

## Why Sanitation and Water Supply are Important to Growth and Development in Liberia

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

This briefing note for the Liberian 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. Scientific studies show that access to **sanitation and water 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 sanitation and water can exceed other public investments such as in infrastructure, transport, health or education. While data are still incomplete, this briefing note demonstrates that even a little **spending on water supply and sanitation reaps enormous rewards**.

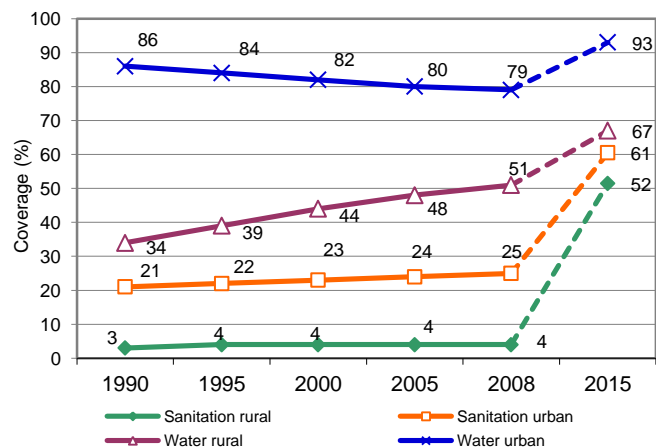
### Sanitation and water supply coverage in Liberia requires attention

According to data compiled by the WHO/UNICEF Joint Monitoring Program (JMP)<sup>a</sup>, progress to achieve the sanitation and water targets<sup>b</sup> in Liberia is off-track. Based on the most recent coverage data in 2008, Liberia has seven years to raise sanitation coverage from 25% to 80% in urban areas, and from 4% to 62% in rural areas<sup>c</sup>.

However, **even if Liberia meets the MDG target in both rural and urban areas, 38% of the rural population and 20% of the urban population would still be without access to improved sanitation**.

Access to drinking water has improved in rural areas since 1990, though progress is not sufficient to meet 67% coverage in 2015. In urban areas, there has been a decline in coverage from 86% (1990) to 79% (2008) – hence significant efforts are required to provide 93% urban water coverage in 2015.

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



### Money spent on sanitation and water pays dividends

Based on the average cost of a latrine and water supply<sup>d</sup>, it is estimated that Liberia requires a **total expenditure of LRD 21 billion (US\$ 309 million) to meet the water and sanitation MDG targets, of which LRD 18 billion (US\$ 268 million) is for sanitation**. This equates with roughly LRD 5,400 (US\$ 80) per capita over a 10 year period, or LRD 540 (US\$ 8) per capita annually<sup>e</sup>.

Investment needs in Liberia are sizable, especially compared to current spending<sup>f</sup>. Liberia will need to significantly increase investments in order to improve water and sanitation. 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.

<sup>a</sup> JMP data are presented as it reflects global monitoring of the MDGs and standardized definitions, while it is recognized that each country has its own targets and data.

<sup>b</sup> The rural – urban **target** breakdowns presented here are not official JMP, but are used to indicate what progress is needed in rural and urban areas separately to meet the overall MDG target.

<sup>c</sup> The JMP does not count 'shared facilities' towards achievement even if they are of an acceptable technology. If shared facilities in Liberia are assumed to provide safe, convenient access to sanitation, thus a further 25% of the urban population and 15% of rural population are covered, thus contributing to the achievement of MDG sanitation targets.

## Failure to invest can be costly in the long-run

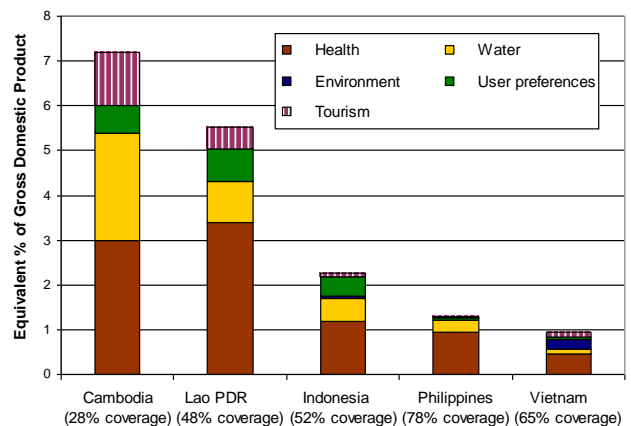
**Health costs:** Economic research on water supply and sanitation is not commonly done, therefore findings must be borrowed from other countries. A World Bank country environmental analysis conducted in Ghana has shown that health costs resulting from poor water, sanitation and hygiene cost the country the equivalent of **2.1% of annual Gross Domestic Product (GDP)**. The indirect effects of malnutrition – to which poor water and sanitation contribute 50%, according to WHO - cost even more than the direct effects, taking the total health cost to **5.2% of annual GDP in Ghana**. An important contributor to this figure is child mortality: in Liberia WHO estimates 5,400 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 Liberia, at 39% and 19%, respectively.

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

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 Liberia. 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.

**Non-health costs:** 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 LRD 1,350 (US\$ 20) of the total annual LRD 2,170 (US\$ 32) per capita losses in Cambodia, and LRD 1,020 (US\$ 15) of the total annual LRD 2,300 (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. (in brackets, sanitation coverage in 2006)*



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 Liberia 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.

<sup>d</sup>This sum will be met from a mixture of sources which include households as well as the government and donor budgets. Also, budgeting has to take into account program costs (program establishment, population sensitization, monitoring, evaluation) which can be significant, but have been excluded here due to lack of data.

<sup>e</sup>The unit costs used in the cited figures were from an Africa-wide study. Unit costs in Liberia are higher than other African countries, and hence the cited total cost figures are likely to be an underestimate.

<sup>f</sup>The government's own financing of the sector is estimated to be well below 1 percent of the total budget, while donors' contributions are mainly urban focused, but still insufficient.

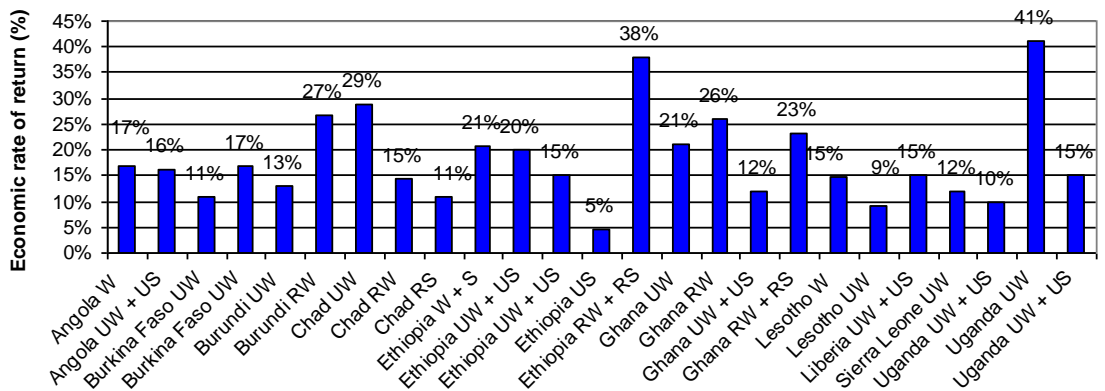
## WSS services can yield a major return on investment

**Sanitation and water projects in Liberia at least 15% economic rate of return.**

Economic returns on water and sanitation projects are highly favorable. For a project appraisal carried out for the African Development Fund for water supply and sanitation in Monrovia, the **economic rate of return** on these services was 15% per annum. In nearby Ghana, the World Bank's Second Community Water and Sanitation project was estimated to have a return of **35%** for well construction and **18%** for borehole construction. The Millennium Challenge Corporation estimated an average return of **21%** on 11 water and sanitation projects in Ghana. The Figure shows rates of return for these and other projects.

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

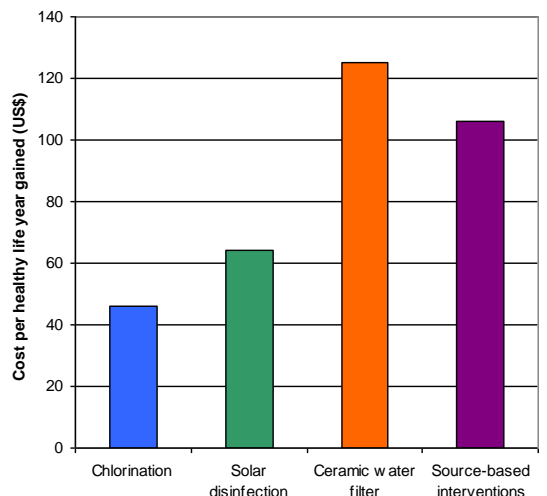
**Investing in sanitation and water can help Liberia tackle its basic economic challenges as well as improve health.**

## The health returns on investment in WSS are considerable

If health impacts are valued in units of Healthy Life Years (HLY) – defined as ‘a year of life lived in full health’ – 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 Liberia, where GNI per capita is LRD 11,500 (US\$170), **the recommendation is to select low cost interventions with major health impacts such as point-of-use water treatment** which delivers a HLY at the cost of LRD 14,100 (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 LRD 3,100 (US\$ 46) to LRD 8,500 (US\$ 125). These rates of return are deemed efficient by the GNI-criterion and 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 LRD 100 (US\$1.50) for each of water and sanitation services, which equates to a combined **annual willingness to pay of LRD 4,750 (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 funds and mechanisms for **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.**