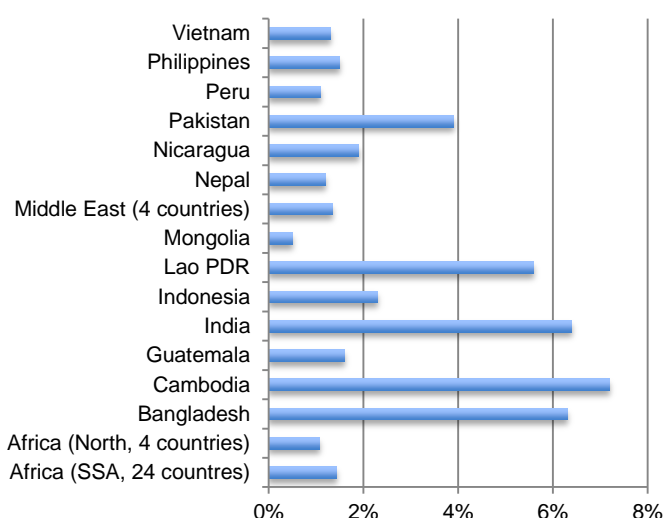


INVESTMENT IN WATER SUPPLY AND SANITATION MAKES GOOD ECONOMIC SENSE

Investing in water and sanitation reduces child mortality, addresses the consequences of undernutrition, provides a range of economic benefits and enhances dignity. The benefits outweigh the costs and the returns exceed 20%. Water and sanitation are essential building blocks of social and economic development.

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



The impact of poor sanitation on global GDP is significant

FAILURE TO INVEST HAS MASSIVE COSTS

Economic studies conducted by the World Bank over the past 15 years have shown that impacts resulting from poor sanitation and hygiene cost countries between **0.5% and 7.2% of annual Gross Domestic Product (GDP)** (see Figure 1). The World Bank Economics of Sanitation Initiative (ESI) in Asia showed costs that exceed 5% of GDP in India, Bangladesh, Cambodia and Lao PDR^a. These impacts reflect: a) the adverse health effects associated with poor sanitation (premature mortality, health care costs and loss of productivity when individuals are sick and others have to care for them), b) time spent to access services, c) the pollution of water resources, and d) adverse impacts on tourism.

In sub-Saharan Africa, 24 country studies found average impacts of 1.4% of GDP. To cover such a large number of countries, only impacts a) and b) were included, which is why the estimated impacts of GDP are lower than for the Asian countries.

An important contributor to these costs is child mortality: the World Health Organization (WHO) estimates that, in 2008, diarrheal diseases caused the deaths of around 1.25 million children under five years old and a further 1.25 million people over the age of five. The indirect effects of malnutrition – to which poor water and sanitation contribute 50% – cost a further 1 million lives. Malnutrition is widespread in the developing world, as evidenced by rates of moderate and severe stunting in children under five that exceed 30% in most low-income countries, and wasting rates exceeding 10%^b. Studies have shown that malnutrition leads to lower school and work productivity as a result of impaired cognitive function and learning capacity, contributing further economic impacts of at least 3% of GDP^c.

WATER SUPPLY AND SANITATION ALSO OFFER NON-MONETIZED BENEFITS

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

In developing regions, the cost of basic water and sanitation has been estimated at between US\$ 500 and US\$ 6,000 per year of life gained^{d,e}. In all developing countries, these costs per Healthy Life Year (HLY) gained are less than three times the annual GDP per capita, and in many cases less than the annual GDP per capita, and as such can be considered cost effective or, in the latter case, highly cost effective. Thus there are powerful arguments for health budgets to be used to improve water access, water quality and sanitation. When, in addition to improving access, the quality of the water is improved by treating it at the point of use, the cost-effectiveness is even more favorable, almost the same as that of other preventive health interventions such as those commonly used against malaria and HIV/AIDS.

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.

^a World Bank, Water and Sanitation Program. www.wsp.org

^b "Tracking progress on child and maternal nutrition. A survival and development priority". UNICEF. 2009.

^c Economic productivity effects of 3.8% of GDP in Ghana and 4.7% of GDP in Pakistan. "Environmental health and child survival: epidemiology, economics and experience". Acharya A, Paunio M and Ahmed K. World Bank: Washington DC. 2008.

^d US\$ 500 refers to WHO AFRO region, epidemiological sub-strata D and E; US\$ 1,300 for SEARO-D; US\$ 3,800 for SEARO-B region; and US\$ 5,500 for WPR-B region:

"Estimating the costs and health benefits of water and sanitation improvements at global level". Haller L, Hutton G, Bartram J. Journal of Water and Health 5:467-80. 2007.

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

GLOBAL OVERVIEW

ECONOMIC IMPACT OF WATER SUPPLY AND SANITATION

The costs of investment in better sanitation and water supply are offset by the benefits that accrue in other sectors, such as health, water resources, tourism and employment.

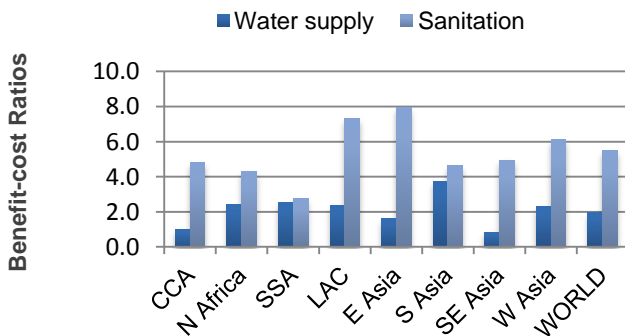
Emerging evidence suggests that if a country has a reputation for poor environment, polluted water and an unhealthy workforce, it can affect its ability to earn foreign currencies, and hence hinder economic growth^f. Furthermore, as the effects of climate change are felt – with increased predictions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

IMPROVEMENTS TO WATER SUPPLY AND SANITATION YIELD MASSIVE RETURNS ON INVESTMENT

Economic returns on water and sanitation projects are highly favorable (see Figure 2). Average rates of return exceed 20% annually on over 120 projects of development banks from 44 countries in Africa, Asia and Latin America^g. Such rates of return are attractive for a sector that is not traditionally seen as productive.

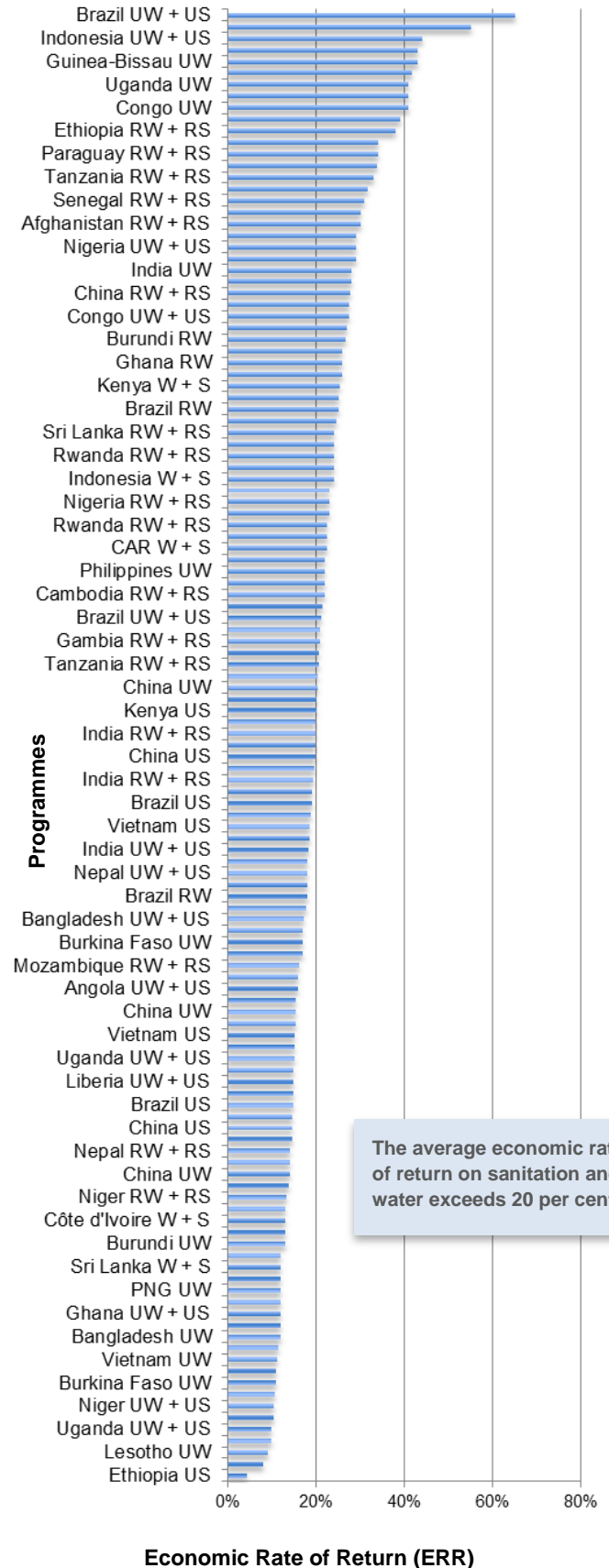
A new global study estimates the **benefit-cost ratio of investments** in water supply and sanitation for all developing countries, taking into consideration health improvements and time savings. The economic benefits are estimated to be at least double the costs for water supply and at least 5.5 times the costs for sanitation (see Figure 3)^h. For sanitation the return varies between 2.8 and 8.0 for different regions. 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 the full range of health and non-health benefits associated with improved water and sanitation.

Figure 3: Benefit-cost ratios (BCR) of water and sanitation programmes by region



Water and sanitation programmes have highly favourable benefit-cost ratios

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



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

^f“Economic assessment of sanitation interventions in Southeast Asia”. World Bank, Water and Sanitation Program. 2012.
^gBased on a special survey conducted for Sanitation and Water for All in 2012.
^h“Global costs and benefits of drinking-water supply and sanitation interventions to reach the MDG target and universal coverage”. World Health Organization. 2012.

SIGNIFICANT INVESTMENT IS NEEDED IN WATER SUPPLY AND SANITATION COVERAGE

Globally, large numbers of people remain without access to a basic level of water supply and sanitation. Almost 800 million people remain without access to an improved source of drinking water, and 2.5 billion people are without sanitation.

The UN Millennium Development Goal (MDG) targets are to halve, by 2015, the number of people who lack access to these services (compared to 1990 levels). The latest report of the WHO/UNICEF Joint Monitoring Programme (JMP)ⁱ indicates that while the water supply target has been met, there are many people who still lack clean water, and huge inequities exist. Despite some progress, the sanitation target remains off-track.

The MDG target is a rate change, so progress towards the target has also been affected by continuing high rates of population growth in many countries. Based on the most recent estimates, sanitation coverage must increase globally from 63% to 75% between 2010 and 2015 (see Figure 4) if the MDG target is to be met.

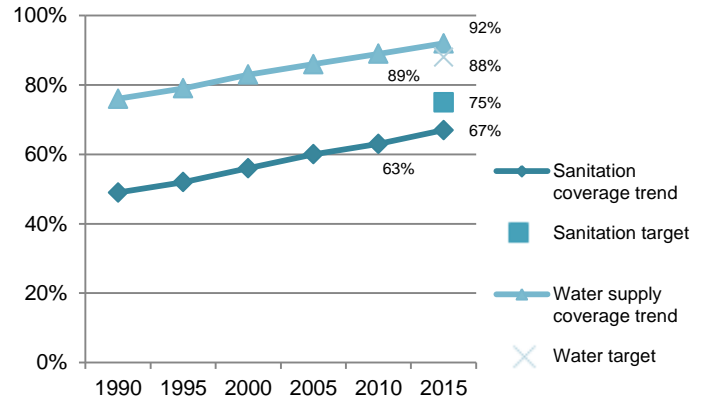
Some governments have set their own water and sanitation targets for 2015 and beyond, and in some cases have different ways of measuring them (e.g. definitions of access, data sources). Indeed, many governments have been more ambitious than the global MDG targets, so even greater efforts will be needed.

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 SUPPLY AND SANITATION

Global investment needs for drinking water supply and sanitation are sizeable, and considerably greater than current spending. In particular, global spending on sanitation will need to increase by several times in order to meet the MDG target.

Figure 4: Water and sanitation coverage, 1990 – 2010, and projection to 2015 (%)^j



Progress towards the targets for water and sanitation in many countries is insufficient and a significant increase in investment is required

A number of country and global studies have sought to estimate how much it costs to improve access to water supply and sanitation. An initiative led by the African Ministers' Council on Water (AMCOW) in 2009-10 estimated sector financing needs for 32 African countries. In both rural and urban sub-sectors of the majority of these countries, current sector financing falls significantly short of requirements.

A new global study by WHO estimates the capital and recurrent costs of reaching the MDG targets as well as the costs of achieving universal access to clean water and sanitation. Globally, between 2010 and 2015, US\$ 115 billion and US\$ 30 billion needs to be spent for sanitation and water supply respectively, if every country in the world is to reach the MDG targets^k. The main sanitation financing needs are in sub-Saharan Africa, South Asia and East Asia, while the main water financing needs are in sub-Saharan Africa and Southeast Asia. These significant levels of financing need to be met not only from government and donor budgets, but also catalyzed from household and private sector sources. Aid to drinking water and sanitation in developing countries was estimated at US\$ 8.9 billion in 2009; however, much of this is not targeted to the countries most in need or to basic services^l.



ⁱ World Health Organization and United Nations Children's Fund Joint Monitoring Programme (JMP) for Water Supply and Sanitation. Coverage estimates for 2010.

^j 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.

^k While JMP has reported that the global water supply MDG target has been met in 2010, many countries remain – especially in Africa – where the global target applied at country level has not yet been met.

^l Global Level Analysis and Assessment of Sanitation and Drinking Water (GLAAS). UN-Water, World Health Organization. 2012 Report.

As well as hardware costs, budgeting has to take into account programme costs (programme establishment, population sensitization, monitoring, evaluation). In addition, future operation and maintenance commitments need to be taken into account when choosing which solutions to implement. Systems often fail when operations and management costs are not adequately considered. Based on available costs of operation, the global study estimates that meeting the MDG targets would involve operational costs for new facilities of US\$ 13 billion for sanitation and US\$ 3 billion for water over a 5 year period^h. However, the full capital maintenance costs to ensure proper and sustained functioning of infrastructure are likely to be many times these amounts.

SOME WASH INTERVENTIONS ARE MORE COST-EFFECTIVE THAN OTHERS

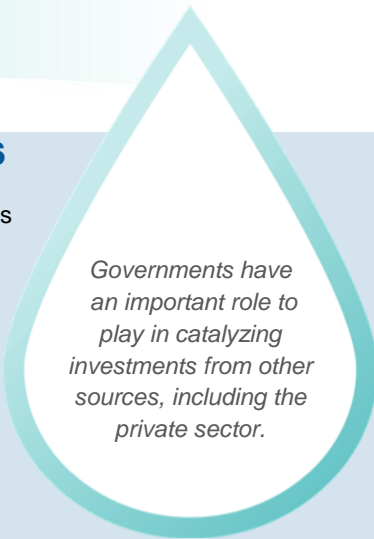
Recent evidence shows variation in economic returns from different technologies and approaches. For instance, in rural areas, improved pit latrines provide the best value for money, as they are generally low-cost, long-lasting (if properly built and maintained), and provide a range of quantifiable benefits.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



Governments have an important role to play in catalyzing investments from other sources, including the private sector.