Tanzania is a signatory to the Millennium Development Goals, which include the targets of:

- Halving the proportion of people without access to safe drinking water in 1990 (signed in Stockholm in 2000) by 2015
- Halving the proportion of people without access to hygienic sanitation in 1990 (signed in Johannesburg in 2002) by 2015

Meeting the Millennium Development Targets (MDTs) for improving access to safe drinking water will cost Tanzania at least $1,436 million dollars, and the cost to households for meeting the MDT for improving sanitation will total $520 million dollars. These are the minimum costs for meeting the Millennium Development Targets for water and sanitation, and have been calculated for Tanzania Mainland only, not including Zanzibar.

The above calculation deals with both water supply and sanitation. However, it needs to be made clear that while the finance for improving water supply will largely be public finance, the finance for sanitation will have to be sourced privately from households building the required number of toilet facilities. The calculation for sanitation is based on a cost of $50 per household for a basic pit latrine in rural areas, and $250 per household for a permanent toilet facility in urban areas.

Assumptions

This calculation makes two significant assumptions:

- **First**, that all public money would be spent through a single, well-coordinated and well-managed national programme, and
- **Second**, that the investment strategy would prioritise and exploit the full potential of low cost technologies, such as shallow wells and springs, only using more expensive piped water supplies where there is no alternative.

Three technologies are considered:

- Point sources such as shallow wells and springs at a cost of $25 per capita;
- Small piped schemes from boreholes or springs to public taps at $50 per capita; and
- For those places where there is no alternative e.g. due to high levels of natural fluoride, piped surface water from lakes or rivers to public taps at $150 per capita.

The over all mix of technologies used for the calculation is 50:40:10 for point sources, small piped schemes and surface piped schemes respectively. The investment cost for urban water supplies is set at $150 per capita.

While the above assumptions might be said to be unrealistically optimistic, the calculation does incorporate an important variable often left out of similar calculations, namely the cost of rehabilitating schemes that fall into disrepair during the lead up to 2015. In spite of the fact that there is a policy of full cost recovery for both urban and rural systems, it is estimated that 10% of schemes piped from surface water sources will collapse and have to be rehabilitated with public funds. In addition, it is estimated that 30% of point sources and 30% of small piped schemes will become non-functional during this period. The total cost of rehabilitation alone is calculated to be $66 million.

If any of the above variables turn out to be set too low, the costs of meeting the MDTs would, of course, increase. However, should the two assumptions not hold true, the costs would rise dramatically. The aim here is simply to declare all these as influencing factors, and to point out that, as set, they are likely to lead to minimum requirements for the sector.

Availability and Reliability of Data Used

The availability of data in Tanzania has limited the accuracy of the calculation. For some of the variables, this has meant choosing from statistics quoted separately by different government agencies (e.g. water supply coverage). For other variables (e.g. the potential mix of technology), there are simply no data available.

Surprisingly, the variable generating the greatest variability in the calculations outcome was the ratio of rural to urban population in 2015. Official predictions for rural and urban populations in 2015 have not yet been published by the Government of Tanzania. In the interim there is little to go on. Figures from the United Nations have overestimated the urban population for the year 2000, and greatly overestimate the predicted urban population for 2015.

The 2002 Population and Housing Census for Tanzania reports a ratio of 77% rural to 23% urban dwellers compared to a UN-reported ratio of 32% to 68% for 2000. The UN prediction for 2015 is 53% rural to 47% urban dwellers. Based on past rates of urbanisation, the predicted ratio would be...
70% rural to 30% urban in 2015. The actual rural to urban ratio in 2015 is likely to be somewhere in between the two. Given this uncertainty, the calculation here is based on a doubling of the urban population between 2002 and 2015. Were the calculation based on UN predictions, the headline cost would be closer to $4 billion.

Figure 1. UN versus alternative rural and urban population predictions

Can Tanzania Meet the MDTs for Water and Sanitation?

Having established that the minimum cost of meeting the MDTs for water and sanitation is approximately $2 billion, how likely is it that Tanzania will be able to meet these targets? Past performance, available finance and a number of key influencing factors must be considered when trying to gauge this.

Meeting the Sanitation MDT

As mentioned above, the finance for sanitation will come from households building their toilet facilities. As Tanzania does not have a policy of subsidising latrine-building, the only tools that the Government can use to intervene in this sub-sector are public information and health extension. Although these are not currently costed, they make up an insignificant amount of money compared to the cost of the infrastructure.

In rural areas, past performance in the sector may well be an indicator of future performance, and on this basis, the MDT can be met in rural areas. Latrine coverage has been high in Tanzania ever since large-scale public information campaigns in the 1970s. What can be called into question is the quality and use of latrines, which exist, but are often unhygienic, and not always used.

In urban areas, meeting the sanitation MDT poses much more of a challenge. Building costs are much higher, building plots much smaller, and unplanned areas more common. Basic pit latrines, which perform the primary function of separating people from faecal matter in rural areas, are inadequate in urban areas, where there is less space and an increased likelihood of contaminating water supplies and storm drains. Urban populations will therefore have to make the transition to more permanent facilities that can be emptied or used in rotation. The unit cost used in this calculation is $250 per household, based on current market rates. This is a relatively large amount of money for poorer households to have to spend on a latrine, and there is a real need for innovative alternatives. Whilst the innovation is probably best left to the private sector, there may be a role for government and civil society in promoting successful, cost-effective designs. Government will also have to address disposal and treatment of waste. This has not been costed in this calculation, and is likely to run into millions of dollars.

Finally, due to the lack of data on the existing situation and on future requirements, it has not been possible to cost the financial requirements for institutional sanitation in schools, health facilities and other public service centres.

Meeting the Water MDT

In contrast to sanitation, meeting the water MDT will almost entirely depend on public finance. The way in which public funds – both domestic revenue and development assistance – are spent on water supply is changing radically. In the past, the Government had little of its own funds to spend on the sector, instead assigning regions to donors, who then went off and built mainly rural water supplies. Now, and in the future, increasing amounts of finance are likely to flow through the government budget. The donors remaining in the sector, most of whom are development banks, have already and may continue to re-focus their assistance on urban water supplies.

Past performance in this sub-sector is not a guide to future performance. While figure 2 shows considerable progress in rural areas between 1990 and 2000, this trend is unlikely to continue for two related reasons. Firstly, investments in the sector that were completed in the 1990s were focused on - and were successful in - shifting people from using surface sources to using protected sources. This is supported by data from both the Demographic and Health Surveys (DHS) and the Household Budget Surveys (HBS). Much of the current and planned investment for the next few years is directed at improving service levels for people who already have access to a piped or protected water source. This investment in second-generation water supplies, mainly piped and urban, will not shift many of rural Tanzania’s population from unprotected water sources to protected water sources. It may result in some of the rural population moving to areas that can offer improved water supplies, although urbanisation is taking place far slower than at least the UN is predicting.

So what is the spending gap?

Calculating the gap between the required investment and existing expenditure only takes into account the development budget, as the recurrent budget does not get turned into new water supplies.
Furthermore, it is actual spend rather than budget that is of interest, and reporting of actual spend lags behind budget figures by two years.

In 2002/3, the combined local and foreign development budget for water supply was $30 million. In contrast, the actual spend recorded was less than $12 million. Based on this figure, Tanzania needs to find at least $84 million more annually up to 2015 in order to meet the MDG. Furthermore, this $84 million has to be spent on first generation water supplies that actually enable people to shift from unprotected to either piped or protected water sources.

Unfortunately, the impact of additional money flowing into the sector in 2004/5 is only marginal. This applies to much of the urban investment as well as for national programmes such as the Lake Victoria/Shinyanga Kahama pipeline. The latter in particular has very high per capita costs ($280 per capita) drastically reducing the finance available for low cost, first generation supplies. Given the nature of these investments, the required finance gap may not have diminished at all since 2000.

What Should Tanzania do to Meet the Water Supply MDG?

Devolving planning and expenditure for rural water supply to local councils is the single biggest step that Tanzania could take to get back on track to meet the MDG for water supply. While the sector ministry budget has increased significantly in the past 8 years, local government transfers remain very low. In 2004/5, local councils were allocated just $0.11 for each person they were expected to provide with safe water. Fiscal decentralisation should be implemented for both recurrent and development budgets in order to scale up implementation.

Tanzania needs to deliver 3,000 new water points each year to meet its target for water supply in rural areas. Implementing this will require careful targeting, and is possible using conditional grants, demand-responsive approaches and working with the local private sector. Some districts in Shinyanga Region are already able to deliver at this rate, and other districts need to be given the opportunity to do the same.

Devolving the roll-out of service delivery would also shift the bias of implementation towards low-cost technologies, as studies in neighbouring countries have shown. It is essential to prioritise investments in low-cost water supplies over piped schemes, and to avoid large national projects which tend to have higher per capita costs. Low-cost technologies are more equitable, will make available finance go further and will be less of a future rehabilitation burden on the public purse.

Finally, back to that first big assumption. The Ministry for Water & Livestock Development urgently needs to set up a single sector coordination mechanism that is led by government, and that involves all development partners.

Once this is in place, an additional $84 million a year needs to flow into the sector. For each year that the above pre-conditions are not in place, the finance gap will increase by over $5 million. We are now in Year 5.

For all those who want Tanzania to meet the MDGs, and for those with specific interests in meeting the MDTs for water and sanitation - particularly those people who currently do not have access to safe water - these are the things YOU need to make sure happen. Not meeting the MDTs for water supply and sanitation will severely undermine parallel poverty reduction initiatives including that of halving the proportion of people living on under $1 dollar a day.

For further information about this MDT calculation, and to get a copy of the spreadsheet it is based on, contact the authors at WaterAid Tanzania, Policy policy@wateraidtanzania.org

References
i. http://esa.un.org/unpp
iii. The planned costs for the scheme have been revised upwards from $84 to $170 million dollars February 2005
iv. 250 people per water point
### Rural water target

<table>
<thead>
<tr>
<th>Year</th>
<th>Coverage rate %</th>
<th>Population (000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>33.7</td>
<td>19,106</td>
</tr>
<tr>
<td>2000</td>
<td>45.9</td>
<td>25,519</td>
</tr>
</tbody>
</table>

### Urban water target

<table>
<thead>
<tr>
<th>Year</th>
<th>Coverage rate %</th>
<th>Population (000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>87.4</td>
<td>4,776</td>
</tr>
<tr>
<td>2000</td>
<td>89.7</td>
<td>25,519</td>
</tr>
</tbody>
</table>

### Rural sanitation target

<table>
<thead>
<tr>
<th>Year</th>
<th>Coverage rate %</th>
<th>Population (000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>85</td>
<td>19,106</td>
</tr>
<tr>
<td>2000</td>
<td>87</td>
<td>25,519</td>
</tr>
</tbody>
</table>

### Urban sanitation target

<table>
<thead>
<tr>
<th>Year</th>
<th>Coverage rate %</th>
<th>Population (000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>85</td>
<td>4,776</td>
</tr>
<tr>
<td>2000</td>
<td>87</td>
<td>8,379</td>
</tr>
</tbody>
</table>

### Calculations

1. **MDG target**
   - 2015 Population: 30,713

2. **Population served (000s)**
   - 1990: 6,439
   - 2000: 11,713
   - 2015: 20,532

3. **Households served**
   - 1990: 1,238,216
   - 2000: 2,390,453
   - 2015: 4,562,597

4. **Change in households served**
   - 1990-2000: 1,152,237
   - 2001-2015: 2,172,134

5. **Monthly target**
   - 1990-2000: 9,602
   - 2001-2015: 12,067

6. **Additional performance required**
   - 2000-2015: 26%

### Calculation of drinking water finance needs

<table>
<thead>
<tr>
<th>Technologies required by each group of the population (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
</tr>
<tr>
<td>Point sources</td>
</tr>
<tr>
<td>Piped borehole</td>
</tr>
<tr>
<td>Piped surface</td>
</tr>
</tbody>
</table>

- **Per capita cost ($)**: 25, 50, 150
- **Future non-functionality rate**: 30, 30, 10
- **Rehabilitation cost (% of original cost)**: 50, 30, 30

### Calculation of sanitation finance needs

<table>
<thead>
<tr>
<th>Technologies required by each group of the population (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
</tr>
<tr>
<td>Basic pit</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

- **Per capita cost ($)**: 50, 250
- **Future non-functionality rate**: 50, 10
- **Rehabilitation cost (% of original cost)**: 100, 20

### Finance gap calculation

<table>
<thead>
<tr>
<th>Data required</th>
<th>$ (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Budget (development 2002/3)</td>
<td>29</td>
</tr>
<tr>
<td>Annual actual spending</td>
<td>12</td>
</tr>
</tbody>
</table>

#### Calculations

1. **Total costs**
   - **Water**: 1,436
   - **Sanitation**: 520
   - **Grand Total**: 1,956

2. **Annual finance needs**
   - from public funds for water supply: 96
   - from private households for sanitation: 35

3. **Annual public finance gap**
   - between need and budget: 67
   - between need and actual spend: 84

#### Average household size

<table>
<thead>
<tr>
<th>Year</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>5.2</td>
</tr>
<tr>
<td>2000</td>
<td>4.9</td>
</tr>
<tr>
<td>2015</td>
<td>4.5</td>
</tr>
</tbody>
</table>