

Why Sanitation and Water Supply are Important to Growth and Development in Mauritania

This briefing note for the Mauritania Ministry of Finance shows that **water supply and sanitation (WSS) need urgent attention**. Failure to finance water and sanitation is costing the country a notable portion of its GDP. While data are still incomplete, this briefing note demonstrates that even a little **spending on water supply and sanitation reaps enormous rewards, both in terms of health and economic growth**.

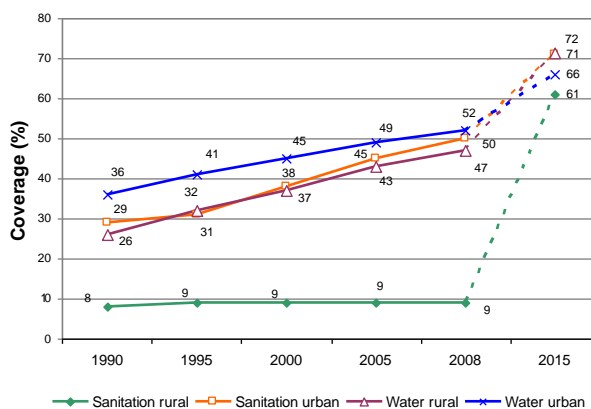
Water supply and sanitation coverage in Mauritania requires attention

According to data compiled by the WHO/UNICEF Joint Monitoring Program (JMP), progress to achieve the sanitation and water target in Mauritania is off-track. Based on the most recent coverage data in 2008, **Mauritania has seven years to raise sanitation coverage from 50% to 72% in urban areas, and from 9% to 61% in rural areas**. The JMP does not count 'shared facilities' towards achievement even if they are of an acceptable technology. If shared facilities in Mauritania are assumed to provide safe, convenient access to sanitation, thus a further 18% of the urban population are covered, and Mauritania would be on track to achieving the urban sanitation MDG target, **but far from achieving the rural sanitation target**.

However, **even if Mauritania meets the MDG target in both rural and urban areas, 39% of the rural population and 28% of the urban population would still be without access to improved sanitation**.

Access to drinking water, on the other hand, has made more rapid progress since 1990 towards the MDG target in both rural and urban areas, but is still off-track. Therefore, continued investments are needed in water supply to maintain existing facilities and increase coverage.

Mauritania's progress towards the sanitation and water MDGs 1990-2008 and progress required to achieve the MDGs.



Money Spent On Water And Sanitation Pays Dividends

Based on the average cost of a latrine and water supply, it is estimated that Mauritania requires a **total expenditure of UM 56 billion (US\$ 220 million) to meet the water and sanitation MDG targets, of which UM 44 billion (US\$ 170 million) is for sanitation**. This equates with roughly MRO 18,000 (US\$ 68) per capita over a 10 year period, or MRO 18,000 (US\$ 6.8) per capita annually.

Investment needs in Mauritania are sizable, especially compared to current spending. Mauritania will need to significantly increase investments in order to improve sanitation. To meet the water MDG target, spending is still needed to maintain, operate and replace existing services. However, **investment in water and sanitation not only provides basic services, but also reaps benefits well beyond the water and sanitation sector**. Investments in water and sanitation in fact are investments in health, education, the environment and poverty reduction.

A significant investment increase is required in Mauritania in order to achieve the WSS MDGs.

Scientific studies show that access to **water and sanitation not only improve quality of life, but also bring tangible health, environmental and economic benefits, and contribute to poverty reduction**. The rate of return of spending on water and sanitation can exceed other public investments such as in infrastructure, transport, health or education.

Failure to invest can be costly in the long-run

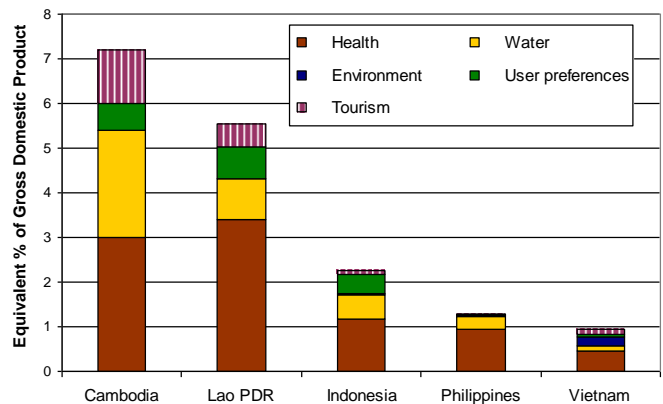
Economic research on water supply and sanitation is not commonly done, therefore findings must be borrowed from other countries. A World Bank country environmental analysis conducted in Ghana has shown that health costs resulting from poor water, sanitation and hygiene cost the country the equivalent of **2.1% of annual Gross Domestic Product (GDP)**. An important contributor to this figure is child mortality: in Mauritania WHO estimates 2,000 deaths of children under five caused by diarrheal disease in the year 2004. Further, studies demonstrate that poor water and sanitation significantly contribute to malnutrition which leads to lower school productivity and work productivity from impaired cognitive function and learning capacity. Rates of moderate and severe stunting and underweight are high in children under five in Mauritania, at 32% and 24%, respectively. The indirect effects of malnutrition – to which poor water and sanitation contribute 50%, according to W.H.O. - cost even more than the direct effects, taking the total health cost to **5.2% of annual GDP in Ghana**.

As well as valuing health-related productivity and loss of life associated with inadequate WSS, other economic impacts have been valued for countries other than Mauritania. These costs include treatment seeking for illness; time to access unimproved drinking water and sanitation; and water pollution. The latter includes the cost of water treatment to ensure the safety of hauled and piped water, or access to safer but more distant water sources.

Not every country has the luxury of a full economic impact study on poor sanitation. World Bank studies from Southeast Asia show the non-health costs of poor sanitation are comparable with the health costs, contributing MRO 5,100 (US\$ 20) of the total annual MRO 8,200 (US\$ 32) per capita losses in Cambodia, and MRO 3,900 (US\$ 15) of the total annual MRO 8,800 (US\$ 34) per capita losses in Lao PDR (see figure). **The results are indeed alarming: the total economic losses associated with poor sanitation are equivalent to 7.2% of annual GDP in Cambodia and 5.4% of annual GDP in Lao PDR.**

The graphic shows the equivalent cost, as a proportion of annual GDP, of not investing in improved sanitation in 5 countries of Southeast Asia.

Source: World Bank



As well as the direct household effects of poor sanitation, poor water and sanitation can also have larger scale effects. First, it can impact on **foreign tourists** choosing Mauritania as their holiday destination. Second, it can affect business and play an influential role in where **foreign businesses** invest their money. Emerging evidence from Asia suggests that a country's reputation of poor environment, polluted water and an unhealthy workforce can affect the earning power of foreign currencies, and hence hinder economic growth. 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 WSS systems to ensure the availability and safety of the water supply, as well appropriate sanitation options that do not further stress water supplies nor pollute dwindling water resources.

The cost of WSS investment is off-set by the benefits that accrue in other sectors.

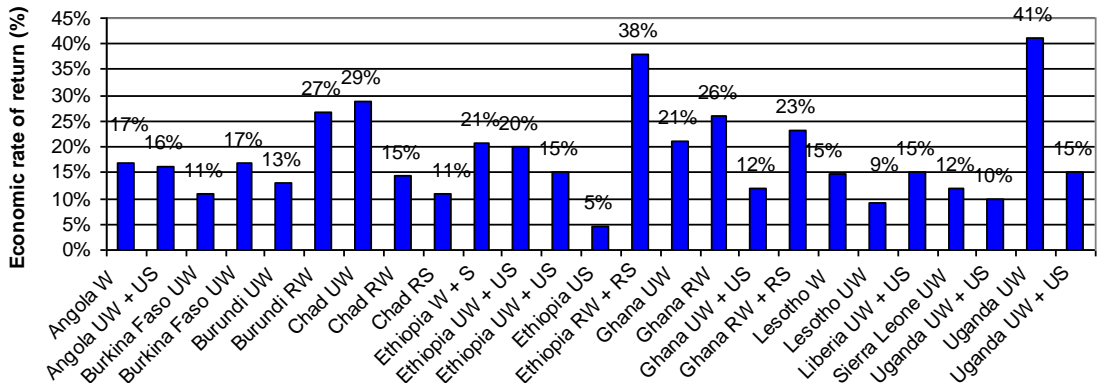
WSS services can yield a major return on investment

Water and sanitation projects in other countries had a 11-29% or more economic rate of return.

Economic returns on water and sanitation projects are highly favorable. Information on past loans from development banks is not available for WSS in Mauritania, hence evidence from other countries is cited here. From the World Bank, completion reports were conducted for two urban water projects in Burkina Faso – in Ouagadougou the **economic rate of return** was **11%** and in four other cities it was **17%** (2009). In Chad, project appraisals were conducted for N’Djaména water services rehabilitation project, with a return of **29%**. Rural WSS projects are also efficient – in Chad a project of African Development Funds measured economic rates of **11-15%**, and in Ghana the Millennium Challenge Corporation estimated an average return of **21%** on 11 projects. Rates of return for sanitation projects alone show rates of return of **16%** in Angola, **21%** in Ethiopia and **15%** in Uganda (see Figure below).

Global **benefit-cost studies** on water supply and sanitation for Africa, including the value of health improvements and time savings, estimated the benefit per currency unit invested was estimated at a return of **5.5** currency units or **6.6** for sanitation alone. While the results of these studies demonstrate a strong case for increased investment in water and sanitation, in fact, **these studies actually underestimate economic benefit as they include diarrheal disease only, thus excluding other positive health effects of improved water and sanitation.**

The graphic shows a high Economic Rate of Return on sanitation and drinking water projects.



Key: W – Water; S – Sanitation; R – Rural; U – Urban

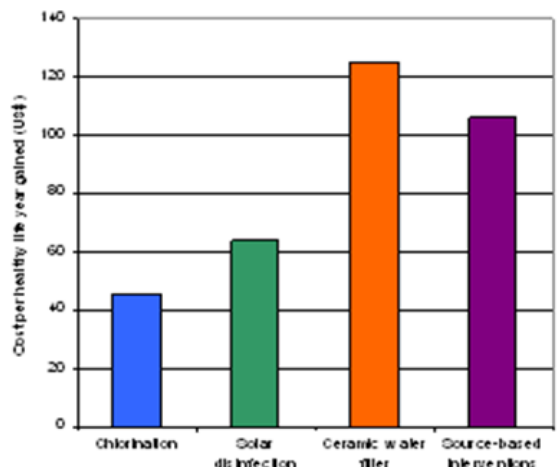
Source: Development banks

The health returns on investment in WSS are considerable

Investing in sanitation and water can help Mauritania tackle its basic economic challenges as well as improve health.

If health impacts are valued in units of Healthy Life Years (HLY), they can be compared with other health interventions. In Africa, the cost of basic water and sanitation was estimated at US\$ 510 per Healthy Life Year gained. Add ‘water treatment at the point-of-use’ and the cost reduces to US\$ 208 per HLY gained. When a cost per Healthy Life Year is below the GDP per capita of a country, **the intervention is deemed a cost-effective use of health budgets. In Mauritania, where GNI per capita is MRO 220,000 (US\$ 840), the cost per Healthy Life Year of MRO130,000 (US\$ 510) is a strong argument for investing in basic water and sanitation interventions.** Even stronger arguments can be made for including point-of-use treatment, which reduces the cost per HLY to under MRO 54,000 (US\$ 208).

In another Africa study (see graphic) rates of health return on different interventions to improve water quality were measured and cost per HLY ranges from MRO 12,000 (US\$ 46) to MRO 32,000 (US\$ 125). These rates of health return are similar to other preventive health interventions such as for malaria and HIV/AIDS.



An important role of government is to catalyze private investment.

Households are willing to pay for services when they see a benefit

Economic research indicates that households, even poor ones, are willing to pay for reliable and quality WSS services. World Bank studies in Ghana in the early 1990s estimated the average willingness to pay per month per household was roughly MRO 400 (US\$1.50) for each of water and sanitation services, which equates to a combined **annual willingness to pay of MRO 18,000 (US\$ 70)** in today's values. Furthermore, willingness to pay is enhanced when water supply has benefits beyond general household uses, in revenue-generating activities such as a small-scale household business or agriculture (irrigation). **Evidence from willingness-to-pay studies demonstrate that government investments in ensuring services are available leverage household investments. When reliable services are available, households are willing to invest themselves.**

Intangible aspects of water and sanitation are crucial in household decision making

Other benefits of improved water and sanitation rarely captured in economic studies are 'intangible' impacts, so-called because they are difficult to measure. These aspects may include dignity, comfort, privacy, security, and social acceptance. An undeniable basic need is to have a near-by, safe and private place to defecate, and this is especially true for women, the elderly, the sick and also children. As well as facilities at home, water and sanitation at schools can improve school enrolment, attendance and completion, and at the workplace can increase female participation in the urban workforce. **Hence water and sanitation promote social equality and economic growth.**

Conclusions and recommendations

Spending on water and sanitation is not only politically popular and socially beneficial, but it **makes good economic sense**. Economic evidence supports that meeting and going beyond MDG targets to achieve universal water and sanitation coverage not only improves quality of life, but also bring tangible health, environmental and economic benefits. Improving access to sanitation and water **contribute importantly to the achievement of other MDG targets.**

Sanitation and water interventions deliver economic returns of at least 5 times on investment, commonly with an annual rate of return of 20% or more. Furthermore, **WSS services are basic services that are demanded by the population, with often strong willingness to pay for these services -- when services are reliable.** As decisions are made to increase investments, an efficiency comparison of alternative water and sanitation policies, programs and technologies can assist the government to respond better to the needs of its population. Going forward, policy makers are recommended to address:

- **POLICY:** Implement **policies that lead to increased public and private spending** on water and sanitation services, especially sanitation, where progress is slowest. This includes a focus on increased population demand through sensitization and marketing campaigns, which will result in increased household investments.
- **SUSTAINABILITY:** Ensure **adequate operations and maintenance** in order to sustain services and maximize cost-effectiveness of investments.
- **SCALING-UP:** Focus scaling-up efforts on the **most affordable and sustainable services** that are demanded by the population and those that have proven health and environmental benefits.
- **TARGETING:** Provide additional support to increase **access to the poorest and most vulnerable households.**
- **MAXIMIZING EFFICIENCY:** Improve WSS delivery to the population and seek to maximize **efficiency gains through large scale implementation.**