



# The *EDUCATION* Millennium Development Goal

What water, sanitation and hygiene can do

## The Millennium Development Goals

In September 2000, the United Nations Millennium Summit agreed a set of time-bound and measurable goals aimed at combating poverty, hunger, illiteracy, environmental degradation and discrimination against women.

The second Millennium Development Goal (MDG) is to achieve universal primary education. The target is to ensure that all boys and girls complete primary education by the year 2015.

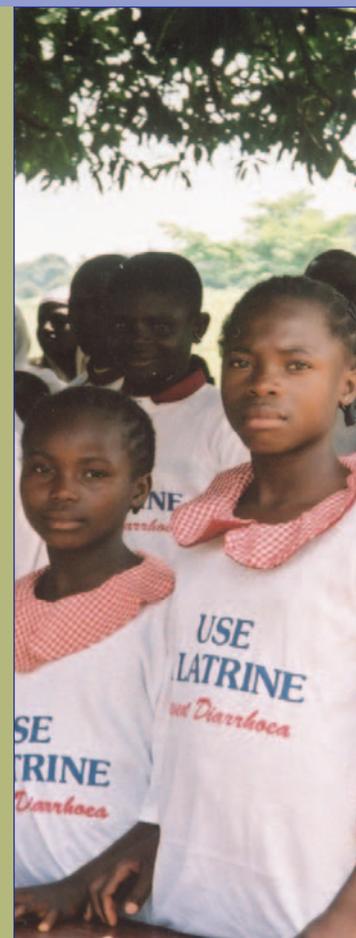


### Headline facts

The MDGs are strongly inter-dependent and programme interventions must reflect this. *Water, sanitation and hygiene deliver outcomes across the MDGs.*

### Why is water, sanitation and hygiene so important for children's education?

- *Children and Health*  
Appropriate environmental health interventions relating to water, sanitation and hygiene education can significantly reduce the mortality rate and incidence of sickness and disease in children under five.
- *School Attendance*  
Improved water and sanitation increases the opportunity for children to attend school.
- *Performance at School*  
Reducing the incidence of water-related illness and disease increases children's performance in school.
- *Girls' Education*  
More girls attend school when community water supplies are improved and when there are separate and private sanitation facilities for girls and boys.
- *Teachers*  
Safe water supply and appropriate sanitation facilities increases the recruitment, attendance and retention rate of teachers.



## Children and Health

### The facts

- Diarrhoea is the largest *preventable killer* of children under five.
- Some 1.7 million young children die each year from diarrhoea associated with inadequate water supplies, sanitation and hygiene.
- Worms infect more than one third of the world's population. Worm infection (helminths) is ranked as the main cause of disease in children aged 5-14 years old. These are spread through unhygienic environments (such as contaminated soil or water) and unhygienic behaviour.
- The global estimated figures are:
  - Roundworm: 320 million
  - Whipworm: 233 million
  - Hookworm: 239 million
- Other diseases related to inadequate water and sanitation services include skin and eye infections, (trachoma, preventable by hand and face washing), schistosomiasis (transmitted through infected water), and dengue (carried by mosquitoes in unhygienic domestic water vessels).

### Why water, sanitation and hygiene?

#### Water supply and sanitation

- Improving sanitary conditions in schools, in the community and the home, together with improvements in hygiene behaviour drastically reduces the incidence of diarrhoea and helminth infections among school children.
- More than 1,100 people in central Honduras have benefited from an initiative to provide clean water and sanitation systems. Children who once suffered from diarrhoea and skin sores no longer do so.
- Small rural settlements in Malawi developing safe water sources and upgrading sanitation facilities, saw a reduction in cholera and diarrhoea. Prior to the project, 70% of inhabitants had no access to safe water or sanitation and one in four babies did not reach their fifth birthday.
- About 6 million people are blind from trachoma. Adequate water supply can reduce the infection rate by 25%.

- The Water and Sanitation Extension Programme (WASEP) in Pakistan 1997-2001 found that children not living in WASEP villages had a 33% higher chance of diarrhoea than those who did.
- About 200 million people are infected with schistosomiasis. Studies found that adequate water supply and sanitation could reduce the infection rate by 77%.

#### Hygiene behaviour

- Several studies in the last decade have failed to find any health benefits when water quality alone is improved without hygiene education.
- Most diarrhoeal disease is transmitted from person to person on hands and food due to poor hygiene behaviour. Hand washing with soap reduces diarrhoea by more than 40%, and cases of hospitalised diarrhoea, cholera and dysentery by more than 50%.
- Poor access to clean water and good sanitation is associated with poor growth in children. In Lima, Peru, those without access to clean water and sanitation were 1cm shorter and had 54% more episodes of diarrhoea than children who grew up in the cleanest conditions.

## School Attendance

### The facts

- More than 104 million children do not receive any education.
- 15% of boys and 24% of girls do not complete primary school.
- Non-fatal incidence of common illnesses such as diarrhoea and intestinal worm infection are related to poor water, sanitation and hygiene and are the cause of absence from school. In Madagascar, 3.5 million schooldays are lost each year due to ill-health related to poor sanitation.
- Children frequently miss school due to domestic and water carrying duties.
- Children caring for relatives suffering water-related illness or replacing the role of a deceased parent also miss school.
- Children are often excluded from school if they are dirty or might spread infections.

### Why water, sanitation and hygiene?

- There was a 12% increase in Tanzanian school attendance when water was 15 minutes away rather than one hour.
- A school Environmental Health Club was established in the Nigerian village of Bashibo, promoting hygienic behaviour in the home. By 2001, hand washing had increased by 95%, with 90% bathing and brushing teeth regularly. School attendance, especially amongst girls, has increased, as has the general health and nutritional status of the community.



## Performance at School

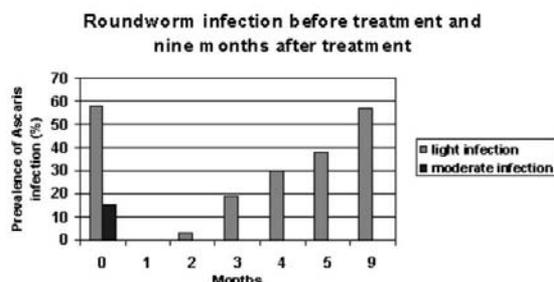
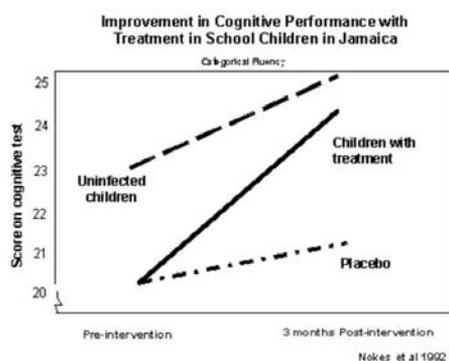
### The facts

- Chronic early childhood diarrhoea can result in decreased blood flow to the brain or failure to absorb sufficient dietary nutrients. Repeated episodes may have permanent effects on brain development. This may have an impact on a child's learning achievement and on their health at school age.
- Children who suffer from severe early childhood diarrhoea enter school later than their classmates, and perform worse in non-verbal intelligence tests.
- Children from a Brazilian shantytown community, who suffered serious and ongoing episodes of diarrhoea during the first two years of life, performed less well than other children in intelligence tests some 5-10 years later.

### Why water, sanitation and hygiene?

- The impact of helminth reduction programs in schools is remarkable. A study in Jamaica found that children treated against a helminth infection perform much better in school than children who do not receive treatment.
- A clean and hygienic environment is vital, because de-worming will only be effective in the longer-term if no new infections can take place.

- Time taken by children in Andhra Pradesh to collect water means they often have no time to eat before school, which adversely affects concentration levels.



177 children were infected with *Ascaris* and were treated. But reinfection occurred after treatment.

Data from Andhra Pradesh. I. Paul and G. Gnanamani, 1998.

## Girls' Education

### The facts

- Of the 120 million school-age children not in school, the majority are girls.
- 41% of primary aged girls worldwide, not enrolled at school, are in South Asia, and 35% are in Sub-Saharan Africa.
- In low and middle income countries the general trend towards equity in education is upwards. Female illiteracy has fallen from 32.6% in 1998 to 29.9% in 2002. Nevertheless, two thirds of illiterates are women.

### Why water, sanitation and hygiene?

#### In the community

- When women and girls have access to water and sanitation, less school time is lost fetching water.
- School attendance by girls has risen since the introduction of water points in four communities in Arappalipatti and Panjapatti India, with a recorded increase in women's literacy levels.

#### In schools

- Where there are working and well-maintained separate sanitation facilities for girls, school enrolment increases.
- In rural Pakistan more than 50% of girls drop out of school in grade 2-3 because the schools do not have latrines.
- In the Noakhali district of Bangladesh in 1998, the provision of water and sanitation facilities increased girls' attendance at school by 15%.
- An assessment in 20 schools in rural Tajikistan revealed that all girls choose not to attend when they have their periods, as there are no facilities

## Teachers

### The facts

- Retention and recruitment of teachers is problematic where schools lack adequate water and sanitation facilities.
- Teachers want to work in good schools. This is often defined by whether they have access to toilets or not.
- Teacher shortages result in large class sizes, which affects the standard of education children receive.
- Water and sanitation-related illnesses mean that teachers are themselves absent from school which causes children to be sent home.
- Children infected by water-related skin conditions can spread the disease to teachers.
- Teachers also miss school due to domestic chores such as water carrying.

### Why water, sanitation and hygiene?

- Since the implementation of Water Aid clean water programmes in India, Tanzania and Ghana, teachers are more likely to accept posts in areas where recruitment was difficult due to the lack of clean drinking water.



This Briefing Note presents evidence for the impact of water supply, sanitation and improved hygiene on education.

### Key references

- Burrows, G. et al (2004) Water and Sanitation: the Education Drain. London. WaterAid
- UNICEF (2004) Monitoring the Situation of Children and Women. <http://www.childinfo.org/index2.htm>
- Nokes, C; Bundy, C. and Donald A. P. (1993), "Compliance and absenteeism in school children: Implications for helminth control", *Trans R Soc Trop Med Hyg*; 87(2):148-52, Mar.-Apr.

Full details of all the material used in support of this briefing note are available at [www.lboro.ac.uk/well](http://www.lboro.ac.uk/well)

There are six briefing notes in this series:

1. The Poverty Millennium Development Goal: What water, sanitation and hygiene can do
2. The Education Millennium Development Goal: What water, sanitation and hygiene can do
3. The Child Health Millennium Development Goal: What water, sanitation and hygiene can do
4. The Gender Millennium Development Goal: What water, sanitation and hygiene can do
5. The HIV/AIDS Millennium Development Goal: What water, sanitation and hygiene can do
6. The Environmental Sustainability Millennium Development Goal: What water, sanitation and hygiene can do

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