

## C5 **The sanitation and water crisis**

One of the greatest public health crises in the developing world is largely being overlooked by donors and developing-country governments alike. In the developed world, the greatest advances in increasing life expectancy and reducing infant mortality rates came as a result of public investments in clean water and sanitation. But the potential these two sectors hold for advancing public health in developing countries today is being overlooked by donors who favour investments in curative approaches to health.

While the water and sanitation sectors remain largely sidelined by governments, it is the poor, on the rare occasions when they are asked, who repeatedly put water and sanitation as their highest priorities. So, the paradox is that while donors and recipient governments continue to marginalise the sector, the evidence in the form of international commitments to the Millennium Development Goals (MDGs) and the preferences of the poor points to the need for a much greater effort on the part of the official development community. This chapter shows the scale of the main challenges involved in the water and sanitation sectors and points to some of the strategies needed to turn around what is, arguably, the biggest driver of infant mortality in the developing world.

### **The scale of the problem**

The key starting point to understanding the scale and nature of the sanitation and water crisis is grappling with the available data sources. The main global sector survey report is provided in the biannual Joint Monitoring Programme (JMP) survey (JMP 2006).

**BOX C5.1 The MDGs<sup>1</sup>**

At the United Nations' Millennium Summit at the turn of the century, heads of government signed up to the goal of halving the numbers of people living in poverty and a series of other Millennium Development Goals, including providing access to the core essential services – primary education, primary health care and access to safe water.

The seventh MDG is to ensure environmental sustainability. One of the specified targets linked to this goal is 'to reduce by half the proportion of people without sustainable access to safe drinking water and sanitation'.

***Access to water***

According to the JMP's 2006 figures, the world is 'on track' to meet the MDG target for water supply coverage. However, while this represents some progress, there are three major concerns.

First, the JMP warns that the improvement trend is deteriorating. Table C5.1 shows current and projected rates of progress. On current trajectories, the current rate of progress is expected to slow and the world will end up missing the 2015 MDG target. And, even if progress *is* accelerated sufficiently to reach the target, nearly 800 million people will still be 'unserved' and will daily face life-and-death choices in where and how they source their drinking and domestic water supply.

Second, the figures shown above obscure the presence of huge regional disparities. While the most populous countries are on track, most of sub-Saharan Africa (SSA) is lagging well behind. While coverage in SSA has improved from 49 per cent to 56 per cent, on the basis of the current trajectory, the report speculates, the continent will not achieve its MDG goal until as late as 2076.

**TABLE C5.1 Global water coverage and MDG 7**

	1990 (actual)	2004 (actual)	2015 (projected)	2015 (target)
Served (million)	4,092	5,320	6,300	6,425
Unserved (million)	1,187	1,069	919	794
Unserved (%)	22.5	16.7	12.7	11.0

Source: JMP 2006.



IMAGE C5.1  
**Young girl carrying water**

Third, the JMP analysis is almost certainly an overestimate of access to (where this is taken to be synonymous with *usage* of) safe domestic water. The JMP definition of access is ‘the availability of at least 20 litres per person per day from an ‘improved’ source within one kilometre of the user’s dwelling’. An ‘improved source’ is ‘one that is likely to provide ‘safe’ water, such as a household connection or a borehole’, and ‘be within a reasonably convenient distance from the home, to ensure that sufficient water can be used’.<sup>2</sup> So, at the extreme, a household accessing its water from a borehole 1 kilometre distant from the home is defined as ‘having access to safe water’.

The tyrannies of physical distance, the lack of controlling standards and the sheer weight of water hauling suggest the need for some serious qualifications around claims of the numbers of people gaining access to safe water. Not all improved sources yield safe water (as defined in WHO standards) and, even if they do, water which is safe at the point of source may be contaminated in transit so it is not safe at the point of consumption. The labour and time involved in carrying large volumes of water large distances result, unsurprisingly, in smaller volumes of water *actually* being hauled than instances where the locations are closer to the source. Many people are simply unable to walk these sorts of distances and carry the weight of water for their own, and their dependants’ needs. With reducing consumption per capita comes a decreasing ability to meet minimum requirements for health and hygiene.

Thus official descriptions of reported availability do not necessarily equate to access. Access is not the same as consumption. It is the pattern and content of *consumption* that is the critical determinant of health and hygiene.



FIGURE C5.1 **The price of water**

Source: WaterAid 2007.

So, the figures for people who do not *consume* safe water are higher than those for people who do not have *access*, as presented in the JMP.

However, irrespective of the selectivity of data and the accuracy of the nature of the water crisis they represent, the critical driver behind the crisis is the central problem of inequality in the distribution, entitlement and allocation of supply. Most human consumption of fresh water is taken up first by agriculture, then by industry. Other key issues regarding water sources come in the form of rapid urbanisation and the cost of extracting ground water. While there are new large uncertainties on the horizon – particularly the hydrological unpredictabilities associated with climate change – the central problem across rural and urban areas is that while there are sufficient volumes of water for domestic consumption, the issue is one of how that supply is managed and distributed (and therefore limited) for the domestic consumption of the poor. In addition, climate change is anticipated, in some geographical areas, to become a further limiting factor.

#### *Equity in the distribution of access to water*

The maxim is that the poorer you are, the more you pay. If you live in an urban slum, you will pay up to ten, or even twenty, times as much as the people who have yard connections in an adjacent residential area. And

even that will pale into insignificance when set against the amount paid by people in the rich countries of the North. Slum dwellers of Lagos pay some forty times the amount paid by someone in a downtown New York apartment – and this does not even take into account income disparities.

#### *Access to sanitation*

Is sanitation an outcome or a driver of underdevelopment? While the situation with regard to water is grim and acts as a continuing driver of underdevelopment and avoidable disease, the situation when it comes to sanitation is nothing less than scandalous.

Starting from an even lower rate of coverage than is the case with water supply, the required rate of improvement was always going to be higher for sanitation. But, as Table C5.2 shows, more than 40 per cent of the world's population (about 2.6 billion people) did not have access to 'improved sanitation' in 2004, and it is predicted that the world will miss the MDG sanitation target by over half a billion people. In some locations, particularly in some of the mega-cities, the rate of coverage is actually slipping, as populations soar and the increasing and large-scale pattern of rural to urban migratory flows is leading, in some cities, to the 'slumisation' of the majority of human habitats. And, even more so than with water, the JMP data represent an overestimation of coverage. Measurement is carried out by extrapolation from surveys in which people are asked what type of latrine/facility they use. The data-gathering methods can lead to skewed and inaccurate results where people can be embarrassed to admit to open defecation, or to the use of non-sanitary methods of disposing of faeces.

The grim reality millions of people is a depressing and undignified life of having to live in a smelly world full of untreated shit. In many areas, people are reduced to defecating in plastic bags and throwing their faeces ('flying latrines') into ditches; they may defecate in fields and behind bushes, or in flimsy structures from which their faeces fall into ponds or lakes ('hanging

TABLE C5.2 **Global sanitation coverage and MDG 7**

	1990 (actual)	2004 (actual)	2015 (projected)	2015 (target)
Served (million)	2,569	3,777	4,829	5,414
Unserved (million)	2,710	2,612	2,390	1,805
Unserved (%)	51.3	40.9	33.1	25.0

Source: JMP 2006.



IMAGE C5.2 **Child collecting water in Indonesia**

latrines’) and contaminate sources of drinking water. Children walk over faeces-ridden fields barefoot to schools.

While it is possible to describe at length the social and economic inconveniences associated with inadequate basic sanitation, the fact that tends to be overlooked by much of the donor community is that it is a huge silent killer in the developing world and most of its victims are children.

It is a paradox of the aid system that while the developed world and some of the East Asian tigers saw investments in sanitation as critical to achieving huge public health gains, it is arguably one of the most sidelined of all development sectors and it is being overlooked with widespread lethal results.

### **The underestimated social and health consequences**

The World Bank has identified hygiene promotion as the most cost-effective of all interventions to control high-burden diseases in the developing world, with sanitation promotion close behind (Laxminarayan, Chow and Shahid-Salles 2006). Additionally, in a recent poll conducted by the *British Medical Journal*, the provision of ‘clean water and sewage disposal’ was voted the greatest advance in medicine in the last 150 years, outscoring antibiotics, vaccines, anaesthesia and the discovery of the structure of DNA.

**BOX C5.2 The slums of Tiruchiripalli**

Due to lack of drainage facilities, water stagnation was common. Moreover lack of toilets or lack of toilet use where this facility existed led to open defecation being practised by the entire slum community. It was common to see entire areas polluted by human faeces. As both sexes used the same spot, women and men had different times for defecation, leading to problems for women. Women thus practised defecation either in the early morning or at night while men and children used the same spot at any time during the day.

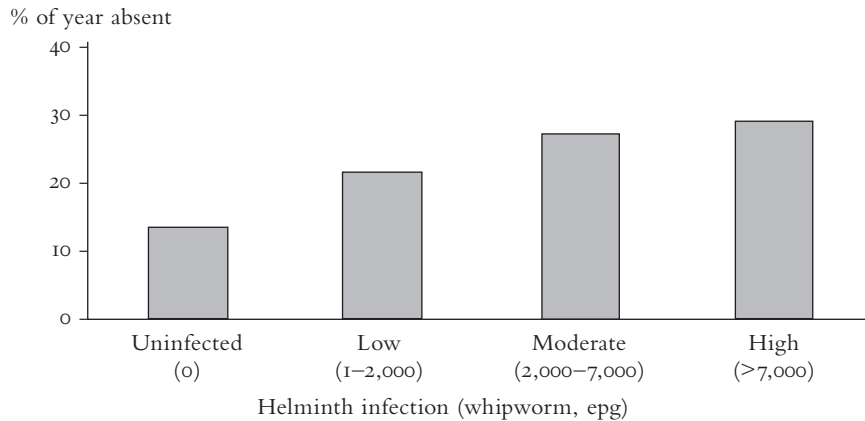
*Source:* Damodaran 2005.

The *direct* health consequences of poor hygiene and sanitation are generally well known. It is estimated that nearly 5,000 children die *every day* from the effects of diarrhoeal illnesses, 90 per cent of which are attributable to poor hygiene, sanitation and unsafe water (UNICEF 2006). Improved hygiene, particularly handwashing with soap, could also halve the incidence of acute respiratory infections, a leading cause of childhood death worldwide, by interrupting the route of infection from contaminated hands (Luby et al. 2005). In countries with high infant mortality rates, the lack of access to clean water and sanitation kills more children than pneumonia, malaria and HIV and AIDS combined. Half of the world's hospital beds are occupied by people suffering from waterborne diseases. Hygiene and sanitation also help to control many non-fatal diseases which afflict young children, such as intestinal parasites, blinding trachoma and impetigo. Finally, improved hygiene and sanitation have important positive impacts on the quality of life enjoyed by children, including the benefit of being part of a household with a greater chance of escaping poverty.

Poor access to water and sanitation also has a wide range of *indirect* health effects. In rural areas, women and girls have to walk often long distances to waterholes or rivers to scoop up to 20 litres of water into a container and carry it back to their homes, maybe twice or three times a day. In northern Ghana girls spend up to five hours a day fetching water. On average, a sub-Saharan African woman living in a rural area will spend more than two hours a day fetching and hauling water. In cities, women may have to wait for hours at a standpipe or buy water from an unregulated vendor at extortionate prices.

The lack of access to a private latrine also carries a number of often unrecognised problems, as depicted by the description in Box C5.2 from the slums of Tiruchiripalli in India. In addition to the pain and health risks

FIGURE C5.2 Effects of poor sanitation on school absenteeism



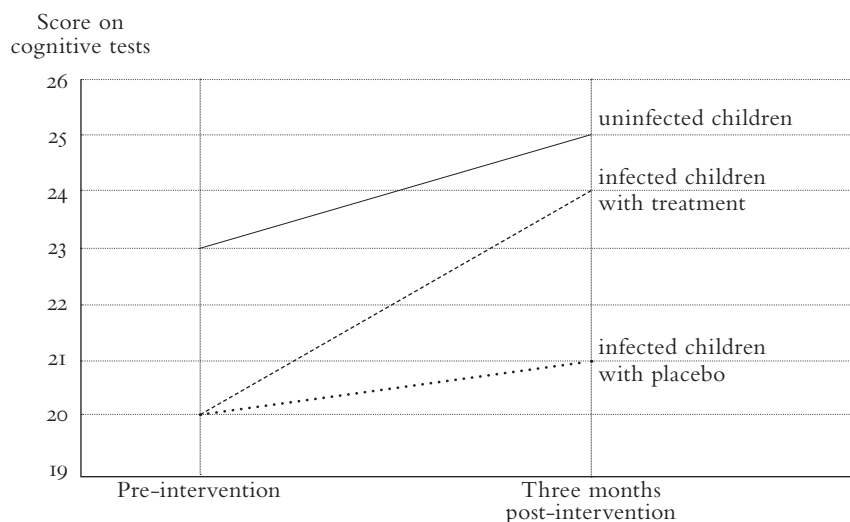
Source: Nokes and Bundy 1993.

of having to control bodily functions, and the indignity associated with open defecation, women are vulnerable to sexual and other violent abuse when going out at night to defecate.

Poor access to water and sanitation also has important knock-on effects in terms of the attainment of educational goals, particularly for girls (DFID 2007). Girls stay away from school because it is seen as their job to fetch water. Also, they are kept away from school for want of sanitation facilities when menstruating. Intestinal worms, spread by poor sanitation, also inhibit cognitive development, and illnesses due to poor hygiene and sanitation prevent children from attending school. The United Nations Children's Fund (UNICEF) (1999) found that improved school sanitation boosted girls' school attendance by 11 per cent in Bangladesh – a degree of impact that is likely to be as significant as major educational reform. A WaterAid Tanzania (2002) study found that school attendance rose by 12 per cent when safe water was made available fifteen minutes rather than one hour away from children's homes. Additionally, children queuing for inadequate communal toilets at school or near home miss out on classwork or homework. And, in some instances, teachers have been found to resist being posted to communities which lack adequate sanitation.

The WHO has estimated that the world could gain an additional 443 million school days every year, currently lost annually due to diarrhoeal disease, with universal access to safe water and sanitation (UNDP 2006). However, schools are the ideal institutions to spread habits of hygiene and use of sanitation; a school without sanitation can miss this opportunity for a generation.



FIGURE C5.3 **Effects of poor sanitation on school performance**

Source: Nokes et al. 1991.

Sanitation and hygiene are also important for achieving MDG 6 in relation to HIV/AIDS, malaria and other diseases. Access to clean water is an important requirement for antiretroviral and tuberculosis (TB) treatment adherence. And poor sanitation facilities, especially in many slum areas, cause flooded pit latrines and blocked drains, which can act as a breeding ground for malaria-transmitting mosquitoes (Stephens 1995).

There are also effects on maternal health and survival. The need to walk long distances to a convenient defecation site or to wait until nightfall is particularly onerous. Women's holding on until nightfall or walking long distances to secluded defecation sites can lead to urinary infections and present other health risks, particularly during pregnancy.

### **The official response**

In spite of the recognition that clean water and environmental hygiene are crucial building blocks in the process of health improvement, the response of governments, donors and international agencies has been poor.

While the sanitation and water crisis present technological challenges, they are far from insurmountable. And while the cost of meeting reasonable targets is not insubstantial, the amounts required are small compared with European spending on luxuries such as perfumes or pet food. While

**BOX C5.3 What the poor say**

On the few occasions when poor people are actually asked to prioritise their needs, safe water comes in the top three. Research shows that people are fully aware of the cost of poor water supply, in terms of sickness, energy, time and money. However, research shows that people are often less aware and/or more constrained to speak about the importance of improved sanitation. This is because there is less appreciation of the link between sanitation/hygiene and health outcomes, and because social taboos associated with defecation and menstruation limit the extent to which information and education are effective.

In much the same way that stigma around HIV/AIDS has had to be challenged, stigma and taboos associated with defecation and menstruation need to be confronted. Experience shows that demand needs to be stimulated before more appropriate hygiene behaviours are adopted and there is significant uptake of latrines – this demand stimulation cannot take place where these taboos and stigmas remain.

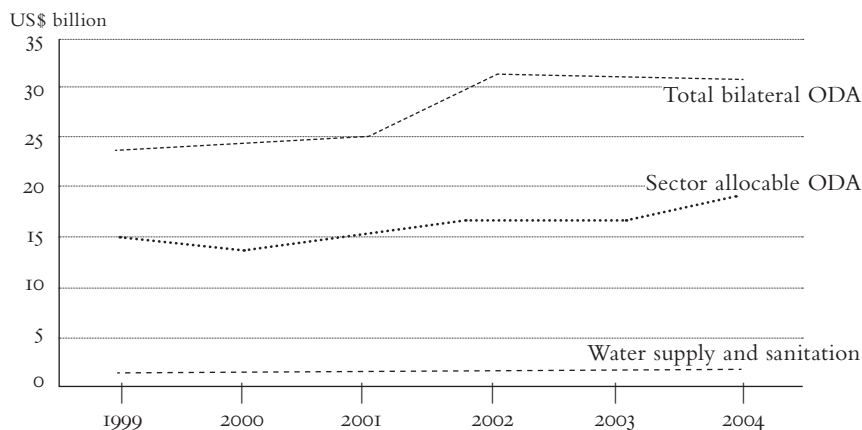
prolonged and extensive advocacy has helped to improve official recognition, it has not necessarily translated into greater budget allocation. The reason for this abysmal state of affairs is a lack of political will to confront the crisis.

Research into the status of water and/or sanitation in a selection of developing-country Poverty Reduction Strategies Papers (PRSPs) found a disturbing lack of alignment between what poor people themselves prioritise and what their governments do in response:

While most PRSPs mention water, sanitation and water resource problems in the discursive parts of the strategies devoted to analysis of poverty issues, this was not and is not being reflected in the crucial section of the strategy where action plans and budget allocations are presented. This is an important issue because PRSPs now account for a significant proportion of ODA. (Foxwood and Green 2004)

The Cameroon PRSP reported that 60 per cent of people identified the lack of water as a cause of their poverty. In Malawi, 88 per cent of Village Development Committees put water in their top three priorities. In Zambia, water emerged as the top priority in all the poverty consultations in 1994, 1996 and 1999. But in each of these countries, the priority ascribed to water and sanitation by people was not reflected in the final national development plans.

**FIGURE C5.4 Aid to the water supply and sanitation sectors compared with overall aid, 1999–2004**



Source: WaterAid 2007. Data from DAC European countries.

And what of the donors? Figure C5.4 shows the rising level of overseas development assistance (ODA) from European countries, both as a total and as allocated to specific sectors. ODA for water and sanitation has remained largely static and a low percentage of the total – in the context of rising ODA, allocations to the water and sanitation sector have actually *declined* as a proportion.

Additionally, much of the aid that is directed to water and sanitation does not flow to where it is needed: of the top ten recipients of aid for water and sanitation, only three are low-income countries and only one of those is in sub-Saharan Africa, the region most off-track to meet the water and sanitation MDGs.

So, while people in developing countries see the lack of access to safe water as a critical problem, and while professionals recognise water and particularly sanitation as vital to public health and broader development efforts, national governments and donors tend to have a policy blind spot. Clearly there is paradox, an accountability crisis, at the heart of official development efforts.

In pushing for accelerated progress towards achieving internationally agreed upon development goals, it is necessary to guard against a situation where official efforts lead to a targeting of the easiest-to-reach populations – this would almost certainly result in the poorest and most vulnerable being marginalised even further.

There is a case for achieving the MDG target by focusing our efforts on where conditions are most propitious and the greatest numbers of un-served are to be found. But this would ignore the moral dimension of those whose need is greatest. The challenge, therefore, is to meet the water and sanitation MDG targets with equity i.e. without leaving the poorest nations, regions or communities behind. (WaterAid 2006)

While the MDGs are a useful device to draw attention to the gravity and depth of poverty across the world, focusing on them could create two serious and unwanted problems:

- the 2015 MDG target becomes the end product and not a stepping stone on the way to universal and equitable access;
- if the MDG targets are not reached, the world will look away and forget about water and sanitation.

WaterAid's paper marking the halfway point in the MDG timescale notes:

There is a genuine risk that the human development-related Millennium Development Goals will not be met if international donors continue to pursue single issue 'global causes' instead of building an aid system that will respond to the complex needs of poor communities. Progress in health and education is dependent on access to affordable sanitation and safe water. And yet both donors and developing-country governments have failed to recognise the interrelationship between health, education, water and sanitation. Global aid spending on health and education has nearly doubled since 1990 while the share allocated to water and sanitation has contracted. (WaterAid 2007)

Sanitation is particularly poorly served. The JMP found that spending on sanitation was as little as one-eighth that of spending on water, while the Global Water Partnership estimated in 2000 that only \$1 billion was spent in developing countries on sanitation compared with \$13 billion on water.

If donor funds for water and sanitation do reach low-income countries, they are often misdirected. Sanitation in particular is underprioritised locally and by international donors. Many countries do not have a co-ordinating institution responsible for sanitation and there is rarely a national budget dedicated to sanitation. For example, WaterAid (2006) examined the fourteen countries in which it works and only one was found to have coordinated planning and reporting systems for sanitation including a dedicated sanitation budget. Even though more than twice as many people lack sanitation as safe drinking water, spending on sanitation is only a fraction of the spending on water.

Often donor funds will be directed to projects that benefit the relatively well-off through favouring relatively high-cost-per-capita, high-technology

schemes. For example, the Melamchi project in Nepal was projected to cost \$312 per capita and is to be directed at the middle-class parts of Kathmandu – the cost of a rural water point is typically \$10 per capita in that country (WaterAid 2006).

In Tanzania, donors are mainly funding *piped* water supply schemes in rural areas which generally serve the better-off sections of the population and utilise technologies that are at least ten times more expensive than low-cost ones such as boreholes and wells. So for every additional household connected to such a piped water scheme, ten poorer households are denied access to a (cheaper) protected water source (de Waal 2003).

With sanitation, there is an emerging consensus that in order to accelerate progress communities need to be motivated to understand the benefits of improved sanitation *and* hygienic behaviours. It is accepted that the mere provision of latrines does not automatically result in the desired change in behaviour. Instead there is too often a waste of resources, when latrine provision is not accompanied by a concerted attempt to change attitudes and behaviour. In addition, the subsidy involved in supply-driven approaches is often captured by the relatively affluent, or latrines are built by the poor for the wrong reasons, and then not used properly, or at all.

### ***Sanitation***

The 2006 *Human Development Report* (HDR) identified six barriers to improving sanitation.

The first is the lack of acceptable and appropriate policy at a national level, even in some countries where good progress is being made with water supply. The key issue is the lack of institutional responsibility, alongside a lack of dedicated sanitation finance and capacity in municipalities.

The second barrier is that the poor themselves place a low premium on sanitation. The benefits of sanitation are dependent upon a range of factors, many of which are beyond the influence of households, including, for example, at a local level, where individuals in households with good hygiene and sanitation practices are victims of the insanitary practices of others, and at a wider level, where sewage is often partially treated (or not treated at all) prior to discharge into watercourses.

Third, people tend not to see the health benefits of sanitation. It is important to recognize that latrine uptake is dependent on issues of pride, dignity and safety. In a number of programmes approaches are now being used that successfully change understanding and behaviour, on the basis of an improved understanding of the health benefits.

The decision to install a sanitary facility, usually a latrine, is made at household level – probably by the (usually male) head of household. If that

household is poor, then the cost of even low-cost technology may be well beyond them. So the fourth barrier emerges: 'why should I build a house for shit', as a Zambian woman was quoted as asking in recent WaterAid research into drivers of sustainable sanitation, 'when I can't afford a roof on the house where I sleep?'

The fifth barrier is that in many locations there simply isn't the necessary supply of technology of the right sort and at the right price to allow local people to choose something to suit their cultural and financial requirements. People have been motivated to create their own low-cost designs in some locations, whereas in most others such levels of motivation have not been generated, and/or materials that allow low-cost designs are simply not available.

Finally, sanitation demand is low because it is women who bear most of the disease burden. So the lack of perceived demand for sanitation is often a function of the disempowerment of women. It is women's voices that are suppressed, not raised or not heard. The personal experience of women is disproportionately harsh in relation to sanitation, from school through to adult life, through exposure to indignity, shame, lack of privacy, illness and violence. In some communities taboos prevent women from using the same latrines as men or even from using them at all. Empowering women may therefore be one of the necessary conditions of accelerating progress.

### **The way forward**

First, donors and national governments need to act on the evidence that is before them: that sanitation, water and hygiene promotion are not additions to development efforts; they underpin the successful achievement of all the MDGs.

Second, ODA and national planning systems need to be responsive to the domestic demands of the poor and to evidence of the most critical areas of deprivation.

As sanitation, water and hygiene form a critical part of development plans, it follows that sector-led development approaches are inappropriate. There is a pressing need for all sectors to coordinate policies.

The 2006 HDR identified the critical determinant to overcoming the water and sanitation crisis as a lack of political will. Good governance in both water and sanitation sectors is critical. The HDR highlighted the fundamental problem of weak, incapable and inadequately accountable governments. It is vital that water be seen as a public good that needs to be subject to some form of public and democratic control/regulation; also that

within the sector there has to be a mix of different kinds of actors involved in the provision and management of water resources and services.

Over 90 per cent of water supply is provided through public agencies. The key to equitable, affordable and efficient service delivery, and thereby accelerated pro-poor targeting of service delivery, in the vast majority of cases, lies in supporting public-sector reform. This is happening in most countries, but at far too slow a pace; it is held back too often, again, by a lack of political will.

The key to ensuring that governments, donors and service delivery agencies all play their role is increased accountability. Those acting in the water and sanitation sectors are generally not accountable to those they are supposed to serve. The results lead to woefully inadequate service levels; in absent services to the poor; in inequitable tariff differentials between the rich, connected and the poor, who get their water from unregulated vendors; and in weakly managed and inappropriate privatisations of utilities.

A way forward in all instances is to support local efforts to create institutionalised structures for local people to demand and maintain accountability, and for similar efforts at regional, national and even the global level. In other words, structures of accountability and platforms for dialogue between communities and those charged with serving them need to be created. Examples of such engagement come from across the globe: Red Vida, the Friends of the Right to Water, the Pan African Water Network, UNDP's Community Water Initiative, WaterAid's Citizens Action work and the Water Dialogues. There are many, many more.

In March 2007 the members of a coalition of Southern and Northern NGOs and individuals called End Water Poverty launched their campaign. At the time of writing, the coalition had more than half a million members. It is grounded in the belief that access to sanitation and safe water is a most basic human right and that, above all, it is the duty of governments to ensure that these rights are met with affordable, sustainable and equitable services.

### Notes

1. See [www.un.org/millenniumgoals/](http://www.un.org/millenniumgoals/) for further details.
2. [www.wssinfo.org/en/122\\_definitions.html](http://www.wssinfo.org/en/122_definitions.html).

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