

Of all the reserves of water in the world, all but 0.78 percent are tied up as either sea water or fresh water in the polar ice caps. However, this remaining amount still represents 2,360,480 cubic m of fresh water for each person in the world today. Even the rainfall alone represents 23,486 cubic m per person annually over the world's land surface. The detailed figures below give some idea of the enormous reserves of water that are available for human consumption.

Twenty per cent of water used is groundwater, and 80 per cent of water used is groundwater, and 80 per cent of water used is employed in agriculture.

The water on the earth is part of a continuous cycle (the Hydrological Cycle) with precipitation consisting of rain, snow, hail, mist and dew falling onto the earth's surface. It then either runs off over the surface into streams and rivers, or it infiltrates the ground and percolates through the ground to springs or rivers or until it reaches the ocean underground. Water in the ocean as well as surface water on the land is turned to water vapour by the heat of the sun and so evaporates into the atmosphere. Water being used by plants and crops is also transpired into the atmosphere. This water vapour then condenses into clouds and under the right atmospheric conditions falls again to earth as rain.

The water cycle which is illustrated in this Technical Brief can also be written as an equation:

$$\text{Precipitation} - \text{Evaporation} - \text{Transpiration} = \text{Run-off} \pm \text{Groundwater out flow} \pm \text{Change in storage}$$

This equation can be used to determine the water resources of individual catchment areas or river basins. This is then used to ensure that only the correct amount of groundwater is taken out in order to prevent depletion of the groundwater over a number of years.

Source: World water balance and water resources of the earth, UNESCO, 1978.

mg/litre	Calcium	Chloride	Fluoride	Iron	Magnesium	Nitrate	Sodium	Sulphate	pH
Guideline values (WHO 1984)		250	1.5	0.3		10	200	400	6.5-8.5
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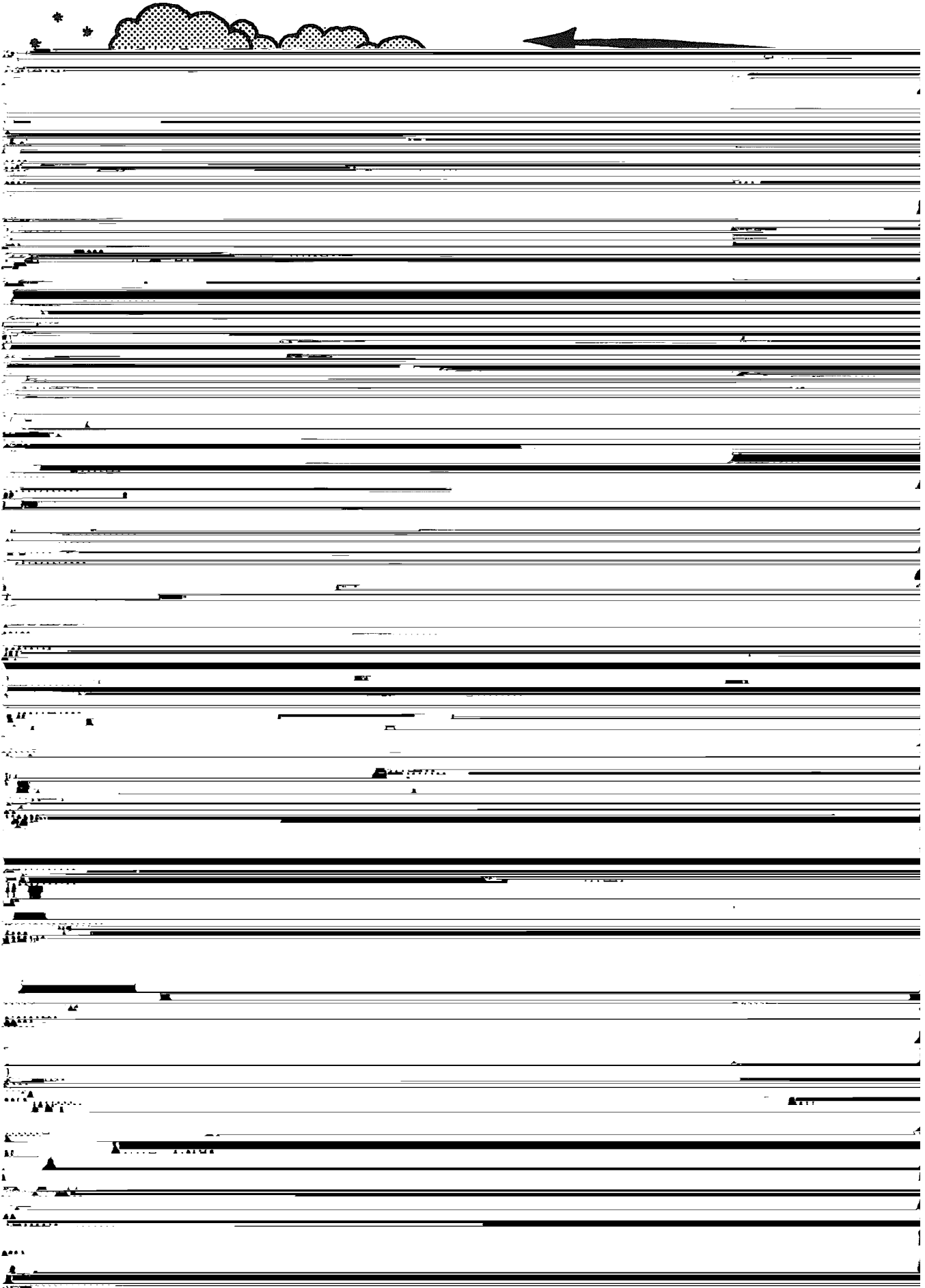
Water demand

The Water Cycle illustrates the various sources of water and shows where water may be taken out of the

	Approx water usage
> 2,500m	5
250-2,500m	15
< 250m	15-35

Source distance	Approx water usage litres per person per day
< 250m	15-50 (dependent upon distance)

The water cycle





The water cycle



12

