

## TRAINING FOR THE HEALTH SECTOR

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# WATER

## Children's Health and the Environment

WHO Training Package for the Health Sector

World Health Organization

[www.who.int/ceh](http://www.who.int/ceh)

WHO/HSE/PHE/AMR/08.01.01



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<<NOTE TO USER: This is a large set of slides from which the presenter should select the most relevant ones to use in a specific presentation. These slides cover many facets of the problem. Present only those slides that apply most directly to the local situation in the region.>>

Access to safe water and sanitation is a universal need and a basic human right.

This presentation will deal with the close links between children's health and the quality and availability of water.

**LEARNING OBJECTIVES**

- ❖ **To understand the global context of water availability and quality**
- ❖ **To review the major categories of water pollutants and their sources**
- ❖ **To learn about the effects of exposure to these pollutants on children's health**
- ❖ **To consider some of the options for treatment of drinking water**

<<READ SLIDE>>

## **Water**

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- ❖ **Introduction – global issues**
- ❖ **Children's special vulnerability**
- ❖ **Main contaminants**
- ❖ **Sources of contamination**
- ❖ **Water-related paediatric diseases**
- ❖ **Diagnosis and treatment**
- ❖ **Prevention, remediation, education**
- ❖ **Role of the health care provider**
- ❖ **Case studies**

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Outline of this module: main points to address

<< READ SLIDE >>

### LIQUID WATER IS ESSENTIAL FOR LIFE

❖ **Sources are renewable  
... but finite!**

❖ **70% of earth's surface is water**

- ❖ **Only 2.5% to 3% is fresh water**
- ❖ **Less than 1% is accessible**
- ❖ **Pollution and other factors further reduce access by 2/3**

❖ **1.1 billion people (1/6<sup>th</sup> of the world's population) have no access to quality drinking water**



Earth Observatory, NASA

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Liquid water is responsible for life as we know it!

Viewed from space the earth appears to be mostly water, but only 2.5% of that water is fresh, and most of that lies frozen and inaccessible.

As a result, less than 1% of fresh water is accessible in lakes, river channels and under ground.

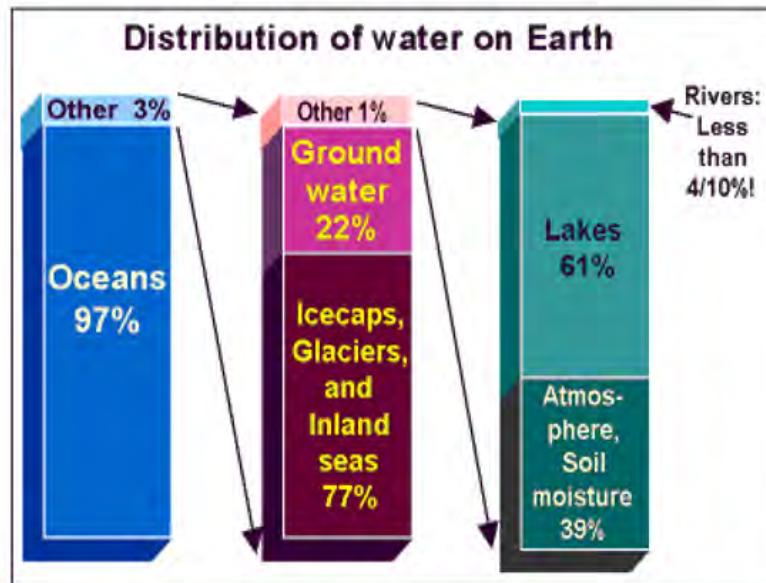
Geography, environment and pollution from human activities reduce this amount by a further two thirds, and what remains is unequally distributed around the world.

It should be noted that access to safe water, provision of sufficient supplies of water, and access to sanitation are *three* factors that together can contribute to the health and safety of the world's population. A lack of adequate supplies of good-quality water, together with poor sanitation, exacts a high health toll, particularly in rural areas, hindering both social and economic development. This makes the promotion of hygienic behaviour a high priority.

Ref:

- *Water for health – taking charge*. Geneva, World Health Organization, 2001.
- *Safer water, better health. Costs, benefits and sustainability of interventions to protect and promote health*. WHO, 2008.
- UNICEF/WHO. *Progress on drinking water and sanitation. Special focus on sanitation*. 2008.

## Water



[www.ga.usgs.gov/edu/waterdistribution.html](http://www.ga.usgs.gov/edu/waterdistribution.html)

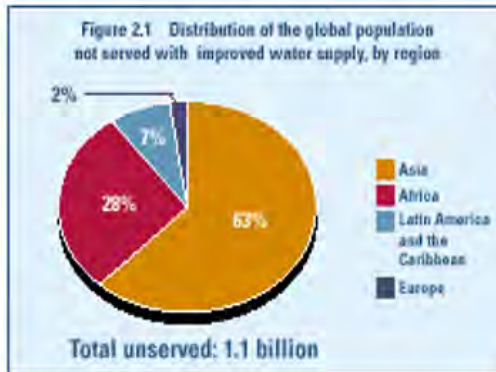
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Where is Earth's water located and in what forms does it exist?

The distribution of water is illustrated in the bar charts. The left-hand bar shows where the water on Earth exists; about 97% of all water is in the oceans. The middle bar represents the 3% of the "other" part of the left-hand bar (that portion of all of Earth's water that IS NOT in the oceans). Most (77%), is locked up in *glaciers and icecaps*, mainly in Antarctica and Greenland, and in saline inland seas. Twenty-two per cent of this portion of the Earth's water is *groundwater*. The right-hand bar shows the distribution of the "other" portion of the middle bar (the remaining 1%). Notice how rivers make up less than 4/10th of one per cent of this remaining water – yet this is where we get most of the water for our everyday use!

*This graph and the above text are in the public domain and can be found at [www.ga.usgs.gov/edu/waterdistribution.html](http://www.ga.usgs.gov/edu/waterdistribution.html)*

### SAFE WATER BY REGION: UNEQUAL DISTRIBUTION



WHO, UNICEF, 2000

#### Developing nations:

- ❖ Most stressed
- ❖ Most projected growth
- ❖ Youngest populations

This pie-chart shows that Africa and Asia are the regions most affected by the lack of safe water supplies.

Developing countries are the most stressed, as they lack safe water to serve the projected growth and have large young populations groups.

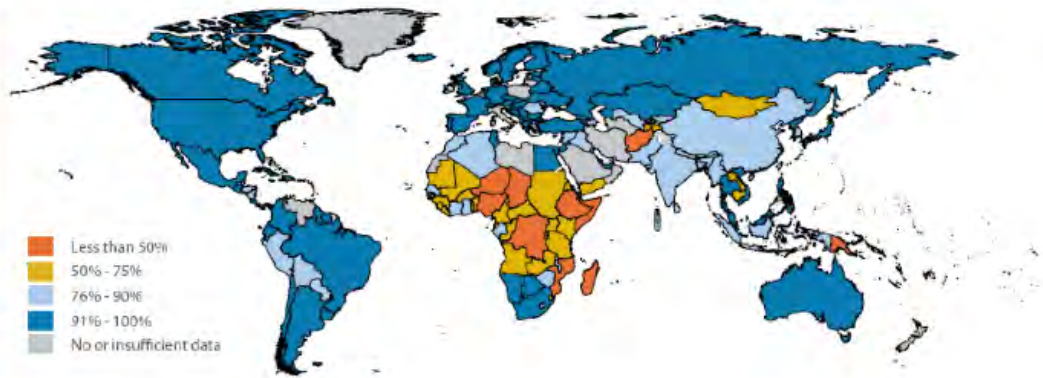
Ref:

•*Global water supply and sanitation assessment 2000 Report*. Geneva, World Health Organization, United Nations Children's Fund, 2000  
([www.who.int/docstore/water\\_sanitation\\_health/Globassessment/Global2.1.htm#2.1%20and%202.2](http://www.who.int/docstore/water_sanitation_health/Globassessment/Global2.1.htm#2.1%20and%202.2))

## Water

### DRINKING WATER COVERAGE, 2006

Countries in sub-Saharan Africa face the greatest challenges in drinking water

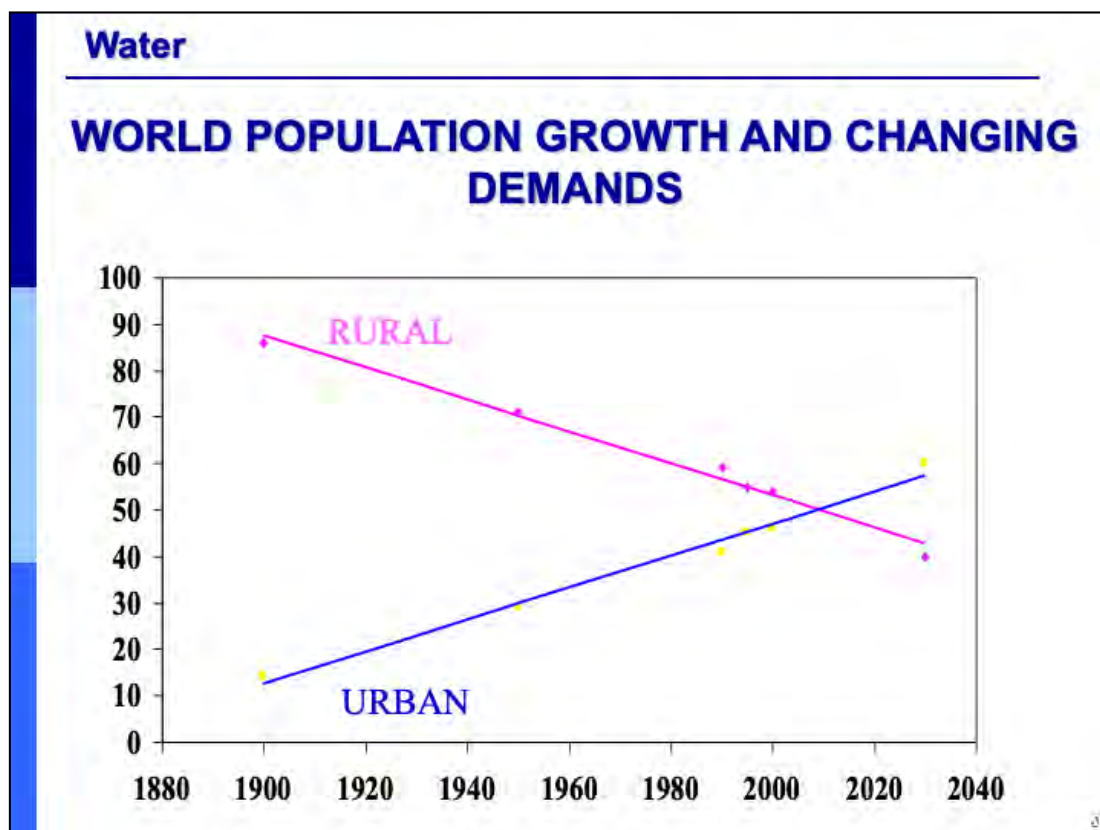


WHO, 2008

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*The world is on track to meet the MDG drinking water target. Current trends suggest that more than 90 per cent of the global population will use improved drinking water sources by 2015. Sub-Saharan Africa is making the slowest progress. Population forecasts suggest that an additional 784 million people worldwide will need to gain access to improved drinking water sources to meet the MDG target. Accelerated progress is needed especially in sub-Saharan Africa, home to more than a third of those using unimproved drinking water sources.*

*Picture and text from: WHO/UNICEF. Progress on drinking water and sanitation. WHO/UNICEF, 2008. ([www.who.int/water\\_sanitation\\_health/monitoring/jmp2008.pdf](http://www.who.int/water_sanitation_health/monitoring/jmp2008.pdf))*



At the beginning of the 20<sup>th</sup> century over 86% of humans lived rural lives, now the proportions are about 50/50 urban/rural.

Cities and mega cities continue to evolve.

It is estimated that, between 1990 and 2000, the global population increased from 5.25 billion to over 6 billion, an increase of over 15%. This total reflects a 25% increase in the urban population, and an 8% increase in the rural population. This increase meant that an additional 800 million people required access to safe water supplies, just to maintain coverage at a constant level. During this period an additional 900 million people gained access to an improved source of water, resulting in an increase in coverage from 77% to 82%. Despite these gains, there are still more than 1.1 billion people, or 1/6 of the world's population, who lack access to adequate sources of drinking-water.

The decade also saw a marked shift in the urban–rural population ratio; by 2000 the proportion of urban dwellers had risen from 43.5% to 47%, and the growth rate showed no signs of slowing. The rate of urbanization is greater in the developing world, particularly in Africa and Asia, and this, together with lower levels of access to a safe water supply, make these locations particularly vulnerable to the risk of water-related

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