Lesson 5: Importance & Benefits of Sanitation

5.0 Lesson Overview

»Access to safe water is a fundamental human need and therefore a basic human right.«

(Kofi Annan, United Nations Secretary General; today he would add "sanitation"!)

Keywords:

MDGs = Millennium Development Goals
Benefits of sanitation development
Health
Economic benefits
Links to environment
Environmental burden

Sanitation and the "Millennium Development Goals"

It is important to emphasize that water and sanitation are essential for each of the Millennium Development Goals, as they affect all forms of social and economic human development. Selected examples of the ways in which domestic water supply and sanitation and water resources management and development contribute to the MDGs can be found in the table below:

5.1 Links to the «Millennium Development Goals» (MDGs)

Selected examples of the ways in which domestic water supply and sanitation and water resources management and development contribute to the MDGs:

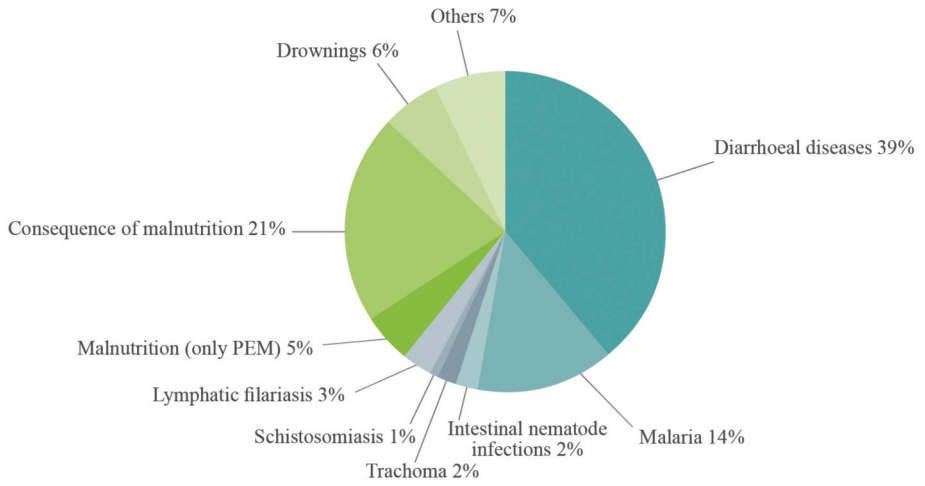
It is important to emphasize that water and sanitation are essential for each of the Millennium Development Goals, as they affect all forms of social and economic human development. They link as well to environment.

MDGs and relevant Targets	Contributions of domestic water supply and sanitation	Contributions of sound water resources management and development
Poverty To halve the proportion of the world's people whose income is less than $1/day	• Household livelihood security rests on the health of its members; adults who are ill themselves or who must care for sick children are less productive. • Illnesses caused by unsafe drinking water and inadequate sanitation generate health costs that can claim a large share of poor households' income. • Time spend collecting water cannot be used for other livelihood activities.	• Water is a factor of production in agriculture, industry and other economic activities that provide livelihoods for poor people. • Investments in water infrastructure can be a catalyst for local/regional development. • Reduced ecosystem degradation and reduced vulnerability to water-related disasters make livelihood systems of the poor more secure.
Hunger To halve the proportion of the world's people who suffer from hunger	• Healthy people are better able to absorb the nutrients in food than those suffering from water-and-sanitation-related diseases, particularly worms, which rob their hosts of calories.	• Water is a direct input to irrigation for expanded grain production. • Reliable water is necessary for subsistence agriculture, home gardens, livestock, tree crops. • Fish, nuts, and other foods gathered in common property resources depend upon quality and quantity of water in ecosystems. • Cheaper food prices reduce urban hunger.
Primary Education To ensure that children everywhere complete a full course of primary schooling	• Improved WSS services relieve girls from water fetching duties, allowing them to attend school. • Reduced WSS-related illness, including injuries from water-carrying, improve school attendance, especially for girls. • Having separate sanitation facilities for girls in schools increases their school attendance, especially after menarche.	• Improved water management reduces the incidence of catastrophic events like fl oods that interrupt educational attainment.
Gender Equality To ensure that girls and boys have equal access to primary and secondary education	• Reduced time, health, and care-giving burdens from improved water services give women more time for productive endeavors, adult education, empowerment activities, leisure. • Water and sanitation facilities closer to home put women and girls at less risk for sexual harassment/ assault while gathering water and searching for privacy. • Higher rates of child survival are a precursor to the demographic transition to lower fertility rates; having fewer children reduces women's household responsibilities and increases their opportunities for personal development.	• Community-based organizations for water management can improve social capital of women by giving them leadership and networking opportunities and building solidarity among them.

(Source: Achieving the Millennium Development target for water supply and sanitation, UN Millennium Project Task Force on Water and Sanitation, Final Report, 2005)

5.2 Sanitation Links to Health

DISEASES CONTRIBUTING TO THE WATER-, SANITATION- AND HYGIENE-RELATED DISEASE BURDEN[a]



PEM: protein–energy malnutrition

[a] In disability-adjusted life years, or DALYs.

TABLE 1: SUMMARY STATISTICS ON DEATHS AND DISABILITY RELATED TO WATER, SANITATION AND HYGIENE IN 2002

DISEASE OR INJURY	DEATHS						DALYS[a]					
	Total		Children 0–14 years		Developed countries	Developing countries	Total		Children 0–14 years		Developed countries	Developing countries
Population ('000)	6 224 985		1 830 140		1 366 867	4 858 118	6 224 985		1 830 140		1 366 867	4 858 118
	('000)	%[b]	('000)	%[b]	('000)	('000)	('000)	%[b]	('000)	%[b]	('000)	('000)
Total deaths or DALYs	57 029		11 945		13 430	43 599	1 490 126		544 534		213 574	1 276 552
Total WSH-related	3 575		3 011		73	3 503	135 748		117 789		1 861	133 887
% of total deaths or DALYs	6.3%		25%		0.5%	8.0%	9.1%		22%		0.9%	10%
Diarrhoeal diseases[c]	1 523	42.6	1 370	45.5	15	1 507	52 460	38.6	48 830	41.5	648	51 812
Intestinal nematode infections[d]	12	0.3	8	0.3	0	12	2 948	2.2	2 884	2.4	3	2 945
Malnutrition (only PEM)[c,e]	71	2.0	71	2.4	0	71	7 104	5.2	7 104	6.0	83	7 021
Consequences of malnutrition[c,e]	792	22.1	792	26.3	9	783	28 475	21.0	28 475	24.2	181	28 294
Trachoma[d]	0	0.0	0	0.0	0	0	2 320	1.7	13	0.0	0	2 319
Schistosomiasis[d]	15	0.4	0	0.0	0	15	1 698	1.3	560	0.5	1	1 697
Lymphatic filariasis[d]	0	0.0	0	0.0	0	0	3 784	2.8	1 211	1.0	1	3 783
Subtotal water supply, sanitation and hygiene	2 413	67.5	2 241	74.4	24	2 389	98 789	72.8	89 077	75.6	918	97 871
Malaria[e]	526	14.7	482	16.0	0	526	19 241	14.2	17 984	15.3	11	19 230
Onchocerciasis[e]	0	0.0	0	0.0	0	0	51	0.0	10	0.0	0	51
Dengue[e]	18	0.5	14	0.5	0	18	586	0.4	512	0.4	0	586
Japanese encephalitis[e]	13	0.4	7	0.2	0	13	671	0.5	459	0.4	0	671
Subtotal water resource management	557	15.6	502	16.7	0	557	20 550	15.1	18 965	16.1	12	20 539
Drownings[e]	277	7.7	106	3.5	33	244	7 871	5.8	3 845	3.3	736	7 135
Subtotal safety of water environments	277	7.7	106	3.5	33	244	7 871	5. 8	3 845	3.3	736	7 135
Other infectious diseases[e,f]	328	9.2	162	5.4	15	312	8 538	6.3	5 902	5.0	196	8 343

Source: Safer Water, Better Health; Costs, benefits and sustainability of interventions to protect and promote health; http://www.unwater.org/downloads/9789241596435_eng.pdf

Globally, improving water, sanitation and hygiene has the potential to prevent at least 9.1% of the disease burden (in disability-adjusted life years or DALYs, a weighted measure of deaths and disability), or 6.3% of all deaths (Table 1).

DALY: disability-adjusted life year; PEM: protein–energy malnutrition; WSH: water, sanitation and hygiene. Note that numbers may not add up as a result of rounding.

a DALYs are a weighted measure of deaths and disability.

b Percentage of all deaths/DALYs attributable to WSH related risks.

c Data further validated by Comparative Risk Assessment methods

d Comparative Quantification of Health Risks

e Not a formal WHO estimate; data based on literature review and expert survey

f Not attributable to one group alone.

letters refer to table 1, see page 1 - 5 - 2.

Some examples of the impact of improved Sanitation and Hygiene on reducing waterborne diseases:

Diarrhoea and Cholera

- 1.8 million People die every year from diarrhoeal diseases (including cholera);
- 88% of diarrhoeal disease is attributed to unsafe water & sanitation
- **Improved sanitation reduces diarrhoea morbidity by 32%**

Schistosomiasis

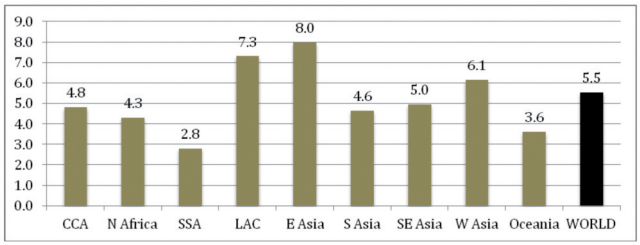
- An estimated 160 million people are infected with schistosomiasis.
- Ten of thousands of deaths every year, mainly in sub-Saharan Africa.
- It is strongly related to unsanitary excreta disposal
- **Basic sanitation reduces the disease by up to 77%**.

Intestinal helminths (Ascariasis...)

- 133 million people suffer from high intensity Intestinal helminths infections;
- These diseases cause around 9400 deaths every year.
- **Access to safe water and sanitation facilities and better hygiene practice can reduce morbidity from ascariasis by 29%.**

5.3 Economic Benefits of Sanitation Improvement

Summary results for attaining universal access to sanitation are shown in the figure below. The benefit-cost ratio (BCR) for the necessary interventions varies from 2.8 in Sub-Saharan Africa region to 8.0 in East Asia. The global economic return on sanitation spending is US$ 5.5 per US dollar invested.



Benefit-cost ratios of interventions to attain universal access of improved sanitation, by region (2010).

Source: Global costs and benefits of drinking-water supply and sanitation interventions to reach the MDG target and universal coverage, WHO, 2012

Total benefits include time savings due to closer sanitation facilities, productive and educational time gains due to being less ill from diarrhoea, and health sector and patient savings due to less treatment for diarrhoeal disease.

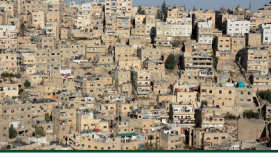
In **Tanzania** for example an annual investment of USD 20.5 million would achieve the sanitation target with potential economic benefits to the health sector alone of USD 15.4 million each year and more than 1.5 million diarrhoea cases averted every year

In **Vietnam** an annual investment of USD 96.7 million would avert more than 4 million cases of diarrhoea alone, and achieve potential savings in the health sector of over USD 66.7 million.

Negative economic consequences due to inactivity in sanitation can be the loss of fishery resources, tourism, biodiversity, real estate values and the higher cost of water production.

5.4 Sanitation Links to Environment

Waste water flowing directly into aquatic systems (streams, rivers, lakes, seas), particularly in the context of urban areas, presents a variety of concerns and hazards in terms of environmental pollution and exposing millions of children (and adults) to disease.



In extreme cases (which are not uncommon in developing countries) the receiving water can become **seriously deoxygenated, even anaerobic, with a literally deadly effect on aquatic life, and on the lives of those who need the polluted water for domestic use.**

In this context, about **90% of sewage and 70% of industrial waste in developing countries** are discharged untreated into watercourses, often polluting the usable water supply.

Improved sanitation reduces the environmental burden and increases the sustainability of environmental resources.

Further studies / Secondary readings

You may find the following videos, readings, and links helpful to give you better understanding about this lesson's topic. Although it is relevant material, the study is not obligatory to complete the e-Learning lesson successfully.

- ***Safer Water, Better Health;***

  Costs, benefits and sustainability of interventions to protect and promote health

  This document summarizes the evidence and information related to water and health in a broad sense - encompassing drinking-water supply, sanitation, hygiene, and the development and management of water resources. It collects the ingredients that support policy decisions, namely the disease burden at stake, the effectiveness of interventions, their costs and impacts, and implications for financing.

  [Link: http://www.unwater.org/downloads/9789241596435_eng.pdf]

- ***Global costs and benefits of drinking-water supply and sanitation interventions to reach the MDG target and universal coverage***

  This study aims at estimating global, regional and country-level costs and benefits of drinking-water supply and sanitation interventions to meet the MDG target in 2015, and to attain universal coverage. These economic data provide further evidence to support investment in water supply and sanitation systems and services, with a focus on services that are both socially efficient and financially sustainable. The results help donors and governments of low- and middle-income countries to justify allocation of adequate budgets for such systems and services.

  [Link: http://www.who.int/iris/bitstream/10665/75140/1/WHO_HSE_WSH_12.01_eng.pdf?ua=1]