Will it cost the earth?

An overview of cost estimates for achieving the water and sanitation targets of the Millenniuum Development Goals

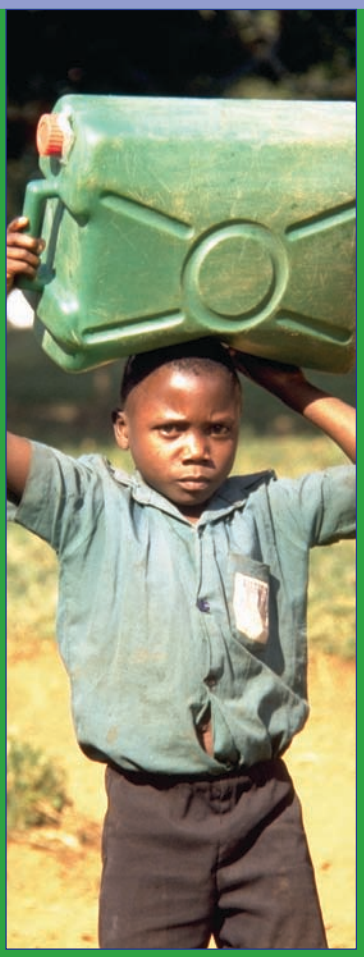
The Millennium Development Goals

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 10 is to halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation.

This Briefing Note reviews the different cost estimates that have been made for achieving the targets for water and sanitation and analyses the underlying assumptions that are made.

Headline facts



- The way in which funds for the sector are used is more important than estimates of absolute levels of funding to achieve global targets.
- There is no consistency between the different cost estimates for achieving the targets: the range is $7.5- $70 billion annually.
- Globally the bulk of funding for water and sanitation comes from national domestic sources – representing 83% in 2000.
- There is a funding gap and financial resources are an issue if the targets are to be achieved.
- Greater commitment to poverty focus and sustainability - keeping systems running – is required otherwise those who currently have access to adequate levels of service will fall back to being unserved.
- Greater attention needs to be given to providing the poor with access to finance. There exist financing tools that will help to achieve the MDGs but it is not clear that they will necessarily help to provide access for the poorest.

About the Cost Estimates

It's not straightforward ...

- There are currently several different estimates for the costs of implementing target 10; these are shown in the table opposite. The estimates vary enormously due to inconsistencies in the data and in calculating access to services. It is often not clear what assumptions have been made and it comes as no surprise that the costs estimates vary widely. Comparing raw figures is not possible and may lead to erroneous conclusions. The table attempts to clarify the differences between the estimates, so that policymakers and advocates can choose an estimate that best "matches" their interests.

How many people to serve?

- Most estimates are based on projections from the WHO/UNICEF Global Water Supply and Sanitation Assessment Report (2000) whereby 1.6 billion people lacked access to water supply in 2000, and 2.2 billion lacked access to sanitation. WHO/UNICEF estimate that by 2015 an additional 1.6 billion people will need access to water supply, and 2.2 billion sanitation. Hence, the projected total number of people requiring access between 2000-2015 is 3.2 billion for water supply and 4.4 billion for sanitation.

With what services?

- Terms such as "access to safe" and "access to improved" are used and these mean different things to different people. Cost estimates are fundamentally dependent on the type of technology assumed to achieve the objective of "safe" or "improved". This is often not specified and further complicates direct comparison of the estimates.

- Furthermore, an "improved" public standpost may provide only sporadic supply - it may not be able to provide sustainable access to meet demand. This Briefing Note assumes the following definitions (WHO/UNICEF):

Water supply and sanitation technologies considered to be "improved"

Water Supply

- Household connection
- Public standpipe
- Borehole
- Protected dug well
- Protected spring
- Rainwater collection

Sanitation

- Connection to a public sewer
- Connection to a septic system
- Pour-flush latrine
- Simple pit latrine
- Ventilated improved pit latrine

Water supply and sanitation technologies considered to be "not improved"

Water Supply

- Unprotected well (in some cases might provide better supply than intermittent or poor quality household connection)
- Unprotected spring
- Vendor-provided water (in some cases might be adequate)
- Bottled water (limitations concerning quantity)
- Tanker truck provision (in some cases might be adequate)

Sanitation

- Service or bucket latrines (where excreta are manually removed)
- Public latrines (in some cases might be adequate)
- Open latrine

- Lack of capacity is one of the major constraints; none of the estimates considers the cost of institutional and support services for sustainability including the development of capacity to put into practice strategies adapted to the needs of the poorest.

- Only a few of the estimates include calculations for the maintenance and rehabilitation of existing infrastructure.

Overview of Cost Estimates

Source (& reference)	Total required per year US$ billions			How is it calculated?	Comments
	Water	Sanitation	Total		
World Water Vision, 2000 (1)	n/a	n/a	75	**Timeframe & population:** 2000-2025; for 2025: urban 3.5 billion/ rural 3 billion **Basis for estimate:** initial construction costs only **Cost estimate:** $50 total urban water and sanitation, $567 (sic) total rural water and sanitation **Service levels:** does not specify technologies or service levels	Unit costs inferred from overall estimate
Global Water Partnership, 2000 (2)	13	17	30	**Timeframe & population:** 2000-2025 **Basis for estimate:** capital and recurrent costs: 15% of total cost for O&M ($10 per person, noting that actual costs will vary) **Cost estimate:** $15 rural water, $10 rural sanitation and hygiene, $50-200 urban water, $25-300 urban sanitation, $63 municipal sewage treatment. Allows increase in real costs for WSS over time **Service levels:** allows for different levels of service in urban water & sanitation	"Broad brush estimates"; authors acknowledge findings preliminary and not an accurate estimate of financing required. Not prepared in the context of the MDGs
Camdessus Report, 2003 (3)	13+	17	30 - 40	**Timeframe & population:** 2002-2025; panel assumed a baseline year of 2002. It is not clear whether the shift in baseline impacted the analysis' underlying assumptions **Basis for estimate:** uses the GWP FFA (See GWP above and Reference 3) **Service levels:** claims that basic water and sanitation requires $10 bn additional funds each year, while full water and sewerage connections plus primary wastewater treatment cost>$32 bn	Panel acknowledges the lack of a solid basis on which to build a global strategy
World Bank, 2002 (4)	13	16	29	**Timeframe & population:** 2000-2015 **Cost estimate:** no backup data available to explain the estimate. "Expenditures are incurred under appropriate institutional arrangements with proper incentive structures in place"	Does specify costs for hygiene promotion
French Water Academy, (5)	n/a	n/a	32	**Timeframe & population:** 2000-2025: data from WHO/UNICEF, 2000 (Reference 9) and growth estimates until 2015 used to calculate estimated connections required per day **Cost estimate:** includes rehabilitation and new service connections **Unit Costs:** current expenditures (estimated at $16 bn) should be doubled to $32 billion US$16 bn for rehabilitation of existing systems & improving wastewater treatment; urban costs 4 times more than rural; unit costs similar for water & sanitation; unit costs remain same as in 1990's **Service levels:** definitions equate to WHO/UNICEF, 2000 (see box)	Attempts to synthesize different cost estimates for current and required investments. Only the author's estimations are presented here Asserts population estimates are likely to be underestimated
WHO, 2004 (6)	2.1	11.6	13.7	**Timeframe & population:** 2000-2015 **Basis for estimate:** capital and recurrent costs; each technology given "useful life" to calculate equivalent annual cost **Cost estimate:** takes different initial investment costs per capita by region (data from Vision 21, ref.7), annualized and recurrent costs (assumptions by the authors) to derive annual costs per capita, taken with urban/rural population growth and aggregated to the regional level **Service levels:** accounts for existing levels of service and low cost incremental improvements	Only lowest cost solutions. None of the population gaining access is assumed to use sewerage connections or pour-flush latrines
Vision 21 by WSSCC, 2000 (7)	5.2	3.7	8.9	**Timeframe & population:** 2000-2025; estimated population to gain access by 2025: water 3.1 billion and sanitation 4.9 billion **Basis for estimate:** capital and recurrent costs **Cost estimate:** $15 rural water, $10 rural sanitation and hygiene; $50 urban water, $25 urban sanitation; O&M costs capped at 15% of capital cost/year. Includes average external costs per person (i.e. additional to the costs borne by households or communities) **Service levels:** assumes low cost basic supply drinking water, sanitation & hygiene promotion	
UN MDG Task Force on Water and Sanitation, 2004 (8)	4.5	2.2	6.7	**Timeframe & population:** 2000-2015; estimated population to gain access by 2015: water 1.57 billion and sanitation 2.1 billion **Basis for estimate:** initial construction costs only **Cost estimate:** derived from UNICEF, based on an average cost for 15 years derived from 4 different sources. Total cost: water $68 billion, sanitation $33 billion **Service levels:** a "minimum package": low service levels for rural, intermediate service levels for urban populations	For improved water supply: if people are not using system properly, or if there is no mechanism for O&M, this does not "count".
WHO/UNICEF, 2000 (9)	3.1	12.6	n/a	**Timeframe & population:** 2000-2015 **Basis for estimate:** construction cost only **Cost estimate:** detailed calculations not possible: provides only the total investments for 1990-2000 for Africa, Asia, Latin America and the Caribbean. Assumes investment increase above that of 1990-2000 of 31% for water and 50% for sanitation. **Service levels:** uses WHO/UNICEF, 2000 data	

Flow of Finance

How much?

- Globally in 2000, 83% of funding for water and sanitation came from national sources: public sector (65%); domestic private sector (19%). The balance was from multi-lateral and bilateral donors (12%) and the international private sector (5%).
- This masks large variations between and within regions. Only 12% of total aid went to countries where less than 60% of the population has access to an improved water source.
- There is a funding gap. Overseas Development Assistance allocations to the water sector average US$ 3 billion annually, half of which is loans. This amounts to less than half the lowest MDG cost estimate.

Where to?

- Funding tends to go towards large projects with visible impact in a short time frame. Arguably, funding has ***not*** gone where it can have the greatest impact on human health and well being.
  - ***Not*** to smaller-scale, low-cost technologies
  - ***Not*** to sanitation, especially in rural areas (sanitation investment makes up 20 percent of total investment in the water supply and sanitation sector)
  - ***Not*** to rural areas, where such low-cost technologies are most applicable, and where coverage gaps are considerable

Sub Saharan Africa

Targets for water and sanitation are both off-track in sub Saharan Africa. In 2002:

- Water: coverage was 58%, needs to rise to 75% by 2015
- Sanitation: coverage 36%, needed to have been 49% to be on track

- The financing mechanisms that are most likely to be available to the poorest include:
  - User finance (via tariff revenues designed accordingly or in-kind contributions such as labour/local materials)
  - Grants from development agencies including NGOs
  - Micro-credit/micro-finance whether through private lenders or micro-finance NGOs
- The poor tend to live in marginalized peri-urban and rural areas and are often off-network; targeting is a major problem. Even if financing mechanisms and supporting frameworks are in place, they still may not be effective in reaching the poor. This will be the subject of a forthcoming WELL Briefing Note.

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Further details of the material used in support of this Briefing Note is available at www.lboro.ac.uk/well

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