

THE MUSEUM OF WATER

Welcome to the Museum of Water.

The museum's objectives are to set off the relations that exist between water and life and to arouse the public's awareness of the many risks that may result from a disregard of water.

The museum has chosen to approach the topic of water through interactive exhibitions, both contemporary and under game form, allowing for a discovery of water in all its varieties.

1. Natural water: the great cycle of water

Since the origins of the world, the quantity of water over the earth has remained unchanged.

Water, organised into a system, is a unique resource: it cannot be made. It is for ever in motion, it circulates between oceans, continents and the atmosphere. The prime motor of this thermic machine is solar energy.

- **Evaporation, wind and clouds:**

Under the effect of the sun's heat, a part of the water of seas, streams, lakes, rivers and plants evaporates. It turns into steam and rises into the atmosphere. As water steam rises, the atmosphere grows colder. Then the air is saturated and the steam condenses into tiny drops of water, forming the clouds.

- **Precipitations:**

When temperature remains low, the droplets contained in the clouds assemble into larger drops. When they get heavy enough they finally fall down: it rains.

If temperature is very low, the water forms into solid crystals: snow or hail start falling.

As each drop falls on the ground, it does not follow the same route. The greater quantity of water evaporates again, some of it flows on the ground, some again filters into the ground.

- **Underground water:**

As it seeps into the ground, part of the water is absorbed by the roots of trees and plants and the rest of it follows its way to an underground pocket or sheet of water. Under the ground the water never stops flowing and its circulation can feed springs, rivers, fountains, wells... When it gets back to the surface it joins the water that has flowed without seeping down, and forms waterways.

- **Surface Water:**

Surface waters are primarily seas and oceans. 97.5% of the water of our planet is salted.

Surface waters are also waterways: brooks, rivers, torrents, streams... A stream is the chief element of the whole; it receives within itself the waters of precipitations, flowing waters, underground waters, and carries the whole lot to the sea.

- **Glaciers:**

Glaciers are the result of frozen water formed into solid masses: they are divided into 3 categories:

- continental glaciers
- mountain glaciers
- piedmont glaciers

2. My name is "H₂O"

"Who are you?" What? Don't you know me?

And yet, I am the one who washes you, slakes your thirst, helps you to keep your car clean, washes the streets, washes linen. I can even provide some of your fun! When I am frozen hard, you can ski on me; when I am liquid you can dive, surf and swim!

I am a molecule, that is a composite body formed of one atom of oxygen and two atoms of hydrogen, hence the chemical name H₂O.

Having no colour and no scent. I can take three different forms:

- the fluid form of drops falling from the sky, or trickling from the tap.
- the solid form of snow and ice when temperatures drop under zero celsius
- the gaseous form, in the air, when I evaporate under the effect of the heat. Then I am really invisible.

I change forms according to temperature variations, and I can even turn directly from ice into steam.

Living organisms are composed of water for the best part. Within them, it circulates continually and ensures the proper working of vital functions such as draining and evacuation.

3. Water: the living environment of the human organism

My body is composed of 65 % of water, the major part of which being found within the cells; my brain holds the record with 85 %§ And do you know that my bones contain 25% of water?

Within my body there is a biological cycle of water: once it's been absorbed, it is rejected by my breath, my respiration, my urine. Thanks to perspiration the rise of my body's temperature is kept under control.

But I cannot wait too long before reabsorbing water: when I am thirsty, it is thirst that warns me that my body is getting dehydrated. I must drink 1.5 litre of water per day to keep healthy, and if I can survive without food for a full month, I cannot remain 3 days without drinking.

4. Water for everything, water everywhere, or the conquest of water.

Water is an essential resource for the development of societies. It appears quite logical that man should, as soon as his species made its appearance, have noticed the relations between rain and a luxuriant vegetation, between drought and death: everyone of the great ancient civilisations – egyptian, hindu, mesopotamian, chinese, aztec – was born because they had mastery over water. Water allowed them to till the land, to breed cattle and other animals, to create craft (such as pottery, hide-tanning, etc...)and to carry human beings and merchandise from one to another place.

5. Fragility of water: pollution

Human activity modifies the distribution and quality of waters though it does not eradicate water from the earth's surface.

- Water is overexploited for true, legitimate purposes such as irrigation, production of drinking water or energy production.
Water is overpolluted, being subjected to industrial and urban development, to the massive abuse of chemicals such as pesticides, detergents, fertilizers...The quantity of waste products and toxic products poured out daily represents a serious peril, all the more so as, far from merely stagnating, water consumption and used water' outpour are always increasing. To-day, in many parts of the world, water is no longer able to clean itself by natural means.
 - image: 90% of the rivers Nile's water in Africa are diverted for irrigation and for the filling of reservoirs
 - image: the dead Sea is gradually disappearing, the river Jordan ends up its course with just 1/3 of its original water.
 - Image: 70% of the amount of drinking water are used for irrigation, and in the next 20 years this proportion should rise by 10%
 - Image: an american uses up to about 600 litres of water per day, a european uses 150 and an african 50 litres.

- **Pollution:**
 - image: in China 80% of industrial waste products are rejected into water streams without any treatment. And the same water is used for public consumption and land irrigation
 - image: to-day, in the poorer countries, the first causes of death are diseases related to water
 - image: 20% of water species have disappeared in the latest years, or are under threat of extinction.
- **How to protect water?**

One way is to become an eco-citizen of the world, adopting simple ways of life in water consumption: to have a shower instead of a bath, to avoid pouring out anything into the sink... Main sewerage systems should not be seen as a way to get rid of everything. We should use the detergents and cleaning products that are least offensive for environment.

Can number 1: water out of breath: the Aral sea

Can number 2: various pollutions

Can number 3: the epic of Super-nitrogen and his gang or super-nitrate gang (a entrophic representation).

Can number 4: sea-pollution

Can number 5: drinking-water out of the tap?

Can number 6: the Annecy lake: newly found health

6. Angry waters

Natural catastrophies are often unpredictable and difficult to master. They are defined more often than not, by a liberation of energy, the force of which depends on its speed and its impetus. Very often, natural phenomena are combined: a heavy rain can give birth to a spectacular rise of the water and to a landslide.

- **Water overflow:**

Floods and overflows are the most frequent natural freaks, the world over. They can be beneficial, thanks to the fertile alluvial silts which they leave over the plains. They can also be destructive because of their suddenness and of the havoc they create. If it is true that floods are likely to occur in every country, it is in developing countries that they make the greatest number of victims: protective equipment is nil, housing is too fragile, and the waters carry along all kinds of refuse which favour the development of epidemics.
- **Sea waters' rage:**

Though they are practically never seen in high seas, some waves can reach extraordinary dimensions, likely to give birth to tidal waves or tsunamis (in Japanese), rising 5 to 30 meters in height. Since 1946, they have caused 50000 death casualties around the Pacific ocean.
- **Snow slide:**

Although forecasts remain approximate, the weather conditions that are most likely to egg on avalanches are well-known: abundant snow falls, wind and milder weather. There are 3 types of avalanches:
 - moist-snow avalanches
 - powdery-snow avalanches
 - snow-slabs avalanches

7. Just as animals do, plants perspire

Plants are essentially made up of water (up to 95%). The water which is sucked up by the roots rises into the stems. This is how the nutrients necessary for the growth of the plant are brought. The extra amount of water is rejected by perspiration through small pores called "stomas". Through perspiration the plants' temperature can be regulated. It urges the roots to pump in ground water which will activate the sap's circulation. The water steam

that is rejected reintegrates the atmosphere and flocks into cloud. The whole process bears the name of “evapospiration”, and is one of the essential links of the water-cycle.

8. Blue gold

“ All peoples, whatever the stage of their development and economic and social situation may be, have a right of access to drinking water in quantities and qualities equal to their needs.”

UNO Conference – 1977 –

9. The blue planet

The planet earth is not accurately named: it is actually covered over by 71% of water. From out into space, it is blue.

If life could develop, and still does, on Earth, the reason is that the best part of existing water is found in its fluid state. It keeps in this condition because, for one thing, our planet is situated at optimal distance from the sun (i.e the best distance for water not to freeze or evaporate) and, for the other, the Earth’s gravity field keeps the water on its surface. 97.5% of the world water is salt waters. Out of the 2.5% of remaining drinking water, less than 1% is directly usable by man while the remaining mass is locked up in ice and underwater circuits.

Drinking water is not equally distributed over the earth. The damp, tropical, equatorial and temperate areas receive a generous share of water, but other areas are desperately dry...deserts for instance receive just 6% of the rains, an enormous part of which evaporates.

10. Shering water

The dry season, in Kidira region in Senegal knows 9 months of drought. Thanks to dams and reservoirs completed by the cooperative efforts of the water Museum and the parish of Fété Colobi in Senegal, it will be possible to maintain a provision of water during the rain season in a natural lake which is going to be dug out in the near future.

The water thus “preserved” until the dry season will allow for:

- watering cattle
- rice culture over 2 hectares
- garden culture

“Life” in one word as in many.

11. Symbolics of water

Water, alternately a source of life and a destructive force has given birth to lots of myths. It is seen now as a symbol of fertility, eternal life, revival or wisdom. Now it purifies, and now punishes and it can also give birth to fantastic creatures.

- From original waters to the beginning of all things:
Many religions assume that the cradle of the world, of the cosmos, and of life as a whole was a mythical ocean.
- Deified water:
From primordial water-i.e the water that was at the birth of the world –pleiads of deities were born, each of which related to a spring, a brook, a river...each beneficent or hostile or either, depending on circumstances.
These creatures can take the shapes of sirens, fairies, serpents, dragons, snakes, green moss-bearded water spirits.
- Medical water: thermal cures, baths such as spas
- Water as a source of immortality
- Destructive water:
Among the many myths we find the biblical Flood that covered and drowned our whole planet and occupies a prominent place.