

## **Text D How much water in the world?**

Water is absolutely decisive for human survival, and the Earth is called the Blue Planet precisely because most of it is covered by water: 71 percent of the Earth's surface is covered by water, and the total amount is estimated at the unfathomably large 13.6 billion cubic kilometers. Of all this water, oceans make up 97.2 percent and the polar ice contains 2.15 percent. Unfortunately seawater is too saline for direct human consumption, and while polar ice contains potable water it is hardly within easy reach. Consequently, humans are primarily dependent on the last 0.65 percent water, of which 0.62 percent is groundwater.

Fresh water in the groundwater often takes centuries or millennia to build up - it has been estimated that it would require 150 years to recharge all of the groundwater in the United States totally to a depth of 750 meters if it were all removed. Thus, thoughtlessly exploiting the groundwater could be compared to mining any other nonrenewable natural resource. But the constant movement of water through oceans, air, soil, rivers, and lakes in the so-called hydrological cycle continuously replenishes groundwater. The sun makes water from the oceans evaporate; the wind moves parts of the vapor as clouds over land, where the water is released as rain and snow. The precipitated water then either evaporates again, flows back into the sea through rivers and lakes, or finds its way into the groundwater.

Looking at global water consumption, it is important to distinguish between water withdrawal and water use. Water withdrawal is the amount of water physically removed, but this concept is less useful in a discussion of limits on the total amount of water, since much of the withdrawn water is later returned to the water cycle. In the EU and the US, about 46 percent of the withdrawn water is used merely as cooling water for power generation and is immediately released for further use downstream. Likewise, most industrial uses return 80-90 percent of the water, and even in irrigation 30-70 percent of the water runs back into lakes and rivers or percolates into aquifers, whence it can be reused. Thus, a more useful measure of water consumption is the amount of water this consumption causes to be irretrievably lost through evaporation or transpiration from plants. This is called water use.

Over the twentieth century, Earth's water use has grown from about 330 km<sup>3</sup> to about 2,100 km<sup>3</sup>.

So, if the global use is less than 17 percent of the readily accessible and renewable water and the increased use has brought us more food, less starvation, more health and increased wealth, why do we worry?