



The *ENVIRONMENTAL SUSTAINABILITY* 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 seventh Millennium Development Goal (MDG) is to ensure environmental sustainability. Target 11 is to achieve a significant improvement in the lives of at least 100 million slum dwellers.



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 improving the lives of slum dwellers?

- *Urban Poverty*
 Small-scale enterprise and community contracting are effective alternative ways of supplying water and environmental sanitation to urban slums, when utility services are not available.
- *Child Health*
 For children living in slums, improved water, sanitation and hygiene means they are less likely to contract water-related diseases and they can live in a more hygienic environment, both at home and in the wider community.
- *Gender*
 Improved water, sanitation and hygiene facilities can make a significant difference to the quality of women's lives in urban slums. They are more healthy, have more time for childcare and work which generates income, and can use safe sanitation facilities in private.
- *Urban Environment*
 Improved drainage, sanitation and solid waste management services are essential to improving the quality of life for slum dwellers.



Urban Poverty

The facts

- In Dehra Dhun, India, some public tap users can spend almost half a day fetching water, with each trip taking one hour to fill and carry home two 15 litre buckets. On average, this would be repeated four times a day in each family.
- In most cities in developing countries, more than half the population gets basic water service from a supplier other than the official utility. In African cities, small scale independent providers (SSIPs) are an important alternative to utilities when it comes to supplying the poor with water and sanitation.
- The involvement of low-income urban communities in the procurement of local improvements in infrastructure benefits environmental health and can generate income.
- Safe collection and disposal of solid waste is important for the protection of both public health and the city environment, and provides opportunities for enterprise development.

Why water, sanitation and hygiene?

- In a survey in East Africa, urban households with access to piped water gain up to an average of 36 minutes each time they draw water, compared to those using a hydrant or standpipe. They use up to three times as much water per capita than unpiped households.
- Water vendors are an example of small scale providers who have developed enterprises out of the supply of water. The advantages are that they generate income, payment is on delivery, and small quantities can be delivered daily. Associated problems are the high variations in tap water cost per litre, soaring prices during drought and poor water quality.
- A street sweeping micro-enterprise was initiated after privatisation of services in the Miraflores District of Lima, Peru. Under the one-year contract with the municipality, workers sweep the area daily using brooms and long-handled pans, then wheel the sweepings in barrows to the municipal waste containers. The service is not dependent on personalized payments.



- Contributing to the local economy: the impact of water, sanitation and hygiene on micro-entrepreneurs in Uganda includes reduced costs and improved reliability of water supply, increased production, sales, and demand for their products.
- In Lesotho, local latrine builders earned the equivalent of the mean monthly income in the country. 45% worked part-time for an additional income. The programme also boosted local industries such as brick and block production.
- In Sri Lanka, a system known as community contracting was pioneered whereby urban community groups carried out basic improvements to water supply and sanitation. Over a three year period, 93 contracts amounting to Rupees 4.7 million were awarded out of which Rupees 1.7 million was for labour costs. This injected money into the local economy, stimulating the local market for building materials.

Child Health

The facts

- Improved access to water and sanitation especially in poor urban areas, which remain largely unserved by public utilities, is a crucial element in the reduction of under-five mortality and morbidity. In some cases, the urban poor suffer infant death rates 1.5 to 3 times higher than people who are better off, partly due to lack of safe water and sanitation.
- Water, sanitation and hygiene interventions reduce the occurrence of diarrhoea, skin and eye infection, helminths, schistosomiasis and dengue, all of which are related to inadequate water and sanitation services.
- Hygienic home environments, contributed to by easy access to safe water and adequate sanitation facilities, decrease children's exposure to infectious disease.
- Health improvements in children resulting from improved water, sanitation and hygiene education lead to higher rates of school attendance and better performance.
- Provision of sanitation and drainage infrastructure has major beneficial effects on child health.

Why water, sanitation and hygiene?

- The existence of a yard tap nearly doubled the chances of a mother washing her hands after cleaning a child's anus, and doubled the chances of her washing faecally soiled linen immediately.
- A study in Salvador, Brazil, showed that children in households with no toilet, had twice the incidence of diarrhoea than those with sanitary toilets.
- Children in slum areas of Tamil Nadu, India, are benefiting from child friendly toilets. Until now children had to defecate in open drains in front of their houses or walk in search of places for open defecation amidst existing faeces, and return home without washing because there was no water available.
- In the slums of Salvador, Brazil, surface water drainage halved the number of cases of frequent diarrhoea. When combined with low-cost sewerage, the rate was reduced even further.
- The prevalence of roundworm and whipworm is halved by improved drainage and hookworm infestation reduced by a factor of three.
- In Madagascar, 3.5 million schooldays are lost each year due to ill-health related to bad sanitation.



- A successful health promotion approach in Lima, Peru, involved video and leaflets about the hygienic use of potties by children, and about keeping the home environment free from faeces. Despite low coverage, the impact on child health was significant and there was evidence that mothers were remembering the message.
- Local people report a huge improvement in quality of life since the installation of community sewers in Faisalabad, Pakistan. Children can play outside safely, as there is no longer sewage on the streets.
- Many poor people live round the edges of waste disposal sites. Improved waste disposal practices result in significant improvement in the local environment in these areas, which includes the prevention of groundwater pollution, and reduced exposure to clinical waste, gas, odour, vermin and dust.

Gender

The facts

- In urban slums without easy access to clean water, women have to either walk long distances, queue for hours at crowded standposts, use dirty water from ponds and rivers (often polluted by factories) or are charged large amounts of money by water sellers. The need to collect water becomes a drain on both their time and money.
- Ill-health impacts greatly on women's lives. It is usually women who nurse the sick while having to juggle their time to carry out all the domestic and income-generating work that they are responsible for. Collecting water consumes a significant proportion of their time.
- Improved water supply and reduced burden of disease frees up more time for women to work to generate income and develop enterprises.
- A crucial benefit of improved sanitation facilities is greater privacy and security for women.

Why water, sanitation and hygiene?

- An urban water and sanitation project in Mozambique aims to improve living standards by increasing the water supply coverage rate in cities from 37 per cent to 65 per cent and to reduce the incidence of water related diseases by 25 per cent by 2007. Access to a safe water supply reduces the time women spend collecting water and thereby frees them to engage in income-generating activities.
- Water containers commonly hold about 20 litres of water, which weigh 20kg. Constantly carrying such heavy weights on the head, back or hip, has severe health implications. Backache and joint pains are common, and in extreme cases curved spines and pelvic deformities can result, creating complications in child-birth. Pregnant women sometimes keep on carrying water until the day they give birth.
- Where there are working and well-maintained sanitation facilities for girls, school enrolment increases. 11% more girls attended school when there are sanitation facilities available offering proper privacy.



- In a squatter community in Manila, a locally-made soap is produced by women to be used by school children and sold at affordable prices to the community. Not only is this an opportunity for income generation for women, the simple act of washing hands with soap or ash and water can reduce diarrhoeal disease by one third.
- A local solid waste composting enterprise for women was established in a low-income area of Colombo. Apart from providing a source of income generation for the women, less waste was produced for local authority collection. Cost savings were invested in improvements to roads and sewers.
- An urban sanitation project in central Tana, Madagascar, has meant that women can now use latrines and no longer have to feel the shame at defecating outside.

Urban Environment

The facts

- Basic environmental sanitation services are lacking in many urban poor settlements. Serious environmental degradation results from poor drainage and lack of adequate solid waste management.
- If solid waste is not removed, it piles up and blocks drainage channels, creating pools of polluted water which are breeding grounds for mosquitoes. Uncollected heaps of solid waste putrify rapidly in hot humid conditions, smelling foul and attracting rats and flies.
- Population density in urban slums and informal settlements can be extremely high, with little unoccupied space even for footpaths for access. Space is at a premium and this lack of space constrains the provision of basic services and complicates construction work.
- On-plot sanitation systems are appropriate for low income urban areas, even on small plot sizes, using a variety of systems, with high levels of user satisfaction.

Why water sanitation and hygiene?

- Improving environmental sanitation helped to create a sense of civic pride in Purighat slum in Cuttack, India. Residents assisted in improving drainage around a pond and created an environmental feature out of the waterside through planting small trees and potted plants.
- In India, small plot size was not found to be a constraint to the effective operation of individual household pour flush pit latrines which are common place on plots as small as 20 square metres. Users did not associate any specific problems with small plot size. Where the most common latrine problems were noted, they were spread across all categories of plot size.



- In Dhaka, Bangladesh, local initiatives in solid waste management were started by Khurram Mahboob who campaigned in his area to introduce a community-based, door-to-door collection service, which has been taken up throughout the city. Local CBOs fix the service charge (usually 10-20 Taka per household, per month) which is collected by the waste collector.

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

Key references

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Full details of all the material used in support of this briefing note are available at 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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