

HEALTH IMPACT AND ECONOMIC COSTS OF POOR WATER AND SANITATION

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Summary

When compared with other major diseases, diarrheal disease ranked fourth as a cause of death, and second for burden of disease. Poor water supply, sanitation and personal and domestic hygiene ranked among the highest risk factors, being responsible for 5.3% of deaths and 6.8% of disease burden. Infectious diarrhea is the greatest contributor to the disease burden from water, sanitation and hygiene, with the most common transmission routes being the waterborne and water-washed routes.

Diseases related to poor water supply, sanitation and hygiene have significant economic impact on society. Costs are borne by the health sector, households afflicted with illness, and businesses. The greatest cost to the health sector is the cost of treating those who become ill from diarrheal disease. Private costs include not only the direct costs of treatment, but also the opportunity cost of time – in seeking care and in time taken off work – and the negative impact on household income. Furthermore, poor water and sanitation entails additional costs for households, such as treatment costs, hauling or water purchase costs, and time to access sanitation facilities.

In 2000, estimates of the cost-benefit of improving water and sanitation services show both interventions to be highly cost-beneficial. A significant proportion of the economic benefit is due to the time savings from more accessible services, which may not – in the short-term – have such significant direct financial impacts or contribute substantially to economic growth. From the health sector perspective, the cost-effectiveness of water and sanitation

interventions is in line with other essential health services. Therefore, while the welfare effects are potentially enormous, the optimal approaches to financing expanded coverage of water and sanitation services need to be established.

1. Introduction

The link between poor water, sanitation and hygiene with health has long been known. Diseases such as diarrhea, schistosomiasis, trachoma and intestinal nematode infections are still prevalent today, and suffered by a large number of people globally, mainly in developing countries. In the year 2000, there were an estimated 4 billion cases of diarrhea, with diarrheal diseases accounting for 2.2 million deaths world wide, around 5% of total deaths.

A sizeable proportion of the world's population is still living with water and sanitation facilities that are described as 'poor', and urgently needing improvement. Table 1 shows the water and sanitation supply coverage by region, while Table 2 describes which types of water and sanitation facility are considered to be poor (or "not improved") by the World Health Organization. In general, unprotected water sources, or high cost sources (such as vendor-provided or bottled water) are considered poor water supply; while bucket, public or open latrines are considered to be poor quality sanitation.

Region	Coverage (%)	
	Water supply	Sanitation
Africa	62	60
Asia	81	48
LA&C	85	78
Oceania	88	93
Europe	96	92
N America	100	100

Table 1. Water and sanitation supply coverage by region

In Africa, roughly 40% of the population still does not have access to improved water supply and sanitation. In Asia, that has over half of the world's population, 19% of the people are without access to an improved water supply and 52% are without access to improved sanitation facilities. The other regions have higher rates of access, although many millions still do not have improved access in Latin America and the Caribbean. Also, it is notable that in most regions of the world, the proportion of wastewater that is treated (either for discharge or for redistribution) is still very low, with 0% of waste water re-treated in Africa and Oceania, 14% in Latin America and the Caribbean, 35% in Asia, rising to 66% in Europe and 90% in North America.

WATER SUPPLY	SANITATION
The following technologies were considered to be "improved"	
House connection	Connection to a public sewer

Public standpipe	Connection to a septic system
Borehole	Pour-flush latrine
Protected dug well	Simple pit latrine
Protected spring	Ventilated Improved Pit-latrine
Rain water collection	
The following technologies were considered to be “not improved”	
Unprotected well	Service or bucket latrines (where excreta are manually removed)
Unprotected spring	
Vendor-provided water	Public latrines
Bottled water *	Open latrine
Tanker truck provision of water	

Table taken from World Health Organization (2000): Global Water Supply and Sanitation Assessment 2000 Report

* Not considered improved because of limitations concerning the potential quantity of supplied water, not the quality.

Table 2. Definition of “improved” water and sanitation technologies

Since at least 30 years, there have been various global initiatives to improve access to safe water and sanitation, and huge investments have been made in water supply, water protection, sanitation, and hygiene schemes. The 1980s were named as the International Drinking Water Supply and Sanitation Decade, and significant progress was made towards improving access for the world’s population. In 1990, at the World Summit for Children, a resolution on universal access to safe water and sanitation by the year 2000 was adopted, with the aim of promoting the survival, protection and development of children. During the period 1990-2000 a total investment of US\$15.7 billion was made to water supply and sanitation improvement in developing regions: US\$4.6 billion in Africa, US\$7.2 billion in Asia, and US\$3.9 billion in Latin America and the Caribbean. In 1996 developmental aid from OECD countries worth US\$2.9 billion was invested into improved water and sanitation facilities (6.6% of total aid from these countries), rising from US\$1.0 billion in 1986 (3.4% of aid).

Therefore, significant effort and resources were invested in improving access to water and sanitation in developing countries. The progress has been monitored by WHO and UNICEF, who have been collaborating in the Joint Monitoring Programme since 1990. The main purposes of the Joint Monitoring Programme are to build national capacity for the water and sanitation sector and to monitor the global status of the sector. A major achievement of this collaboration is a report published in 2000 called the “Global Water Supply and Sanitation Assessment 2000 Report”. This report presents a number of important findings by region and by country, including coverage rates, investments made, cost per capita covered, and sector performance.

Poor water and sanitation have a number of both direct and indirect impacts. The most direct impacts are through the impact on health – the most common disease is diarrhea, but several other diseases are important globally through either their high prevalence (such as

helminths in Africa) or through their severity (e.g. trachoma, leading to blindness). It is now widely recognized that disease has many impacts on society and at different levels, through the household, health and education sectors, private sector and agriculture. Therefore, by preventing disease, or treating disease at an early stage, these impacts can be avoided. Other non-health benefits should also be noted, such as the economic gains of improved water supply, and the increased convenience of closer water collection points and sanitation facilities. In addition to these direct effects, water management policies can also have impacts on other diseases, mainly vector-borne diseases. The implication of the range of these benefits is that they should all be recognized in planning the types and level of water and sanitation intervention.

This chapter provides a brief overview of the health and economic costs of poor water and sanitation, and estimates what proportion of these can be reduced by improving access.

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Biographical Sketch

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