

# WATER



*Drought in the  
Namib Desert,  
Namibia.*



*Geyser in  
Yellowstone  
National Park.*

**U**nlike other planets, Earth has an immense amount of water (almost 70%), which gives it its nickname: the Blue Planet. However, freshwater is just 2.6% of that volume, of which 0.6% can be used by humans! Water is the main constituent of living beings, and it is essential for all forms of life. Life without water is impossible for any organism, plant or animal, simple or complex, large or small. However, almost 1.1 billion people have no access to drinking water; shortages combined with pollution threaten both humans and animals.





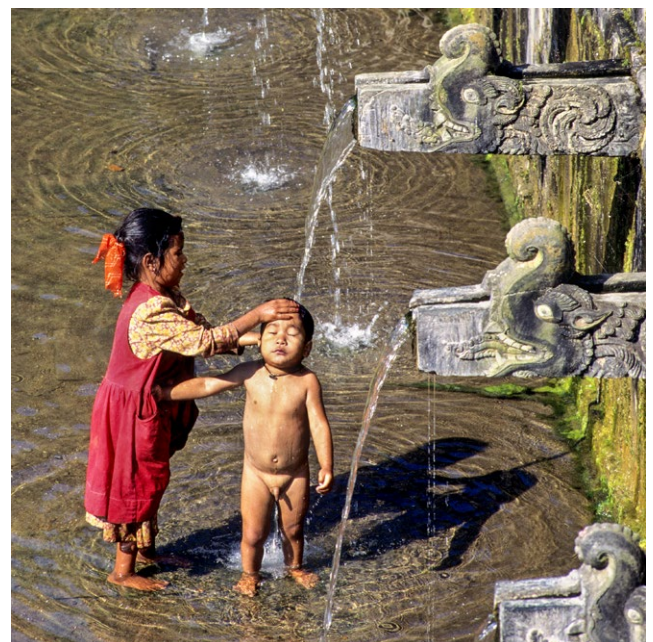
*Treatment plant, France.*

## THE WATER CYCLE

Water in the oceans, in rivers, in lakes and in the smallest puddle evaporates and rises into the atmosphere thanks to solar energy. Water molecules must absorb a significant amount of solar energy to pass from liquid to gas. That process, which is called evapo-transpiration, also affects water contained in vegetation. When the amount of water vapour becomes sufficiently large, it condenses into tiny droplets on contact with cold air layers in the atmosphere. Pushed by the winds, those droplets form clouds.

Clouds release their contents as rain, snow, or hail, all forms of precipitation. In that phase and during condensation, the energy contained in water particles is released. Water falls directly

into the oceans or on to the soil. In the latter case, water is either absorbed by plants, or it filters into the substrate to replenish under-



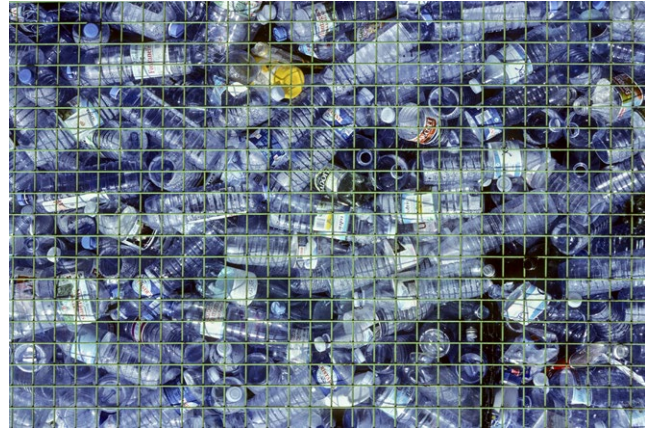
*Public baths, Kathmandu, Nepal.*



ground water tables, or its streams towards rivers that, in turn, feed the oceans. That is the water cycle.

### OVER-CONSUMPTION IN RICH COUNTRIES

Humans draw water for domestic use. A human being needs, on average, four litres of water per day to live, except in hot countries. However, every French person consumes on average 150 litres of water a day. Canadians hold the record, with 326 litres. The industrial sector is a large consumer, but the first prize goes to agriculture, which uses 80% of the world's resources. The production of one kilo of wheat requires 1 500 litres of water, as against 10 000 litres for a kilo of cotton and 100 000 for 1 kg of aluminium. In other words, water is consumed much faster than it is renewed. The increase in irrigated land



*Recycling plastic bottles.*

sometimes leads to rivers and water tables to dry up.

### PRESERVING THE RESOURCE

Faced with the threat of shortage, humans must change their behaviour and their practices.



*Giant Aldabra tortoise (Discochelys elephantina). Aldabra Atoll, Indian Ocean.*





*African elephant (Loxodonta africana). Lake Kariba, Zimbabwe.*

Where the habitat is concerned, it is possible to save up to 30% of your daily consumption by carrying out regular maintenance of your plumbing and by using economical devices. A leaking tap loses 120 litres of water a day – whereas it is often only necessary to change a seal. The same is true for public distribution networks in towns and cities, with increased supervision and maintenance of installations: 30% to 40% of losses are due to leaks in the drinking-water network. For gardening, it is better to water in the evening, refrain from doing so during hot periods, and take advantage of rain. In agriculture, better irrigation planning combined with putting in place modern, econo-

mical technologies (e.g. using rainwater), and choosing plant species that are adapted to local climatic conditions would considerably reduce



*Water-carrying. Morocco.*

consumption. Those solutions must go hand-in-hand with better training for farmers and a more encouraging water pricing structure. In industry, putting in place clean technologies like closed-circuit cooling, water-recycling, automatic pump stoppage, and dry-cleaning, can reduce water demand and rein in treatment costs, in particular for sectors with high level of water consumption, such as dairies, breweries, and textile dyeing-houses.

### GROWING POLLUTION

In addition to the fall in reserves, the planet must deal with the problem of water pollution. Releasing all types of waste into rivers and oceans, contaminating water tables by using petro-chemical agricultural products (fertilisers, pesticides, herbicides, etc.), and animal manure (bacteriological pollution) are largely responsible for that situation. The effects on



*Checking water quality. Le Pinail Nature Reserve, France.*

health can be extremely serious. In developing countries, where 2.4 billion inhabitants lack clean water, 1.8 million children die each year. Rich countries can afford expensive procedures and infrastructures to clean and purify water and to make it drinkable.

*The water cycle occurs over several phases: evaporation, condensation, precipitation, run-off, and infiltration. France.*







*Supply of fresh water, DRC.*

### CONSEQUENCES FOR FAUNA

Fauna suffer particularly from pollution. Domestic wastewater generally contains a mix of products made up of, amongst other things, biodegradable organic matter. Released into a river, the latter are consumed by micro-organisms that develop and multiply. Those bacteria will take in the small amount of oxygen present in the water, which will then diminish to the detriment of other organisms. In river fish, trout, which require a lot of oxygen, will be the first to suffer from that shortage. Pearl mussels are very demanding. They almost never reproduce in France any more, and are



*Pollution of humid areas, France.*



*Nullarbor Plain,  
Australia.*

the subject of a safeguarding programme. Since the mid-1980s, pollution of the Yellow River in China has doubled. Combined with the growth in river traffic, water contamination has led to the extinction of the Yangtse River dolphin, also called the Chinese river dolphin.

### UNEQUAL SHARE-OUT

Water-sharing is a source of conflict in the world, either between the users in a single country or between countries that share the same resource. Nine countries, including Russia, Brazil, and Canada, hold 60% of the world's reserves of freshwater. That unequal share-out makes victims mainly of Africa and the Middle East. The water question is a mean of exerting pressure, and it is a partial factor in the hopes for peace in the Near East, a region known for its aridity. Israel's supplies come mainly from the

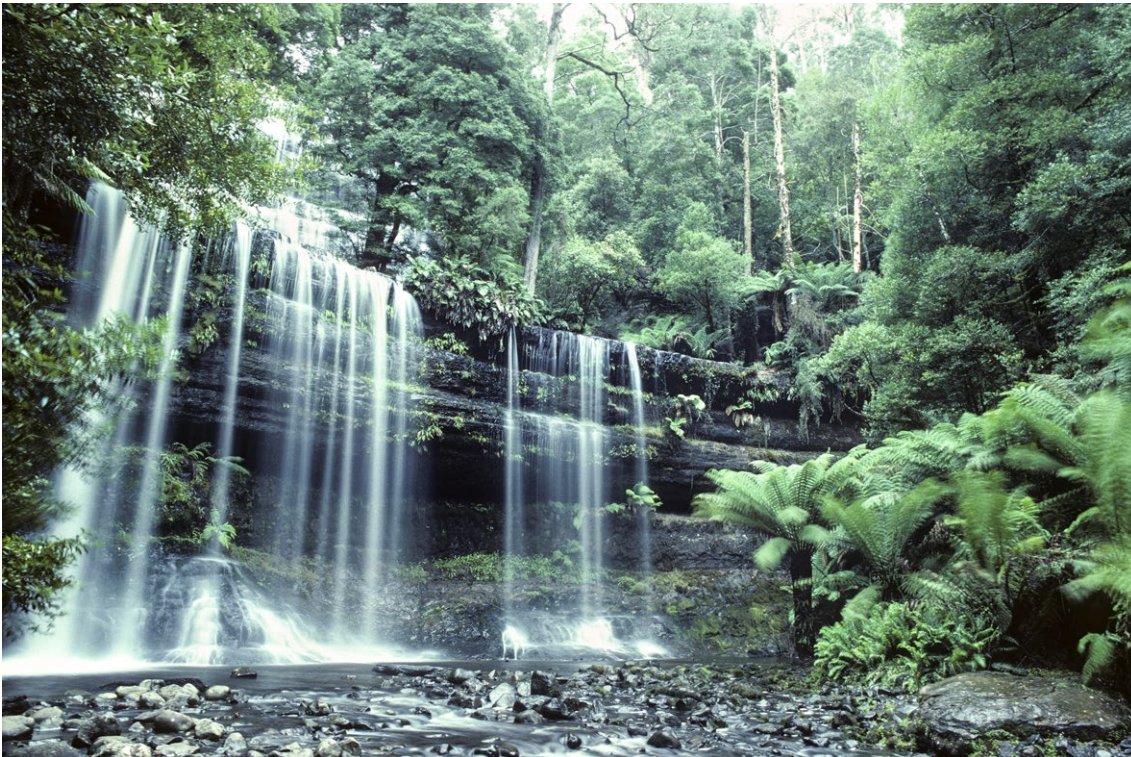


River Jordan and its tributaries. Their protection is crucial for that country. In several occasions, the Israelis have bombarded dams and diversion channels of the Hasbani River in the Lebanon and the Yarmuk River in Syria; the water from those two rivers flows into the River Jordan.



*The Okavango  
Delta,  
Botswana.*





*The Russell Falls,  
Mount Field  
National  
Park,  
Tasmania.*

### WHAT HOPE IS THERE?

The solution to those planet-wide inequalities often involves a co-operation between countries, with richer ones being called upon to show

solidarity towards poorer ones. The ecological balance and the problems of pollution must be taken into consideration on a global scale. Some international bodies like UNESCO (the United Nations Educational, Scientific, and Cultural Organisation) and the WHO (the World Health Organisation) and associations are already working to that end. The future of the Blue Planet must involve raising awareness worldwide. Water does not belong to any country in particular; it is the heritage of all living beings.



*Dewdrop on a gerbera flower, France.*

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