanitation technologies and reduced child mortality and morbidity. Sanitation access lowered the odds of children suffering from diarrhoea by 7-17%, and reduced mortality for children under five by 5-20%. Figure 3 shows cross-tabulation of diarrhoea and child mortality rates with sanitation technology level. It demonstrates that child morbidity and mortality are substantially lower for children with access to advanced sanitation technologies.²⁴

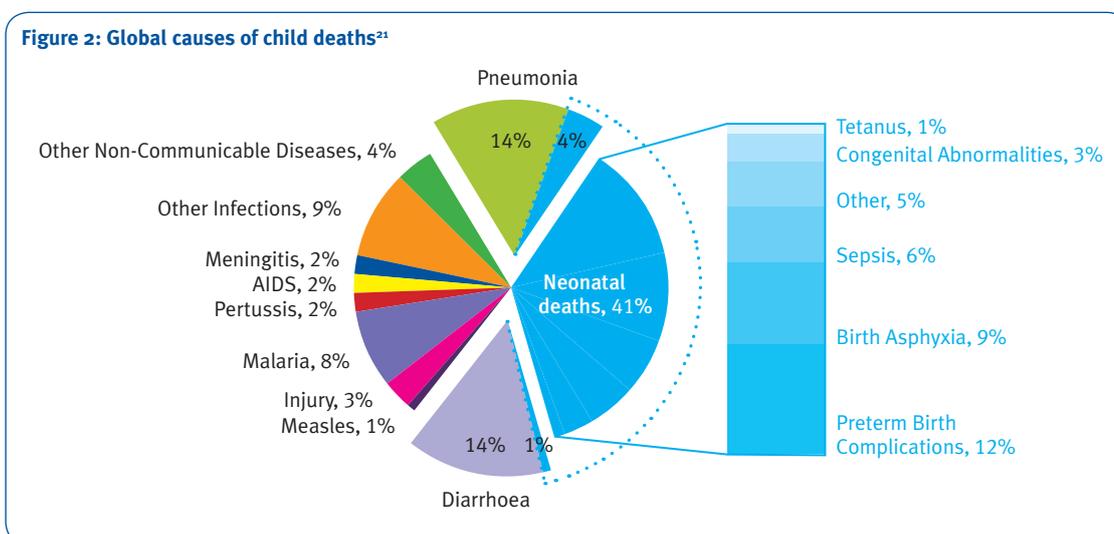
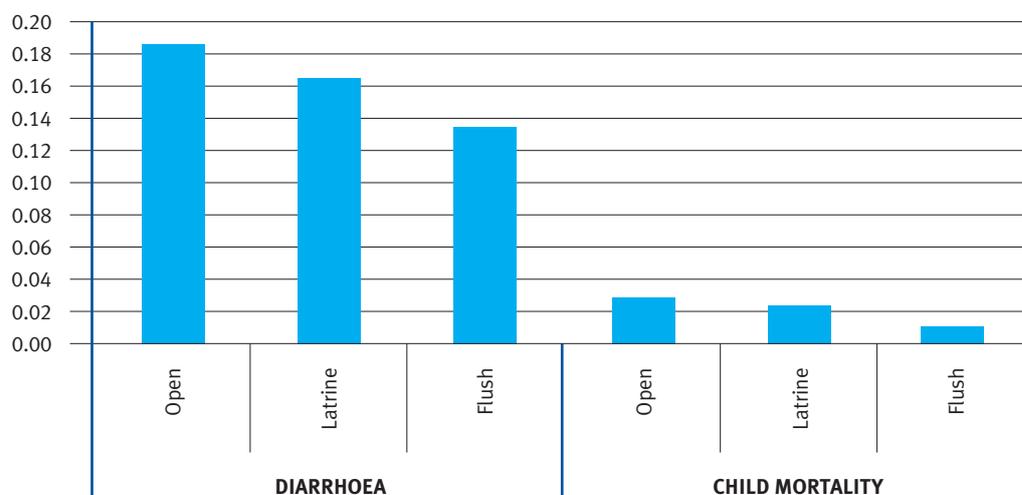


Figure 3: Correlation of sanitation access with diarrhoea and child mortality²⁵



This situation is reflected in the burden of disease in the case study countries: table 1 provides an overview of the estimated prevalence of sanitation-related infections in the case study countries. In 2004 (the latest year for which comparative data are available), diarrhoeal disease caused an estimated 6–9% of the deaths and 6–8% of the disease burden in three of the four countries studied: Malawi, Nepal and

Uganda. In contrast, diarrhoea caused less than 1% of the deaths and disease burden in Sri Lanka. Other diseases related to unsafe sanitation such as intestinal nematode infections, malnutrition, trachoma, schistosomiasis and lymphatic filariasis, were estimated to have caused several thousand deaths and significant disease burden each year in the case study countries. Malnutrition was estimated to have

Table 1: Summary statistics on deaths and disability from WASH-related diseases in 2004²⁶

	Malawi		Nepal		Sri Lanka		Uganda		World	
Population	12,895,000		26,554,000		19,040,000		28,028,000		6,436,826,000	
	Deaths	DALYs ^a	Deaths	DALYs	Deaths	DALYs	Deaths	DALYs	Deaths	DALYs
Diarrhoeal diseases (% of total deaths or DALYs)	20,700 (9%)	674,000 (8%)	15,800 (6%)	523,000 (6%)	900 (<1%)	41,000 (<1%)	30,600 (7%)	1,035,000 (7%)	2,163,283 (4%)	72,776,516 (5%)
Intestinal nematode infections	0	1,700	100	16,000	0	16,000	0	39,000	6,481	4,012,666
Malnutrition ^b	3,700	211,000	2,000	157,000	100	15,000	2,500	246,000	250,562	17,461,607
Trachoma	0	5,000	0	20,000	0	0	0	87,000	108	1,334,414
Schistosomiasis	1,300	5,900	0	0	0	0	1,700	63,000	41,087	1,707,144
Lymphatic filariasis	0	5,400	0	119,000	0	26,000	0	68,000	290	5,940,641
Total country deaths/DALYs for WaSH-related diseases (% of total deaths/DALYs)	25,700 (11%)	903,000 (12%)	17,900 (7%)	835,000 (11%)	1,000 (<1%)	98,000 (2%)	34,800 (8%)	1,538,000 (11%)	2,461,811 (4%)	103,232,988 (7%)
Total country deaths/DALYs due to all diseases for 2004	227,100	7,575,000	238,900	7,837,000	213,400	4,469,000	405,800	14,145,000	58,771,791	1,523,258,879

^a Disability-adjusted life-year

^b Protein-energy malnutrition only

caused up to 23% (Malawi) of the WASH-related disease burden. The total estimated WASH-related disease burden differs significantly between Malawi (12%), Nepal (11%) and Uganda (11%) on the one hand, and Sri Lanka (2%) on the other. Further, the total death rate from WASH-related diseases also differs significantly between Malawi (11%), Nepal (7%), Uganda (8%), and Sri Lanka (1%).

The impact of WASH on health in the case study countries is more apparent when examining data on child mortality:²⁷ in Malawi, diarrhoea alone is responsible for 11% of child deaths; in Nepal, it causes 14% of child deaths and in Uganda 16%, compared with 3% in Sri Lanka.²⁸

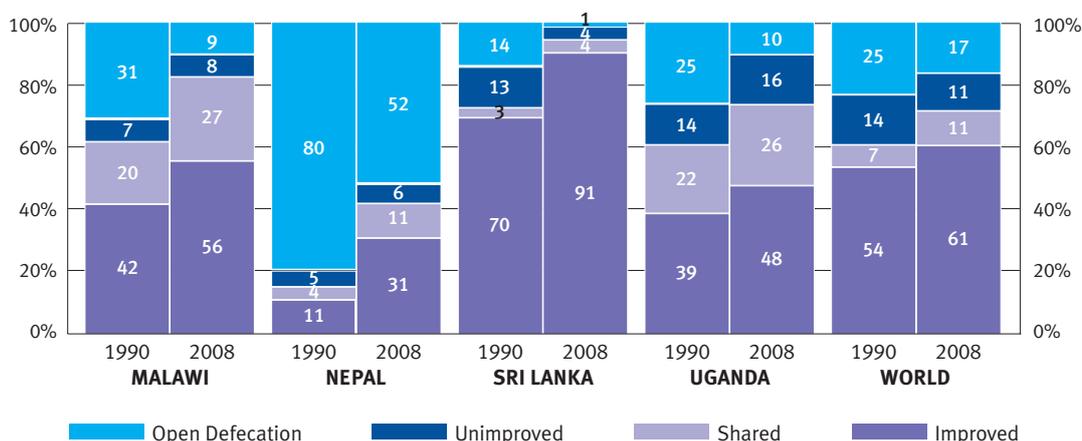
Figure 4 compares changes in sanitation coverage from 1990 to 2008 for the case study countries as well as globally. The sanitation ‘ladder’ format used shows the rate of use for each sanitation type: ‘open defecation’ (no use of sanitation facilities); ‘unimproved sanitation’ (does not ensure hygienic separation of human excreta from human contact³⁰); ‘shared’ (improved facility that is shared among two or more households³¹); and ‘improved sanitation’ (ensures hygienic

Box 2: Disability-Adjusted Life Years (DALYs)

According to WHO, “One DALY can be thought of as one lost year of ‘healthy life. The sum of these DALYs across the population, or the burden of disease, can be thought of as a measurement of the gap between current health status and an ideal health situation where the entire population lives to an advanced age, free of disease and disability. DALYs for a disease or health condition are calculated as the sum of the Years of Life Lost (YLL) due to premature mortality in the population and the Years Lost due to Disability (YLD) for incident cases of the health condition.”²⁹

separation of human excreta from immediate human contact). The highest open defecation rate is in Nepal; in contrast, less than 1% of Sri Lanka’s population practices open defecation. The rate for improved sanitation coverage varies widely: 30% in Nepal, 48% in Uganda and 56% in Malawi, compared to 91% in Sri Lanka.³²

Figure 4: 2010 Sanitation coverage in the case study countries and globally³³



The tremendous impact of sanitation on health results in significant economic returns on investment in sanitation, for individuals as well as national economies. Evans et al³⁴ determine that such returns include direct healthcare savings by both health agencies and individuals, as well as indirect benefits such as productive days gained per year (for persons 15-59 years of age); increased school attendance for children; time savings (working days gained) resulting from more convenient access to services; and a high value of deaths averted (based on future earnings). The study further showed that achieving the water and sanitation Millennium Development Goal (MDG)³⁵ could yield substantial economic benefits, ranging from US\$3-34 per US\$1 invested, depending on the region.

There are also significant benefits for health systems and budgetary resources; according to UNDP, at any given time half of the hospital beds in developing countries are occupied by patients suffering from sanitation- and water-related diseases,³⁶ representing a tremendous burden for already overstretched health systems. It also estimates that “universal access to even the most basic water and sanitation facilities would reduce the financial burden on health systems in developing countries by about US\$1.6 billion annually—and US\$610 million in Sub-Saharan Africa, which represents about 7% of the region’s health budget”.³⁷

In 2008, the World Bank’s Water and Sanitation Program (WSP) conducted an economic impact analysis of sanitation in five south-east Asian countries: Cambodia, Indonesia, the Lao People’s Democratic Republic, Vietnam, and the Philippines. The research estimated that these countries lose an estimated US\$9 billion (2005 dollars) a year – 2% of their combined GDP – because of poor sanitation.³⁸ A similar study in India showed that inadequate sanitation cost the economy US\$53.8 billion annually in lost productivity, healthcare provision and other losses - equivalent to 6.4% of GDP in 2006.³⁹

The data above provides compelling evidence on the benefits of sanitation investment – and the scale of the financial and above all human costs of not investing cannot be ignored by any sector. In a time of financial crises and shrinking domestic and aid financial flows, joint efforts that make better use of existing resources are not only sensible but critical to building on the gains achieved so far in improving global health. Clearly, if real improvement is to be made in population health in developing countries, especially on child mortality where performance has been particularly poor, then health and sanitation professionals need to work in concert to tackle poor sanitation as a major cause of ill health.

3. The inadequacy of existing institutional responses

The need for joining health and engineering expertise is self-evident, and has led to the introduction of public health acts and urban sewerage systems in rich countries. This potential remains largely unrealised in developing countries.

While health professionals frequently acknowledge sanitation as a vital precondition for acceptable standards of public health,⁴⁰ interviews conducted with senior health professionals for this and other studies⁴¹ show that they rarely consider sanitation to be within their own scope of responsibility; rather, it is someone else's business.⁴² This is reinforced by the fact that sanitation is generally weakly integrated within increasingly curative and palliative health systems, at the expense of preventive approaches; in some cases, sanitation is not even considered to be part of the health sector's policy mandate. On the other hand, interviews with frontline health professionals show that although promoting safe sanitation is rarely a core component of health programmes by design, the scale and severity of the sanitation problem on the ground is such that they are often compelled to intervene in an ad hoc manner using available and limited resources.

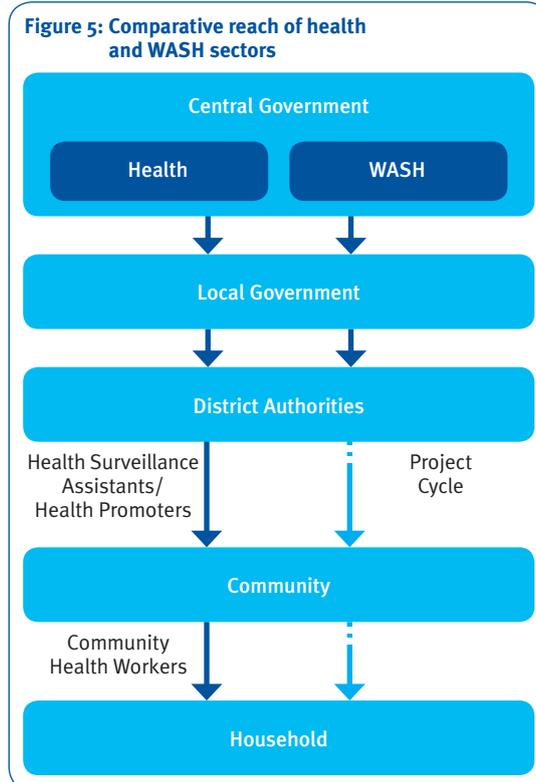
Despite the fundamental importance of sanitation to human health and other development outcomes, sanitation is often a low priority in national development agendas, obscured by the more politically attractive focus

on safe drinking water. For example, sanitation was initially omitted from the initial list of MDG Targets, only added in 2002. Recently, the 63rd World Health Assembly's report on the monitoring of the MDGs, and the resulting resolution, failed to acknowledge that the sanitation aspect of MDG Target 7c will not be met – thereby failing to acknowledge its importance for the achievement of the health MDGs.⁴³ This lack of global prioritisation is mirrored in national policies and priorities, with the bulk of WASH financing allocated to water infrastructure, and environmental health programmes suffering from lack of funding and prioritisation – the 2009 World Bank Africa Infrastructure Country Diagnostic Report found average annual public spending on sanitation to be no more than 0.22% of GDP, of which 0.2% was recurrent expenditure and only 0.02% represented new investment. As noted earlier, progress on access to sanitation remains painfully slow. Given the compelling evidence provided above on the links between sanitation and health, it is unsurprising that progress on critical health aspects, in particular child health, has been equally slow.⁴⁴

The effect of slow progress on infrastructure coverage is exacerbated by the design and delivery of sanitation

programmes; in addition to low levels of funding, sanitation programmes are also characterised by short-term project cycles that lead to a focus on construction of new infrastructure without due consideration of infrastructure sustainability and use.⁴⁵ Inadequate attention to creating demand for sanitation and changing behaviour means that potential health gains are not realised. Decision making on sanitation policy tends to be conducted at a central government level, while WASH departments at lower levels of government are frequently understaffed and under-resourced without the necessary community-level reach on a regular and consistent basis outside the project cycle. Such community-level reach is essential for enabling demand for sanitation, adoption of sound hygiene practices, and generating capacities for constructing and maintaining sanitation facilities. This community-level reach and ability to drive up demand for services and related behaviour change is one crucial area where the health sector can help deliver progress on sanitation and associated health benefits. This difference in reach between the health and WASH sectors is depicted in figure 5.

Curative patient treatment is just one aspect of health systems, although it is the most publicly visible one, and is therefore prioritised both politically and financially. But another key role is the promotion of changes in behaviour and lifestyle to improve health and prevent disease. Such behaviour change can include the generation of demand or take-up for specific services (eg. vaccination) and products (eg. bed nets). The fact that the health sector has engaged in such activities for centuries, and has developed tried and



tested approaches for doing so, places it in a unique position of expertise. With health professionals (doctors, nurses, health promoters) located even at remote rural locations, the sector also has incomparable reach into and influence over the population it serves. Health professionals, especially doctors, wield considerable authority, and command respect in many societies worldwide. As one interviewee in Nepal put it, “people listen to doctors more than they listen to engineers”. The leadership of health professionals has been demonstrated globally in large-scale efforts and programmes for prevention and control of HIV/AIDS and non-communicable diseases, both associated with lifestyle choices and requiring strategies that emphasise behaviour change. The expertise for changing behaviour and promoting uptake of services and products, as well as service scope and reach are lacking in the institutional structure of the WASH sector, which remains project-driven and heavily focused

on engineering and infrastructure aspects⁴⁶. The behavioural ('software') aspects of sanitation must be addressed systematically if increases in sanitation coverage are to take place and result in better health outcomes. Box 3 provides a discussion on sanitation and hygiene promotion.

All health sector stakeholders interviewed agreed that the existing institutional responses to sanitation are inadequate given the burden of disease attributable to poor sanitation experienced in developing countries. But what precisely can and should the health sector do about the sanitation problem?

Box 3: Sanitation and hygiene 'education' or 'promotion'?

The terms 'education' and 'promotion' are often used interchangeably, but are in fact two very different approaches. According to Curtis,⁴⁷ the need for a promotion approach is rooted in the fact that "getting people to change the habits of a lifetime is difficult, takes time and requires resources and skill". With regards the promotion of hand-washing with soap, while past approaches utilised hygiene education (teaching why hygiene practices such as hand-washing are necessary, and how to practice them) to affect behaviour change, it is now understood that knowledge about germs is insufficient to change behaviour, due to time or financial costs as well as social attitudes to hand-washing. Unlike hygiene education, hygiene promotion builds on the understanding of community attitudes, knowledge, practices and desires. Its reliance on participation and appropriateness provides better chances for sustained behaviour change, as well as reduced reliance on large-scale education campaigns. Similar lessons have been learnt regarding sanitation promotion; Jenkins and Cairncross have documented the reasons leading to construction and use of latrines at the household level, noting that household adoption of sanitation practices is often associated with comfort, prestige and safety as much as with health considerations.⁴⁸ Successful sanitation promotion approaches must consider these motivations in order to ensure sustainable impact.

4. Functional deficits and the role of the health sector in addressing them

4.1 Core functional deficits in securing progress on sanitation and related health gains

Little research has been undertaken on the involvement of the health sector in decreasing the disease burden caused by poor sanitation.⁴⁹ Rehfuess, Bruce, and Bartram⁵⁰ assert six specific health sector functions in relation to environmental health issues such as poor sanitation.

Drawing on this and other literature, the WaterAid research presented in this paper focused on four broad functional deficits which typically constrain efforts

to accelerate progress on sanitation and secure related health gains:

1. Norms and regulations.
2. Inter-sectoral policy and coordination.
3. Delivery of scaleable sanitation programmes.
4. Collection and use of data.

These four functional deficits are used here as a framework for examining existing institutional arrangements for sanitation in developing countries and identifying potential roles for the health sector, both within its own purview and in partnership with other sectors,⁵² in tackling these deficits.

Table 2: Health sector functions and roles ⁵¹	
	Health sector roles
Function 1: Norms and regulations	<ul style="list-style-type: none"> • Develop health-protecting standards and regulations appropriate to the country's social, economic and environmental circumstances. • Monitor implementation and contribution to population health.
Function 2: Inter-sectoral policy and coordination	<ul style="list-style-type: none"> • Build and maintain expertise to track and influence major policies that impact health. • Employ formal mechanisms for health impact assessments. • Establish effective multi-disciplinary collaboration.
Function 3: Health facilities	<ul style="list-style-type: none"> • Set standards for healthcare facilities. • Budget for structural improvements and capacity-building to encourage staff behavioural changes. • Enforce compliance through an independent oversight function.
Function 4: Disease-specific and integrated programmes	<ul style="list-style-type: none"> • Integrate environmental determinants (eg. safe sanitation) into health professional training curricula. • Incorporate environmental health actions into health programmes. • Work with partners to raise awareness.
Function 5: Outbreaks	<ul style="list-style-type: none"> • Maintain expertise to advise on and conduct outbreak investigations. • Test, implement and revise procedures in cooperation with other actors. • Update regulations and policies accordingly.
Function 6: Impacts, threats, and opportunities	<ul style="list-style-type: none"> • Seek evidence for causal associations between environmental factors (eg. absence of sanitation) and health. • Assess potential values and harms of technology innovation and policy development.

4.1.a Functional deficit 1:

Norms and regulations

Policy and supporting legislation is essential to provide a clear vision and to establish basic principles and objectives to guide sanitary improvements. In several of the countries reviewed there exists some sort of historic public health legislation that considers health risks associated with poor sanitation. For example, Sri Lanka developed the first public health-orientated legislation in the 19th century when the Public Health and Ordinance and Small Towns Sanitary Ordinance of 1892 provided a legal basis to enact local sanitation requirements. Uganda and Malawi created public health legislation around the time they gained independence from Britain. Uganda's Public Health act, enacted in 1964 and updated in 2002, requires sanitation in all households. Malawi enacted a Public Health Act in 1948 which regulates sewerage and infectious disease prevention but its updated National Health Act and Policy 2010 awaits approval. Nepal is the only country of the four case studies that does not have a public health act. Very few countries have an explicit national sanitation policy, although some have drafted policies which have not been officially agreed and launched, and are therefore yet to be translated into action. However where such policies do exist, they often lack traction at programme level, and do not use health outcomes as success indicators. Health policies on the other hand tend to focus on service delivery aspects, with less emphasis, and consequently less human and financial resources dedicated to preventive measures, including sanitation.

Health sector roles in promoting sanitation include supporting the development of norms and regulations that will improve health and encourage the definition and adoption of safe sanitation practices, and establishing mechanisms to enable periodic review and updating in response to emerging challenges. While sanitation technology is still being developed, the input of the health sector is crucial to ensure that adopted technology meets the required health standards. In Sri Lanka, for example, the health sector was actively involved in the development of guidelines for latrine construction and safe disposal of excreta, which has contributed to significant improvements in the general standard of sanitation facilities in recent years. Development of norms and regulations is also closely linked to education and awareness-raising, which are critical factors in promoting behaviour change and in generating demand for sanitation services and infrastructure. Public information campaigns run by the health ministry in Sri Lanka are considered to have played a key role in stimulating demand among communities for improved sanitation facilities.

An obvious opportunity for the health sector to promote behaviour change (and ultimately better policy and programming) starts with safe sanitation within healthcare facilities. Clean and well-maintained facilities provide a model to users of healthy practices that can be implemented in homes, schools, and other settings as well as reducing the risk of infection within healthcare facilities. However

facilities observed in the case study countries suffer from extremely poor maintenance and, too often, a complete absence of sanitation facilities. The availability of functioning sanitation in Nepal's health facilities is severely inadequate. Hospital waste management and general attention to the physical functioning of government hospitals and clinics is slowly improving as part of the attention given to these aspects in the health sector-wide approach (SWAp) and the technical assistance provided by WHO (with the assistance of the Global Alliance for Vaccines and Immunisations (GAVI)). In Uganda, information obtained from studies, interviews and visits to health facilities indicates poor sanitation conditions in many healthcare facilities. In Sri Lanka, the government has not issued specific guidelines for hospital planning, including sewage system design, and there are concerns that established government and Ministry of Health (MoH) guidelines have not been closely followed by contractors involved in recently-constructed new hospital buildings.

With appropriate regulations officially in place, health decision makers can ensure that health facilities are adequately equipped with functioning sanitation facilities. They can also require safe sanitation practices by staff and ensure compliance through regular instruction and monitoring. Health

sector professionals are well-placed to lead by example and to demonstrate appropriate practices for the thousands of patients they treat annually, as well as opportunistic promotion of hygiene messages through posters, talks with patients in waiting rooms, and individual conversations with patients (either during routine visits such as for child vaccination or for acute visits due to WASH-related infections).

Monitoring and enforcement remains a key challenge in the countries studied. Sri Lanka has been more successful than most in managing to retain an active network of public health inspectors that traditionally combined promotion and inspection activities to generate better sanitation-related behaviour in the population. There are examples, such as in Uganda, of the enforcement of sanitation practices through other means, including the penalisation for non-compliance with sanitation standards through fines or prison sentences, but there are concerns that such approaches may be less effective in generating behaviour change that translates into health gains. While regulations are crucial for resolving conflicts, for example between tenants and their non-complying landlords, the actual hygienic and effective use of sanitation facilities is better addressed through community-level outreach – a speciality of the health sector.

Findings:

- Clear policy, legislation and minimum standards are an important foundation for securing potential health gains from WASH. Some countries have public health legislation in place but very few have explicit policies and strategies for addressing sanitation.
- Ministries of Health and health authorities often play a minimal role in sanitation policy setting and programming, whether led by or included within the Ministry of Health's environmental health division.
- Where sanitation policies exist they are generally approached from an engineering (supply-side) perspective, which does not recognise the public health implications of sanitation (and consequently, does not use behaviour change or health outcomes as indicators of a well-functioning sanitation infrastructure).
- Many developing countries lack commonly agreed minimum standards for sanitation (eg. in schools and clinics). Concepts and definitions of what constitutes 'safe' or 'improved' sanitation are still evolving (eg. the sanitation 'ladder'), and require significant inputs from public health professionals (beyond technology).
- When sanitation enforcement mechanisms are in place, such as housing regulations and bylaws, they are often constrained due to minimal funding and inadequate human resources. Formal sanctions alone are unlikely to result in health gains unless coupled with efforts to promote safe sanitation and improved hygiene practices.
- No examples were found for the purpose of this study of regulations or guidelines for patient safety and infection control measures, which relate to safe sanitation.

4.1.b Functional deficit 2: Inter-sectoral policy and coordination

Securing progress on sanitation and associated health gains requires concerted action across a diverse range of actors. A number of sectors, including health, education, environment, industry, transport and infrastructure, address or impact on various aspects of sanitation on a regular basis. Cross-sectoral action provides a financially prudent and more sustainable means to improve population health and increase investment by other sectors. This requires leadership, including commitment from top officials and engagement at all levels. Such

leadership relies on health ministries moving beyond the mere management of health systems to assuming a stewardship role for promoting and safeguarding acceptable standards of public health, and asserting the authority associated with this role over the activities of other sectors.

One way of breaking down the institutional silos that hamper inter-sectoral cooperation is the establishment of joint financing arrangements. In the past few years, there has been a shift in the way in which external donor support is delivered. While SWAPs have, over

the years, been accompanied by financing arrangements such as ‘basket funds’ (jointly managed by SWAp partner institutions), there has been a recent growth in earmarking funds through budget support. Such financing arrangements can improve harmonisation between actors and alignment with government financial management systems, as well as encourage adoption of commonly agreed sector performance indicators. However, they can also reinforce sector silos by increasing the competition for resources (for example, health ministries may be reluctant to share budget resources with institutions outside the ‘sector’, or to spend on interventions deemed to be outside the sector’s remit).

Certain efforts have been made in the case study countries to break down silos, such as involvement of water and sanitation officials in health planning and budgeting processes in Nepal, and similar efforts in Malawi – but these remain largely ad hoc and have not been effectively institutionalised. In Uganda, a separate sanitation budget line has been established in order to address the financial neglect of sanitation as well as to enable monitoring of sanitation spending; however, at the time of writing of this report, the budget line has not yet been furnished with funds, nor has there been an agreement between the three responsible ministries (Ministry of Water and Environment (MoWE), Ministry of Health (MoH) and Ministry of Education and Sports (MoES)) on how these funds will be managed. While there has been an increase in the number of programmes requiring inputs

across a number of different sectors (eg. nutrition, child and maternal health), no examples were found of joint reporting by water and health ministries on sanitation-related health outcomes.

Examples of mechanisms for inter-sectoral policy and coordination on sanitation were identified in all the countries studied at both national and district levels. These can take the shape of a SWAp led by the water or health ministry, as well as that of working groups set up to address specific issues such as sanitation. However, with the exception of Malawi, health sector participation in inter-sectoral mechanisms led by the water and sanitation infrastructure sector tends to be sporadic or crisis-driven (for example, following a disease outbreak). In addition, participation is usually undertaken at the junior staff level and does not match the level of seniority of water and sanitation institution attendees. At a district level, coordination structures may suffer from lack of financing, under-staffing and low capacity, lack of decision-making autonomy and poor links with national level institutions and inter-sectoral mechanisms.

In Uganda, at the national level, the National Sanitation Working Group (NSWG) has the mandate of operationalising the sanitation Memorandum of Understanding signed by the MoH, MoWE and MoES, integrating sanitation and hygiene promotion in sector operations, and improving cross-sectoral coordination. The NSWG is chaired by the World Bank WSP, and comprises of government

ministries (MoWE Directorate for Water Development, MoH Environmental Health Division, MoES), development partners (UNICEF, GIZ (Gesellschaft für Internationale Zusammenarbeit)) and NGOs (WaterAid in Uganda, Plan International, UWASNET, AMREF, Netwas and Water for People). At the district level, coordination is undertaken through the District Water and Sanitation Coordination Committees (DWSCCs), who bring together administrative and political leaders, technical officers, and NGO and community-based organisation representatives to oversee the implementation of water supply and sanitation programmes and strengthen collaboration and coordination with other sectors and actors at the district level. The DWSCCs have real potential for local-level collaboration but their effectiveness may be hampered by the substantial increase in the number of districts in the country, which is yet to be matched by adequate local government capacity. The Improved Sanitation and Hygiene (ISH) promotion 10-year financing strategy for Uganda, which defines the pillars for improved sanitation and hygiene (generate demand, supply sanitation, and develop an enabling framework to support and facilitate accelerated scaling up), has yet to receive official governmental support and funding remains fragmented, resulting in small-scale, uncoordinated implementation.

Within the health sector, the Division of Health Promotion and Education (HPE) at the MoH leads the implementation of HPE programmes and works with other agencies to review relevant standards and regulations. At the district level, the

District Director of Household Services coordinates planning, managing, and monitoring of information, education and communication activities and works with all agencies including the district information office. At health centres, HPE activities are carried out by available health professionals and village health teams, based on need and prevalent health problems. However, coordination and collaboration between HPE and the DWSCCs and NSWG in responding to sanitation-related health problems currently remains limited.

Nepal does not have a Public Health Act to allocate sanitation and environmental health tasks to specific actors. This is considered an important obstacle to engaging the district-based health staff in integrating their activities with other stakeholders in environmental health, exacerbated by lack of clarity regarding the responsibilities of the District Public Health Officers and the Public Health Officer. Health and sanitation stakeholders interviewed indicated lack of interaction across sectors and programmes, and a narrow sectoral approach applied by professionals in both sectors, and within sectors, with vertical approaches (see box 4 overleaf) leaving little scope for interaction between subprograms, let alone with other sectors. One professional interviewed noted that without official guidance to ensure collaboration, it tends to be an exception rather than the rule. The recent Nepal Health Sector Support Programme (NHSSP-II) may present an opportunity to develop a public health act and/or a WASH strategy with firm and formalised links with health institutions.

Box 4: Water, sanitation and hygiene within the second Nepal Health Sector Support Programme (NHSSP II)

Efforts are ongoing to ensure that WASH issues are firmly embedded within the NHSSP– II:

- The Ministry of Health and Population (MoHP) has assigned a focal point to coordinate with the WASH sector
- In 2010, Global Handwashing Day was celebrated nationally, bringing together the MoHP and the Ministries of Physical Planning and Works, of Education, of Local Development, WaterAid and UNICEF.
- MoHP has formed a Water Quality Surveillance Thematic Group to work on capacity assessment and developing a Water Quality Surveillance Guideline to Nepal.
- An Environmental Health and Hygiene technical committee has been formed under MHP/ National Health Education, Information and Communication Center to work on WASH-related health issues and provide technical inputs on broader environmental health issues including WASH.
- The Primary Health Care Revitalization Division (a newly developed division at MoHP/Department of Health Services) has one environmental health section which is also responsible for WASH issues in urban areas.
- WASH has been discussed at the Health Joint Sector Review in February 2011. The subsequent ‘aide memoire’ also included WASH aspects.

In Malawi, as a result of the development of the National Sanitation Policy (NSP) in 2008, the Ministry of Irrigation and Water Development (MoIWD) established a Sanitation and Hygiene Department in 2009 to lead the national sanitation initiatives. At the local level, the District Assemblies are responsible for ensuring that the policy is reflected in strategies for implementation through the Development Strategy and Improvement Programmes (DSIP). It is most likely that, while the Water Department will take the lead in water and possibly some subsidised implementation of sanitation activities, sanitation promotion and monitoring will be led by the Health Department. Although the NSP was adopted by the government in 2008, its official launch has been delayed several times and is

not expected until 2011. The NSP will be supported by development partners under a SWAp for sanitation, bringing together government institutions and other relevant stakeholders. The SWAp is anticipated to improve coordination and participation in the formulation and implementation of sector policies, planning, and investment. Oversight will be provided by the National Sanitation and Hygiene Coordination Unit (NSHCU), chaired by the director of Preventive Health Services (PHS) of the MoH and with the director of MoIWD acting as the executive secretary.

Successive governments in Sri Lanka have prioritised investment in health and education which has led, inter alia, to significant improvements in public health. Sanitation has

been incorporated into central government health policies since the 19th century, and institutional roles and responsibilities have been clearly articulated historically through legislation as far back as 1865. An integrated health system that incorporates curative and preventive functions has been in place since 1925, including a Health Unit system with responsibilities including: general health surveys; collection and study of vital statistics; health education; investigation and control of infectious diseases; maternal and child health; school health work; rural and urban sanitation. Sri Lanka’s current Health Master Plan 2007-2016⁵³ places a strong

emphasis on inter-sectoral action, noting that it is a “major process in developing healthcare programmes” and that “the contributions made by other sectors such as related other [sic] government ministries, private sector, Non Governmental Organizations, international and UN agencies and Community Based Organizations cannot be under-estimated”. As shown in table 3, the plan also lists relevant agencies for each programme that addresses sanitation targets. The plan also notes that the MoH is working to develop formal inter-sectoral coordination mechanisms, with the objective of bringing together actors across different levels in a joint effort to improve health.

Table 3: Inter-sectoral policy and coordination			
National-level sanitation coordination body	National sanitation policy/plan	Stakeholders	Other notes
Nepal			
Steering Committee for National Sanitation Action	National Hygiene and Sanitation Master Plan draft 2010 (awaiting final approval)	Ministry of Physical Planning and Works MoPPW, DWSS, MoHP, MoES, MoLD, donors and NGOs (40 members).	Health representation usually does not include ministerial leadership, except during crises
Malawi			
National Sanitation and Hygiene Coordination Unit (NSHCU)	National Sanitation Policy (NSP) 2008 (has not been formally launched by government)	The Director of Ministry of Irrigation and Water Development (MoIWD) acts as the executive secretary.	Director of Public Health Services of the Ministry of Health will chair the NSHCU MoIWD added a Sanitation and Hygiene Department in 2009
Sri Lanka			
National Sanitation Task Force	National Sanitation Policy 2006 National Sanitation Action Plan 2008	Government, donor agencies, and international and local NGOs.	
Uganda			
National Sanitation Working Group	No official sanitation policy exists; ISH strategy exists but has not been operationalised	Government (MoWE, MoH, MoES, Ministry of Finance, Planning and Economic Development, Ministry of Local Government, Ministry of Gender, Labour and Social Development), donor agencies, National Water and Sewerage Corporation (NWSC), and international and local NGOs.	Government participation in the group is technical level only

Findings:

- Lack of effective inter-sectoral collaboration is a major factor causing slow progress on sanitation.
- Ministries of Health and health authorities often play a minimal role in sanitation policy setting and programming, whether led by or included within the Ministry of Health's environmental health division.
- Improving access and changing behaviours requires coordination between multiple agencies. Most countries have a coordinating body of some sort with a mandate on sanitation but responsibilities, accountabilities and financing arrangements tend to be poorly defined.
- SWAPs have the potential to improve coordination of financing for sanitation but can also reinforce silos and present obstacles to inter-sectoral collaboration
- District level coordination is crucial for effective programme implementation, but district structures often lack the autonomy needed to respond flexibly to sanitation-related health problems and tend to suffer from under-resourcing in human and financial terms

4.1.c Functional deficit 3: Delivery of scalable sanitation programmes

The strong track record of the health sector in creating demand for service use and in generating behaviour change has been described above; this expertise gives health professionals a pivotal role in ensuring that safe sanitation practices are included within the 'menu' of desired health behaviours. Several key areas of opportunity include disease-specific and integrated programmes, community health clubs, and school sanitation initiatives.

Disease-specific programmes in Nepal are reported to be strongly influenced by donor priorities without necessarily considering national health priorities, leading to, among other things, an unhealthy competition between the various programmes, fragmentation and poor coordination and resource sharing (thus neglecting to maximise efficiency as well as exacerbating barriers to inter-sectoral collaboration), and an increased burden on health professionals and

administrators. Several respondents in the field interviews suggested that programme priorities should be driven by existing disease burden (and consider children as a separate category) rather than by donor-led priorities. This, along with the absence of clear lines of responsibility for sanitation within the Ministry of Health and Population, has implications for the ability to effectively incorporate sanitation into health programming. Malawi has several disease-specific programmes that could potentially be linked with sanitation, but currently there exists little 'horizontal' interaction between these programmes.

Health professionals in all programmes play an important role in educating patients and encouraging behaviour change. Integration of sanitation concepts and practices, such as the importance of proper toilet installation and maintenance, into existing disease-specific and primary healthcare programmes, would significantly increase current outreach. Health promotion and

Box 5: Disease-specific and integrated programmes.

Much debate has taken place in the past few years on the advantages and disadvantages of vertical versus integrated health programmes. **Vertical approaches** target a particular disease or issue and are considered by some as more viable due to their perceived immediate and quantifiable results. **Horizontal approaches** place greater emphasis on long-term sustainability through a broader view of health.⁵⁴ In the late 1980s and early 1990s many countries applied primary healthcare or integrated approaches (such as the Integrated Management of Childhood Diseases approach, which used a package of key child health interventions). However, due to lack of quantifiable successes, among other things, leading international organisations and agencies began focusing on disease-specific initiatives, crowding out integrated childhood management programmes (eg. in Nepal). To date, billions of dollars have been spent on these ‘global health initiatives’, which are often backed by strong political support and disease-specific international campaigns. As initiatives develop and lessons learnt are fed back into the design of global health approaches, the picture has become more complex. A recent literature review⁵⁵ states that there are “...few instances where there is full integration of a health intervention or where an intervention is completely non-integrated. Instead, there exists a highly heterogeneous picture both for the nature and also for the extent of integration. Health systems combine both non-integrated and integrated interventions, but the balance of these interventions varies considerably”.

communication must underlie all public health programmes, and provides a key opportunity for outreach and scalable programmes. Safe sanitation can be incorporated into programme delivery as a fundamental practice in most, if not all, programmes—whether vertical or horizontal. For example, sanitation and hygiene promotion can be integrated into HIV/AIDS programmes in order to reduce the risk of infection in patients with compromised immune systems and reduce the possible adverse impact of strategies for prevention of mother-to-child transmission.⁵⁶

Examples of integration in disease-specific programmes:

While few instances of incorporating safe sanitation recommendations within disease-specific programmes

were identified during interviews, some very successful examples were obtained from the literature reviewed. For example, research in Uganda shows that providing latrines to people living with HIV/AIDS decreased the risk of diarrhoea by 31%.⁵⁷ Sri Lanka provides one of the few examples where reduction in diseases related to unsafe sanitation is included as a measurable health programme outcome. Its Health Master Plan, as shown in table 4 overleaf, provides a model example by including sanitation targets within several disease-specific programmes such as HIV/AIDS, hepatitis, diarrhoea, and water-borne disease control. In addition, the plan’s targets include measurable outcomes such as disease reduction as measured by hospital records and mortality reduction.

Table 4: Sanitation-related programmes within the Sri Lanka Health Master Plan 2007-2016		
Health services delivery programme title	Focal points	Relevant agencies
1.4 Disease control programme		
1.4.2.b Communicable Diseases Control: STD/AIDS Control 1.4.2.d .4 Communicable Diseases Control: Immunisable Diseases Control: Viral Hepatitis Prevention and Control 1.4.2.f Communicable Disease Control: Food and Water-Borne Diseases: Control/Prevention and Control of Diarrhoeal Diseases 1.4.2.g Communicable Diseases Control: Water-Borne Diseases Control - 2	Simple interventions like improving the household level hygiene and sanitation as well as creating awareness of these issues - of what they are and how they work, and access to information on water, hygiene and sanitation issues can bring down the burden of disease and misery especially among the underserved and the poor.	Ministry of Health, Provincial Health Authorities, National Water Supply and Drainage Board, Local Authorities, Ministry of Plantation and Infrastructure.
1.5 Programme for vulnerable populations		
1.5.7 Health of People in Urban Slums	Health status of a population is dependent on the living condition and water supply and sanitation. We have to have a multi-sectoral approach in health prevention and promotion strategies and it should be through appropriate technology in delivering the services. Most of the activities we have to work with the water board, and the Municipal council or urban councils. Also we have to use the existing systems and mechanism to implement the programmes.	Ministry of Health, Provincial Health Authorities, National Water Supply and Drainage Board, Local Authorities, Ministry of Plantation and Infrastructure.
1.5.8 School Health	Conduct a School Sanitation Survey annually and data provided to the Ministry of Education and other relevant Ministries and Departments. Availability of sanitation and water supply. Percentage of Officers of Health providing data to the Medical Officer/Maternal and Child Health.	Ministry of Education Provincial Education Authorities.

Box 6: Lessons from Ethiopia

In Northern Ethiopia, the Amhara Regional Health Bureau and the Carter Center work in tandem to deliver health education to nearly 3,500 communities. As part of the trachoma prevention programme, materials that include a focus on improving sanitation by promoting household latrine construction and use were developed, and model latrines were constructed in public gathering places, using local materials. Since 2002, more than one million household latrines have been constructed using only minimal resources to train local leaders and health extension workers. By fostering political support, government policy, and community education, access to latrines rose from 6% to just over 50% of households in just one year. Follow-up research indicates that participation in health education activities was a significant predictor of latrine ownership. In addition, political commitment of the local government and intensive community mobilisation were two fundamental reasons for the substantial increase in latrine coverage.⁵⁸ By making latrine ownership a local government objective, leaders were empowered to penalize households refusing to install latrines if necessary. Although no known use of sanctions occurred, the mere possibility of penalty added an element of urgency and legality to the programme. Follow-up research shows that high prevalence of latrines and latrine use still existed more than three years later, demonstrating the positive impact of integrating sanitation into a disease-specific programme by definition.⁵⁹

In Uganda, the MoWE developed a strategy to provide guidelines on how to mainstream approaches to include persons living with HIV/AIDS in water and sanitation service provision. The strategy does not propose stand-alone activities but instead builds on and incorporates HIV/AIDS-related activities into existing sector workplans over the medium and long term.

Integrated programmes

Each of the case study countries examined employs volunteers or paid staff to deliver health and sanitation promotion at the household level; however, with the possible exception of Malawi's and Sri Lanka's health workers, safe sanitation is not included within primary healthcare approaches, which tend to be limited to curative interventions. In addition, countries allocate minimal resources for field visits, as shown in Uganda and Sri Lanka. Rather than conducting visits to villages and households, health workers mostly operate out of clinics and community health facilities. Currently, disease-specific programmes focus primarily on curative measures,

whereas factors that exacerbate disease, such as poor sanitation, often are not addressed. For example, most of Nepal's and Uganda's health programmes do not include safe sanitation. The proposed Nepal Health Sector Support Programme II (NHSSP-II) 2010-2015, however, includes both sanitation and water quality surveillance aspects. Actions under NHSSP-II include: a) promoting hygiene and sanitation through the existing institutional infrastructure; b) promoting hygiene and sanitation in conjunction with other essential healthcare services to mainstream hygiene and sanitation promotion; and c) in partnership with related agencies, establishing a water quality surveillance system and promoting use of safe water. Under the programme, the Ministry of Health has added several services to the existing Essential Health Care Services (EHCS) package, including hygiene and sanitation promotion in partnership with other agencies.

In Malawi, Health Surveillance Assistants, who work directly with communities and interface with village

Box 7: Lessons from Pakistan

Pakistan's Lady Health Workers (LHWs) programme, established in the early 1990s, provides an example of integrated programming identified in the literature. Today, over 100,000 LHWs provide the backbone of the country's primary healthcare approach. In at least two follow-up evaluations of the programme, diarrhoea incidence was reduced compared with populations not receiving LHW visits.⁶⁰ The LHW programme has been able to buck the international trend by providing a service with tangible health impacts, through reduction in childhood diarrhoea. However, a review of Pakistan's sanitation coverage shows that only 45% of the population currently has improved sanitation coverage,⁶¹ highlighting the complexity of the link between increased sanitation coverage and reduction in diarrhoea (ie. the existence of a latrine does not mean that it is being used or hygienically maintained in a way that ensures separation between humans and faeces).

health committees, address sanitation within the EHCS package, but staffing shortages present a major constraint. In contrast to the other three countries, Sri Lanka promotes sanitation throughout disease-specific and primary health agendas, as well as the Health Ministry-led public information campaigns mentioned above. Another example of integration is provided by Uganda, where the MoWE has developed a strategy to provide guidelines on

mainstreaming HIV/AIDS issues into water and sanitation provision. The strategy does not propose stand-alone activities but instead builds on and incorporates HIV/AIDS-related activities into existing sector work plans in the medium and long term.

Community Health Clubs

The ‘community development’ approach emphasises ‘bottom-up’ capacity building to address the determinants

Box 8: Community-based approaches to health promotion – examples from Africa:

The benefits of community-based approaches have been investigated in several African countries. Using information gathered over 15 years of creation and tracking of pilot projects in several African countries, Juliet Waterkeyn⁶³ has shown that the community health club (CHC) approach is a cost-effective model that creates a strong demand for sanitation and a culture of healthy behaviour. Waterkeyn and her colleagues used hygiene promotion (in coordination with health agencies) to raise demand for sanitation. Data from Zimbabwe, Uganda, and South Africa showed high levels of community response through CHCs. Health workers provided six months of weekly low-cost hygiene promotion sessions resulting in latrine coverage rising to 43%, contrasted with 2% in the control area. Faced with scarcity of latrine hardware options and financial constraints to hardware purchase, the remaining 57% adopted faecal burial, a method previously unknown to community members which, although not ideal, signifies an understanding of the need to remove excreta from the immediate environment. In rural areas, the concept of ‘zero open defecation’ has been enthusiastically endorsed by CHCs.

Despite the success of the CHCs, Waterkeyn notes that the health sector’s involvement in Uganda’s CHCs from 2003 to 2005 was minimal due to the lack of staffing availability and transportation. At the district level, health workers attended workshops and then withdrew from their commitment to conduct community training if per diems were not provided. However, at the national level the Environmental Health Department recently initiated efforts to address unsafe sanitation by developing a standard toolkit for ‘participatory hygiene and sanitation transformation’ (PHAST) training with a team that is conducting training sessions in one district. Although the integration of health and sanitation promotion through CHCs in Uganda was less successful, results elsewhere merit further exploration.

of health, such as safe sanitation. In Uganda, village health teams (VHTs), comprised of volunteer community members, have been used since 2003 to improve the health status of village members through facilitating processes of community mobilisation and participation in delivering, managing, and improving health practices at the household level. Within the minimum healthcare package, VHTs provide services within a range of primary healthcare aspects, including diarrhoea control and home-based management practices for safe sanitation. VHTs are not formally remunerated, but local leaders and NGOs support them through training opportunities and provision of bicycles and some compensation. While VHTs have not been introduced everywhere (they have been established in approximately 77.5%⁶² of districts but interviewees reported that only about one third of the districts have trained VHTs in all villages), experience shows that where they are active, improvement in sanitation practices is noted.

In Malawi, sanitation and hygiene promoters are employed to provide information, education, and communication using methods such as drama and music. The promoters report to Health Surveillance Assistants (HSA), and could potentially be incorporated into the HSA cadre. Promoters hold regular progress meetings and promote WASH practices, including the proper installation and maintenance of latrines. Since 1997, Malawi has had a programme for early child development, later developed into an Integrated Management of Childhood

Illnesses (IMCI) programme covering 11 of Malawi's poorest districts. In this process, community groups came together to analyse health, nutrition, and development problems and decide on actions to address them. The groups tackled hygiene, sanitation, breastfeeding, and complementary feeding and established community-based childcare centres run by trained community volunteers. By 2000, the programme reached 1,179 villages in the 11 districts. In 2004, an assessment found significant changes in breastfeeding practices, age at introduction of complementary feeding, disposal of faeces, and use of iodised salt. Conversely, no differences were found in handwashing practices or the use of antenatal care services.

In Nepal, approximately 47,000 Female Community Health Volunteers deployed by the health sector are becoming increasingly pivotal for health improvements. This approach can be used at a local level to provide capacity building support for sanitation promotion, as volunteers are already engaged in managing diarrhoeal cases under the IMCI programme. Cross-sectoral coordination and understanding between the health and WASH sectors is crucial for the success of this approach. There is also significant potential for synergies with NGO projects that use community-led total sanitation (CLTS) techniques to try and raise awareness among communities about the dangers of open defecation and to encourage behaviour change and create demand for improved sanitation.

Findings:

- Promoting uptake and use of sanitation is an enduring challenge and its absence is a barrier to progress in sanitation coverage, but it is rarely an explicit component in health programme design.
- District and local health worker practices and programmes are typically disease-focused and rarely consider or integrate sanitation as a strategy to reduce the disease burden (diarrhoeal and others).
- Sanitation is rarely included in primary healthcare programmes and services or meaningfully integrated into disease-specific (eg. HIV/AIDS) or integrated programmes (eg. IMCI), but there are examples where this has been successfully done (eg. the Sri Lanka Health Master Plan).
- Local implementation of sanitation policies and programmes provides good synchronicity with public health objectives as well as potential for improved health outcomes. There is evidence to suggest a positive relationship between health promotion at community and household level and latrine ownership and use.

4.1.d Functional deficit 4:

Collection and use of data

Collection of data is critically important for health workers, planners and policymakers for tracking trends and monitoring the effectiveness of health programmes. The quality of reporting depends on the quality of national health-information systems, which tend to be weak in many developing countries.⁶⁴ For example, diarrhoeal mortality rates may be under-reported when it is the underlying rather than the immediate cause of death (ie. the immediate cause of death may be AIDS or malaria).⁶⁵ Further, not all diarrhoea cases are treated in health facilities, meaning that not all diarrhoeal deaths occur in these facilities – another potential reason for under-reporting of both diarrhoeal mortality and morbidity. The role of the health sector in this regard includes participating in data collection and information-sharing mechanisms to shift health programming from a ‘reactive’ to ‘preventive’ orientation.

The degree to which this occurs in the study countries varies significantly. Nepal has a robust Health Management

Information System (HMIS) that produces a range of detailed information for service-delivery, supplemented by regular household and facility surveys that yield data harder to collect through routine reporting. The surveys also shed light on inequalities in health service use and collect opinions on the quality of services provided. Household and service delivery data are used to validate HMIS data.

In Uganda, the Health Sector Strategic Plan (HSSP II) indicates the need for improving the usage of the HMIS, in order to facilitate the collection of accurate and reliable data in a timely manner. It is hoped that such data will improve planning processes at all levels. Improving the system’s sensitivity to gender- and disease-specific information will allow a better understanding of health inequalities and the necessary changes in management and planning of health facilities and services. A multi-sectoral epidemic preparedness and response committee has been formed in all districts, and has proved useful in managing epidemics. Certain challenges remain, such as the shortage of staff with the requisite skills

to manage epidemics effectively, lack of resources, and lack of prioritisation of such activities at the district level.

Malawi has a HMIS, managed by the Planning Department of the MoH, which acts as the primary source of data for the health sector's monitoring and evaluation system. An equivalent system is used by the education sector (EMIS). The National Statistics Office (NSO) also provides data for many key indicators through reports compiling the results of national surveys, such as the Demographic and Health Survey and the Multiple Indicator Cluster Survey. The water supply and sanitation SWAp calls for a Water and Sanitation Management Information System (WSMIS) to provide effective analysis and planning through access to valid and timely information, and specifies the need for coordinating multiple data sets and systems already in place; but in practice there has been only limited linkage between ongoing development of the HMIS, EMIS and WSMIS systems.

Health workers in Nepal, Uganda and Malawi rarely utilise their HMISs to monitor sanitation-related diseases

trends and to target sanitation interventions accordingly. Rather, HMISs are mostly used in times of crisis. Examples of events that could have been mitigated through more effective surveillance include cholera outbreaks in Nepal's Jajarkot region and along the shores of Lake Malawi, and a hepatitis E outbreak in northern Uganda. While data are often reported on a regular basis, they are not routinely analysed, resulting in lost opportunities to reduce the frequency and/or severity of disease outbreaks.

In comparison, Sri Lanka undertakes ongoing data collection and monitoring by employing regional epidemiologists to track disease patterns, including WASH-related diseases. Because one of their primary responsibilities is district monitoring, these epidemiologists have the authority and resources to follow up when needed. Their responsibilities are also directly linked with monitoring for reductions in WASH-related diseases. This is a rare example of a health programme that includes specific outcome targets on reduction in diseases related to unsafe sanitation.

Findings:

- Data and analyses are not routinely shared between sectors, especially at district levels, resulting in lost opportunities to identify and target vulnerable populations (eg. low income areas, unplanned urban settlements, or areas prone to disease outbreaks).
- Significant weaknesses exist within respective sector information management systems (including a lack of sanitation-related information in HMIS, as well as a lack of health information in WASH MIS).
- With the exception of Sri Lanka, existing data on sanitation-related infections and diseases is often weakly integrated within the design, implementation and monitoring of sanitation programmes.
- Critical information for tracking national, district, and local budget allocations and expenditure for sanitation is often lacking. Furthermore information on impact/cost-effectiveness of sanitation interventions is often inadequate for effective results-based programme management and resource allocation.

5. Facilitators and barriers to health sector addressing functional deficits

Several common facilitators and barriers that contribute to or hinder implementation of the health sector functions described above have been identified over the course of this research. These include aspects relating to leadership, financing, human resources, and community participation.

5.1.a Leadership

The support of health sector leadership is crucial for long-term sustainable implementation of policy and programme changes. Leaders within the health sector must first determine that sanitation is relevant to the achievement of the sector's goals and improved health outcomes, as well as representing a potential saving on the sector's resources.

In the countries studied, few solid examples have been identified of health sector leadership that actively supports and facilitates safe sanitation. Sri Lanka's President has expressed his personal interest in ensuring that sanitation coverage continues to increase, using all possible government and other resources. In contrast, the current state of political affairs in Nepal has stalled progress on sanitation policy and programming. Health leaders in Malawi and Uganda are overwhelmed with institutional constraints and the challenges of implementing numerous global health initiatives, and while in Uganda a Memorandum of Understanding has been signed between the three

ministries responsible for sanitation, progress is constrained by lack of clear policy, financial resources and district-level capacity.

A positive example of leadership-driven sanitation progress is provided by Kenya's Ministry of Public Health and Sanitation, which is driving the push to reduce health disparities in her country caused by a myriad of issues that include unsafe sanitation.⁶⁶ In March 2010, the Minister released the *Policy guidelines on control and management of diarrhoeal diseases in children under five years*, which include sanitation provision as a cost-effective preventive intervention to be incorporated into diarrhoea-control activities.⁶⁷

Nepal's participation in the biennial South Asian Conference on Sanitation (SACOSAN) is a prime impetus for meeting Nepal's national goal of achieving universal sanitation coverage by 2017. Nepal's delegation to past SACOSAN conferences included upper management from the Ministry of Health. Nepal will host SACOSAN V, currently scheduled for 2012.

5.1.b Community participation

Community participation and mobilisation is critical for long term programme sustainability. When programmes are designed with local input, they are more likely to achieve lasting results. Sri Lanka has long embraced community participation in local water and sanitation projects;⁶⁸ a recent example is the post-tsunami recovery project in the district of Galle. Villagers are learning about safe WASH practices from local health workers while also monitoring construction of sanitation infrastructure and facilities. The latrine promotion programme in Ethiopia's Amhara region mentioned earlier is another relevant example.

5.1.c Human resources

A well-organised, trained, supported and supervised workforce is needed to maximise sustainable health outcomes.⁶⁹ The issue of incentives is also crucial, not only for general workforce motivation but also crucially

for improved health programme integration, as discussed in box 9 overleaf. Developing countries are particularly susceptible to health worker shortages, as many workers leave to obtain higher paying jobs in richer countries, and well-trained and experienced staff, if they remain in their own country, tend to be concentrated in urban centres or affluent areas, creating inequality between regions and exacerbating the challenges of decentralisation. Human resources issues were identified in each of the countries studied. Uganda and Malawi have extremely high healthcare worker shortages – up to 50% in some districts. In addition to these shortages, training and education is also lacking. A recent review of the information needs of healthcare workers in developing countries identifies the issue of “information poverty”, which leaves workers without access to the information they need to perform their jobs well.⁷⁰

Box 9: The role of incentives

Health professionals can influence the use of safe sanitation practices via their daily responsibilities. Policymakers at the ministerial and other executive levels can legislate or mandate that sanitation be included as a priority in the work programmes of health services. Healthcare workers and health promoters can guide patients and the public on safe sanitation practices and their benefits. Information specialists can work to track health trends influenced by sanitation so that policymakers and educators can respond accordingly. But such action requires the right incentives. The performance of health professional such as doctors, nurses and administrators is rarely assessed against delivery of health promotion activities. Even when such activities are included in performance assessment, the focus is on tangible outputs rather than outcomes such as reduction in sanitation-related infections. If busy and understaffed healthcare facilities are expected to deliver such action, this expectation must be accompanied by sufficient human, technical and financial resources, and factored into performance assessments. Concurrently, environmental health aspects such as sanitation and hygiene must be included in medical and nursing training curricula if they are to be prioritised by healthcare professionals, rather than perceived as the responsibility of volunteers or promoters. Such an approach takes into consideration the strong influence that healthcare professionals, particularly doctors, have over public perceptions of what constitutes ‘healthy behaviour’.

5.1.d Financing

The size, predictability and timing of financial resources is a critical element for effective and well-functioning health and sanitation programmes. Whereas competition for limited financial resources can inhibit cooperation while each institution jealously guards its own limited budget, if approached correctly it can encourage health professionals to seek creative solutions for more effective use of resources. Inter-sectoral partnerships can achieve multiple goals with limited funds. Conducting outreach without exploring potential financing partnerships can result in missed opportunities to reach additional audiences with the same funds.

In addition to the health data challenges described, collection of financial data to include sanitation budget allocations and spending is needed. Within the case study countries, coordinated mechanisms to track national, district and local budget allocations and expenses do not exist. Further, obtaining total in-country expenditures related to sanitation is nearly impossible due to the myriad different government and non-government funding sources.

6. Recommendations for health sector stakeholders

Sanitation infrastructure is necessary but not sufficient for better health. The failure of health sector stakeholders to work jointly with WASH sector counterparts to address key functional deficits is constraining progress on sanitation and related health outcomes. Various actions can be taken by international, national and local health sector actors that could help accelerate progress on sanitation and leverage gains in health, most notably by reducing the impact of the main causes of child mortality such as diarrhoea and under-nutrition.

This will require that sanitation is recognised as part and parcel of a well-functioning health system, defined as consisting of “all the organizations, institutions, resources and people whose primary purpose is to improve health”. We recommend that health actors aspire to deliver the following actions at three levels – international, national, and programme delivery.

6.1. International health policy and donor policy

At the international level, funding and programme priorities do not mirror greatest disease burden or lowest sanitation coverage. Global health institutions, donors and academics can encourage health systems to target the greatest causes of ill-health. When those causes, such as sanitation, lie outside the health sector’s traditional domain, development partners can help facilitate inter-sectoral collaboration. Further, development partners should coordinated amongst

themselves to maximise efficient use of resources and increase results.

Recommendations for global health institutions, donors, academics, and other external support agencies:

- Global health institutions to champion the recent shift away from disease-specific curative approaches to integrated approaches to health promotion and disease prevention, geared towards and assessed against the achievement of health outcomes.
- Global health policy initiatives to acknowledge and give a higher profile to the impact of sanitation on the global burden of disease, the potential contribution of sanitation to reducing that burden of disease, and the potential benefits for public health outcomes.
- Development partners to prioritise programme interventions and impact evaluations in countries with low sanitation coverage and high sanitation-related disease burden.

- Development partners to encourage health agencies and professionals to integrate sanitation within existing and future health sector policies.
- Development partners to promote and support the development of national health plans and strategies to target sanitation-related disease burden, at a level proportionate to impact.
- Development partners to encourage health agencies and professionals to integrate use of safe sanitation within existing and future disease-specific and integrated health programmes.
- Development partners to support inter-sectoral financing for health and sanitation, recognising that budget cycles may not match the (often) greater time needed to achieve cross-sectoral program results.
- International health research programmes to invest in better impact evidence on the effectiveness of sanitation on health and on its additive effect on existing health programmes (eg. economies of scale achieved by incorporating within existing vs. new programmes).

6.2. National development policy and resource allocation

At the national level, many actors have an influence in short-term and long-term sanitation outcomes. Resource allocations can support immediate, and often short-term gains. However, most health sector actions to leverage sanitation will require long-term involvement from other sectors, Long-term results require sustained commitment from all stakeholders. Inter-sectoral coordination requires leadership support, clear definition of roles, and agreed accountability for

outcomes. Strong policy frameworks provide context for lasting support of sanitation.

Recommendations for heads of state and national planning institutions:

- Develop and strengthen the public health legal and regulatory framework to clearly establish lines of accountability on sanitation results and outcomes and formalise roles for inter-sectoral collaboration, to include all ministries/institutions responsible for sanitation.
- Structure planning processes to develop programme priorities based on disease burden, effectiveness and cost-benefits, readiness for implementation, and resource availability. Ensure sanitation-related disease burden is targeted according to degree of relative impact.
- Ensure and support mutual participation between ministries and sectoral planning processes (eg. WASH sector attending health SWAs and vice versa). Establish and formalize national and district-level communication lines between health and sanitation personnel (eg. include health personnel in district WASH committees and vice versa). Ensure attendance by senior leadership.

6.3. National health policy and sanitation programme design

Recommendations for Ministers of Health:

- Develop a clear strategy to ensure that sanitation is effectively addressed within all relevant health policies, regulations, guidelines and procedures and ensure that existing health programmes at national and sub-national level include clear

indicators and targets for monitoring improvements in sanitation-related diseases.

- Leverage relationships across ministries (eg. Infrastructure, WASH, Education, Environment, Local Government) to support increased prioritisation of sanitation through high level national campaigns.
- Elevate environmental health departments to higher levels of health sector decision making by including environmental health directors in upper management.
- Include sanitation-related diseases in health surveillance systems; use data to inform planning and to support needs assessments; use evidence on cost-effectiveness to guide resource (human and financial) allocations.
- Promote integration of sanitation and hygiene within disease specific programmes (eg. HIV/AIDS and trachoma), and national programmes (eg. child health, reproductive and maternal health, nutrition).
- Normalise sanitation promotion within health professionals' practice by evaluating disincentives and providing incentives for sanitation promotion in
 - trainings for medical, nursing, and community-level health professionals.
 - messages shared during patient consultations and in patient education materials.
 - patient safety and infection control measures.
- Enact, implement, monitor, and enforce minimum standards for sanitation and hygiene within healthcare services.
- Include sanitation coverage (including service quality) and hand-washing with soap as a performance indicator in health management information systems.
- Use epidemiological data on sanitation-related diseases to target vulnerable areas and populations and to establish needs for further evidence and research.
- Further strengthen existing community health promotion programmes, including sanitation and hygiene promotion, and link with service delivery programmes, in both rural and urban settings.
- Promote transparency and improve financial accounting systems to track budget allocations and expenditures for sanitation programming at different levels.
- Work with Ministry of Education to ensure installation and maintenance of inclusive hygiene and sanitation facilities in all schools.

Recommendations for Ministers of Water/Sanitation/Environment/Infrastructure:

- Promote and support comprehensive high level national sanitation and hygiene campaigns in all ministerial and sector domains.
- Include disease outcome indicators in sanitation programme monitoring and evaluation systems.
- Engage with health colleagues on a regular basis to establish and reinforce relationships and participate in coordination of activities, including engagement with official cross-sector coordination bodies and joint sector review processes.
- Work with the health sector to set up an outbreak early warning system based on sanitation risks and ongoing data collection on related diseases.
- Work with the education sector to develop sanitation and hygiene education curricula.

Recommendations for Ministers of Local Government:

- Strengthen and enforce building codes that require proper existence, operation and maintenance of sanitation facilities in all buildings.
- Ensure decentralised health and education programmes promote and support safe sanitation.
- Ensure sanitation access is included in local development plans.

6.4 Other stakeholders**Recommendations for Civil Society Organisations:**

- Focus advocacy on sanitation as a health issue, calling on governments, donors and other relevant parties to take action.
- Educate policy-makers and media about unaddressed disease burden from poor sanitation and missed opportunities to improve health and economic development.
- Model appropriate use of sanitation and hygiene to provide good example in daily interactions.
- Advocate for existence and maintenance of sanitation facilities in all healthcare facilities and other institutional settings such as schools.

Endnotes

- ¹ WHO/UNICEF Joint Monitoring Programme (JMP) (2010) *Progress on sanitation and drinking water*.
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- ⁵ Bartram J, Cairncross S (2010) Hygiene, Sanitation and Water: Forgotten Foundations of Health. *PloS Med* e367: doi:10.1371/journal.pmed.1000367.
- ⁶ WHO www.who.int
- ⁷ Malawi, Nepal and Uganda are classified by the World Bank as developing countries, while Sri Lanka is classified as a lower-middle-income country. Sri Lanka has been included as an example of a country which has made progress on sanitation and health in spite of financial constraints
- ⁸ A wiki is a collaborative website, the purpose of which is to collect and provide knowledge. The information on a wiki can be entered, altered, or commented on by any of its users. For further reading, see Bartram. J., & Platt, J. (2010). How health professionals could lever health gains from improved water, sanitation and hygiene practices. *Perspectives in Public Health*, 130(5), 215-221.
- ⁹ Improved sanitation facilities are those that ensure hygienic separation of human excreta from human contact. According to the WHO/UNICEF JMP, these include flush toilets and pour-flush toilets/latrines (to a sewer system, septic tank, or pit latrine), ventilated improved pit latrines, pit latrines with slab, and composting toilets.
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- ¹¹ WHO/UNICEF JMP (2010) *Progress on sanitation and drinking water*.
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- ²⁸ Sri Lanka figure calculated from Black R et al (2010), “Global, regional, and national causes of child mortality in 2008: a systematic analysis”, *Lancet* 2010; 375: 1969–87.
- ²⁹ WHO “Metrics: Disability-Adjusted Life Year”. http://www.who.int/healthinfo/global_burden_disease/metrics_daly/en/
- ³⁰ Unimproved facilities include pit latrines without a slab or platform, hanging latrines, and bucket latrines.
- ³¹ Shared sanitation facilities are those of an otherwise acceptable type shared between two or more households. They include public toilets.
- ³² Data provided under the JMP is derived from household survey and census data, rather from administrative data produced by water and sanitation infrastructure ministries and agencies. The data may thus be contested by water and sanitation ministries in the case study countries. Nevertheless, the application of identical criteria globally by the JMP provides the possibility for cross-comparison across the different countries, and is the main reason for the use of JMP data in this report.
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Notes



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