INVESTMENT IN WATER AND SANITATION IN ETHIOPIA MAKES GOOD ECONOMIC SENSE

This briefing note, intended for the Ethiopian Ministry of Finance, sets out the case for increased investments in water supply and sanitation and higher prioritization for the sector when budget allocation decisions are made. The need for water and sanitation is fundamental to all citizens, and increased coverage of these essential services will significantly contribute to population welfare as well as the wealth and stability of Ethiopia.

Figure 1: Cost, as a proportion of selected African countries’ annual GDP, of not investing in improved sanitation


The impact of poor sanitation on Ethiopia’s GDP is expected to be significant

FAILURE TO INVEST HAS MASSIVE COSTS

Economic studies conducted in Africa have shown that impacts resulting from poor sanitation and hygiene cost the economies between 0.9% and 2.4% of annual Gross Domestic Product (GDP)\(^3\). This translates approximately US$ 10 per capita per year. These figures reflect the a) adverse health effects associated with poor sanitation and water supply, b) costs of treating these health problems, c) loss of productivity that results when individuals are sick and others have to care for them, and d) time spent to access services (see Figure 1). These estimates do not include the costs associated with environmental impacts (e.g. polluted water) and the adverse impacts on tourism and business.

An important contributor to these costs is child mortality: the World Health Organization (WHO) estimates that diarrheal diseases caused the deaths of around 85,000 children under five years old in Ethiopia in 2008. The indirect effects of malnutrition – to which poor water and sanitation contribute 50% according to WHO – cost a further 3,800 lives. Malnutrition is widespread in Ethiopia, as evidenced by high rates of moderate and severe stunting and underweight in children under five: 51% and 12%, respectively\(^5\). Studies have shown that malnutrition leads to lower school productivity and work productivity from impaired cognitive function and learning capacity\(^6\).

WATER AND SANITATION ALSO OFFER NON-MONETIZED BENEFITS

There are also other benefits which create powerful arguments to invest in water and sanitation: health cost-effectiveness, safety and security, less water pollution, greater dignity and equality between men and women, nutrient reuse, tourism, and business.

In Africa, the cost of basic water and sanitation has been estimated at US$ 534 per Healthy Life Year gained\(^7\). When a cost per Healthy Life Year gained is below three times the GDP per capita of a country, the intervention is deemed by the WHO as a cost-effective use of health budgets. In Ethiopia, where GDP per capita is US$ 345, a strong argument exists for investing health budgets in water and sanitation. When, in addition to improving access to water supply, interventions are added to improve water quality by treating it at the point of use against malaria and HIV/AIDS, hence water and sanitation promote social equality and economic growth.

Other benefits of improved water and sanitation rarely captured in economic studies are ‘intangible’ impacts, so-called because they are difficult to measure. These include dignity, comfort, privacy, security, and social acceptance. Water and sanitation at schools can improve school enrolment, attendance and completion, and at the workplace can increase female participation in the workforce. Hence water and sanitation promote social equality and economic growth.

Emerging evidence suggests that if a country like Ethiopia has a reputation for poor environment, polluted water and an unhealthy workforce, it can affect its ability to earn foreign currencies, and hence hinder economic growth\(^8\). Furthermore, as the effects of climate change are felt – with increased predictions of extremes such as flooding and droughts – it will become even more important to invest in resilient water supply and sanitation systems.

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\(^2\) Tracking progress on child and maternal nutrition. A survival and development priority. UNICEF. 2009.


\(^7\) Healthy Life Years (HLY) are defined as ‘a year of life lived in full health’. They make it possible to compare different health interventions.

IMPROVEMENTS TO SANITATION AND WATER YIELD MASSIVE RETURNS ON INVESTMENT

Economic returns on water and sanitation projects are highly favourable (see Figure 2). Average rates of return exceed 20% annually on over 60 projects of development banks in Africa. Several projects supported by the development banks in Ethiopia have high rates of return, with 15% in an urban project, 20% in the nation’s capital Addis Ababa, 21% for a national programme and 38% in a rural project. Such rates of return are attractive for sectors which are not traditionally seen as productive.

A new global study estimates the benefit-cost ratio of investments in water supply and sanitation for Ethiopia, which took into consideration health improvements and time savings. The economic benefits are estimated to be 1.7 times the costs for water supply and 3.0 times the costs for sanitation (see Figure 3). Indeed, the case for investment becomes even more compelling when one considers that these results underestimate economic benefit as they do not take into account a range of other health and non-health benefits associated with improved water and sanitation.

The average economic rate of return on sanitation and water exceeds 20 per cent.

Figure 2: Annual economic rates of return (ERR) on sanitation and water programmes in selected African countries (%)

Figure 3: Benefit-cost ratios (BCR) of sanitation and water programmes in Ethiopia

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SIGNIFICANT INVESTMENT IS NEEDED IN SANITATION AND WATER SUPPLY COVERAGE IN ETHIOPIA

Large numbers of people in Ethiopia lack access to basic sanitation and water supply. One of the UN Millennium Development Goal (MDG) targets is to halve, by 2015, the number of people who lack access to these services. According to data compiled by the WHO/UNICEF Joint Monitoring Program (JMP), the rate of progress towards achieving this target in Ethiopia is such that the water target will be reached but that the sanitation target will not be reached by 2015\(^6\). The Government of Ethiopia’s own targets for 2015 are considerably more ambitious, at 98.5% coverage of both water supply and sanitation in 2015.

Since 1990, there has been little change in sanitation coverage in Ethiopia – despite the fact that sanitation coverage has increased by 8 percentage points, this is insufficient to meet the targets. The results of recent national sanitation programmes has not translated into increased coverage due to lack of up-to-date national surveys, and also because JMP does not count ‘basic’ technology options. Based on the most recent estimates of sanitation coverage in 2010, Ethiopia needs to increase sanitation coverage from 29% to 61% in urban areas, and from 8% to 51% in rural areas to meet the MDG sanitation target in 2015. In rural areas access to safe water needs to increase by 3 percentage points, and in urban areas the water target has been reached (see Figure 4).

Even if Ethiopia meets the MDG target in both rural and urban areas, 49% of the rural population and 39% of the urban population would remain without access to improved sanitation; and 50% of the rural population would still be using unimproved sources of drinking water. Equity in achieving the MDG targets is important, not only because the poorest households are least able to invest in their own facilities, but also because they have the most to gain due to their heightened vulnerability to adverse health outcomes. Therefore, additional efforts and resources are needed to ensure the poorest and most vulnerable are reached.

GOVERNMENT INVESTMENT IS AN IMPORTANT PART OF THE FINANCING OF WATER AND SANITATION

Investment needs in Ethiopia are sizable, and considerably greater than current government spending. However, recently there has also been a significant increase in financial resources committed to the sector.

A number of studies have sought to estimate how much it costs to improve access to sanitation and water supply. In 2009/10, the Ministry of Water Resources of the Government of Ethiopia estimated capital expenditure financing needed to achieve the government’s own water targets at US$ 260 million per year\(^7\). Financing estimates were not made for sanitation. The Ethiopia Country Status Overview in 2009-10\(^8\) estimated the annual capital expenditure requirements for sanitation are US$ 795 million per year.

Compared to current or anticipated financing, a major share of the costs of meeting the water target is expected to be met, with a significant contribution (US$ 169 million annually) anticipated from domestic and external public sources. Households are expected to contribute US$ 73 million. Hence the capital expenditure deficit is US$ 24 million annually.


\(^7\) The rural – urban target breakdowns presented here are not official JMP data, but are used to indicate what progress is needed in rural and urban areas separately to meet the global MDG target. National targets are also provided for comparison.

\(^8\) Plan for Accelerated and Sustainable Development to End Poverty (PASDEP-2); 2009/10.

Sanitation, on the other hand, is anticipated to receive under US$ 50 million annually from public sources, and hence the annual shortfall from public sources of US$ 745 million will need to be met from household sources. In sanitation, the national policy is one of increasing coverage through promotion of sanitation and hygiene behavioural change, rather than by offering public subventions for household sanitation facilities.

As noted by the Civil Society Organisations (CSO), the assumptions of public sources of investment funds may be overoptimistic given the low levels of budget utilization in donor programmes. In recent years the combined utilization rate amongst major donor programs was below 50 percent.

These cost estimates are for meeting the Government of Ethiopia’s own target of 98.5% coverage by 2015. This requires improved access to be extended to an additional 6.65 million water users per year and 10 million sanitation users per year, mainly in rural areas. The costs of meeting the MDG target would be considerably lower, given that in rural areas the target is approximately 50% for both water supply and sanitation.

Importantly, as well as hardware costs, financial planning has to take into account program costs (program establishment, population sensitization, monitoring, evaluation) which can be significant, but are largely excluded from the above estimates due to a lack of data. A rough estimate made by the CSO puts the total anticipated investment for sanitation promotion at around US$50 million per year. These funds will need to be safeguarded, and utilized efficiently, to successfully promote sanitation amongst the rural population remaining without sanitation access.

In addition, future operation and maintenance commitments need to be considered in selecting interventions to invest in now, given the high percentage of system failure when operations and management costs are not considered. The estimated annual operating expenses of US$ 104 million for sanitation and US$ 82 million for water will need to be met largely by the user. If any of these expenses have to be covered from public budgets it will reduce the amount available for capital expenditure.

**Some Wash Interventions are More Cost-Effective Than Others**

Recent evidence shows variation in economic returns from different technologies and approaches. For instance, in rural areas, improved pit latrines provide the best value for money, as they are generally low-cost, long-lasting, and provide a range of quantifiable benefits. The findings from the World Bank Economics of Sanitation Initiative (ESI) showed that pit latrines had a more favourable benefit-cost performance than septic tanks in rural areas of selected countries. Findings were similar in urban sites of the same countries.

The ESI study found that technologies that ensure the complete isolation or treatment of human excreta have the highest health and environmental benefits. However, these technologies usually cost more. Furthermore, when selecting sanitation solutions, decision makers should bear in mind that well-functioning, simple technologies can provide better services than poorly performing “high-tech” systems. Hence capacity building should focus on service delivery and not just technology, and investments should only be made in higher level technologies if the funding mechanism is available to operate and maintain the service over the full life-span of the technology.

**Recommendations**

The recommendations for Ethiopia are as follows:

1. **Policy**: Implement policies that lead to increased public and private spending on water and sanitation services, especially sanitation, in areas where the country is most off-track. This includes a focus on increasing demand for services among the population through sensitization and marketing campaigns, which will encourage households to invest.

2. **Scaling-Up**: Focus scaling-up efforts on the most affordable and sustainable services that have proven health and environmental benefits, and for which there is demand.

3. **Sustainability**: Ensure funds and mechanisms are in place for adequate operations and maintenance in order to sustain services, avoid wasted investments and maximize cost-effectiveness of services.

4. **Targeting**: Provide additional support to increase access for the poorest and most vulnerable households, to ensure socio-economic benefits are spread equitably among the population.

5. **Maximizing Efficiency**: Seek to maximize efficiency gains through large-scale implementation, ongoing monitoring and evaluation, and improved knowledge management.