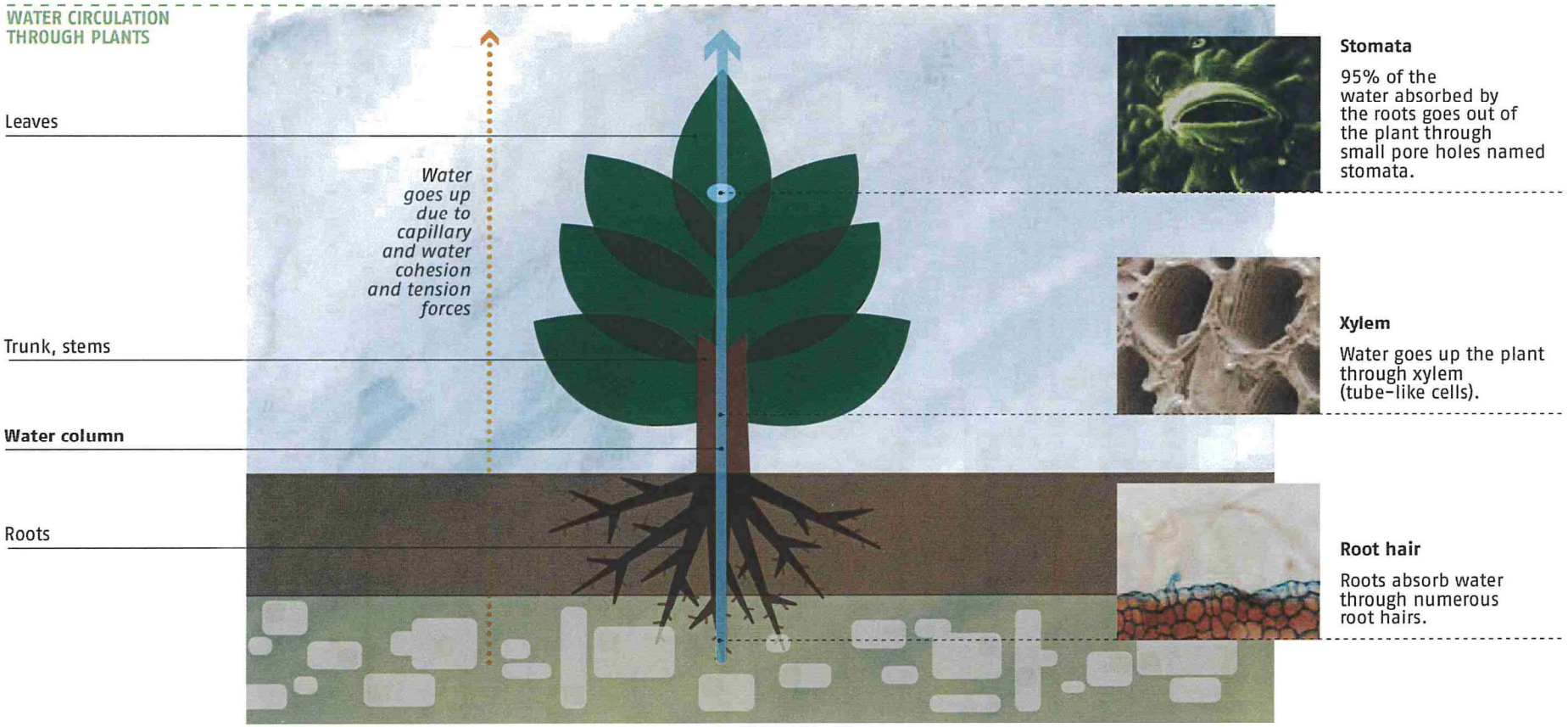
Document it

Trees redistribute water

See how transpiration works.

Did you know?

Trees keep very little of the water they draw from the soil for themselves, redistributing up to 95 percent.



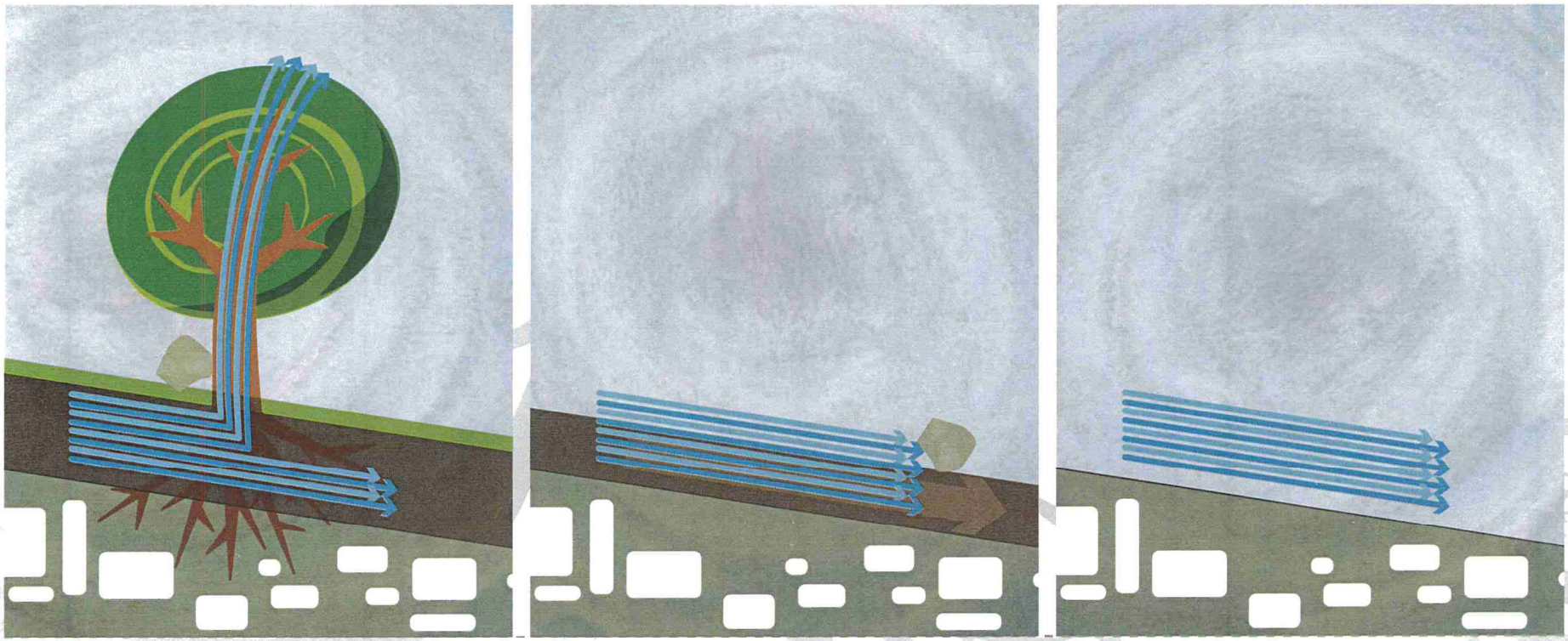
Water and soils

Forests help to prevent problems caused by too much water. If the soil has absorbed too much water, it cannot take in any more: it becomes saturated (full) and **waterlogging** occurs. This can be a problem for farming and for plants, and may lead to **floods**.

Trees catch rainfall in their canopy leaves, which means that less rain reaches the ground. They also **store water in their roots**, so there is less water in the soil, and **produce organic matter**, which **increases the water storage capacity** of soil. Tree roots, as well as forest floor plants and **litter (fallen leaves, twigs, bark, mushrooms...)**, also help to **hold the soil together**. This prevents **soil erosion** (where soil is for example washed away by rain or blown away by wind), and can even help prevent landslides.

Water and soils

Trees balance water in soils in different ways: learn how by studying these diagrams.



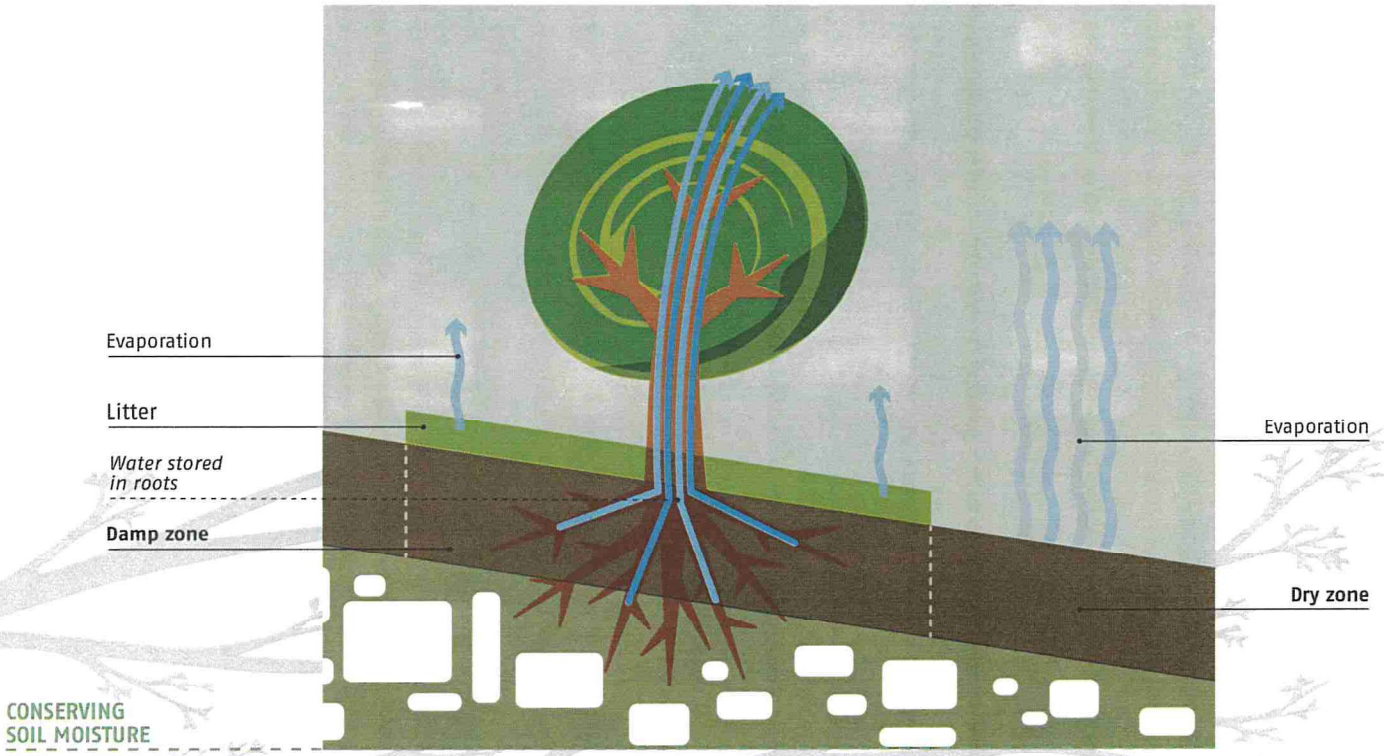
EROSION MECHANISM

A
Land with forest
Roots keep soil together. Roots and litter maintain moisture levels.

B
Destruction of the forest
Soil is saturated with water, resulting in waterlogging. Without roots, soil can slide. Without tree trunks, rocks may fall and provoke landslides.

C
Desertification
The soil has disappeared. Farming becomes impossible and reforestation is difficult. Floods become frequent.

➽ **Where there are forests, why does the soil not become soaked or waterlogged when there is heavy rain? Why does it not get flooded? What can happen to soil and water if too many trees are removed?**



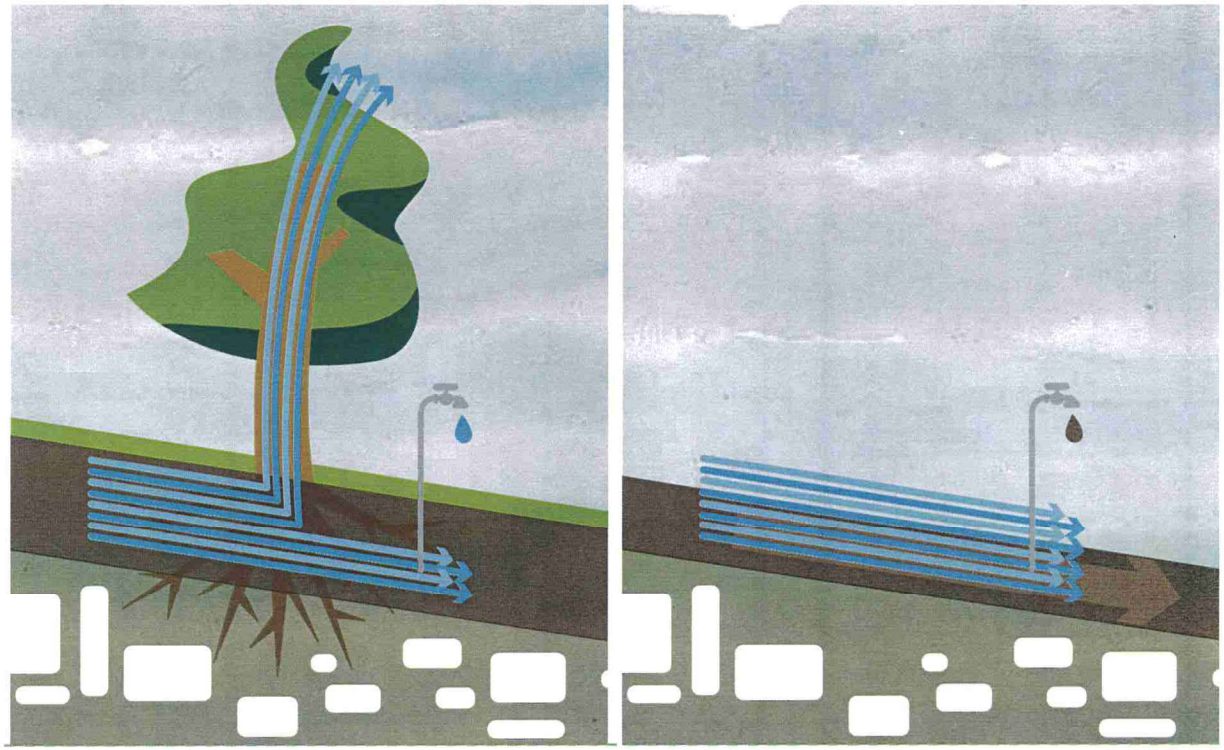
➽ **Why does the soil stay moist even when there is little rain?**

Investigate

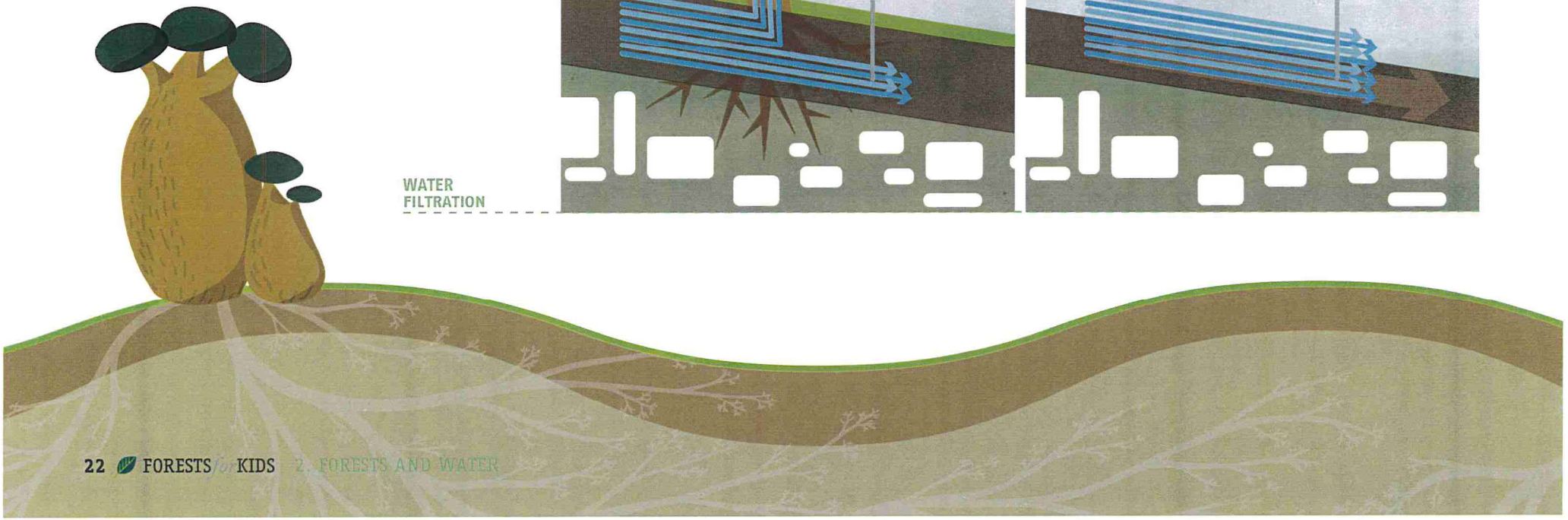
Water filtration

Compare the two figures below.

Do you notice any change in the water dripping from the tap? Why did that change happen? Describe the role of the forest. (The forest acts as a...) Do you know if any of the water you drink has been filtered by forest soil?



WATER FILTRATION



What did we learn?

Forest trees and plants transpire most of the water that their roots take in: water goes up the xylem and then out of the leaves through stomata. That is why, thanks to the trees, a part of the water that is rained onto the ground goes back into the atmosphere and will later turn into rain once again. That is how forests help to prevent the weather from becoming too dry or too hot. Another part of rainwater is filtered by forest soils, and in this way becomes cleaner – it is thanks to this that people have access to clean water to drink, cook and water crops. Trees in forests also help prevent waterlogging and soil erosion, and their litter keeps forest soils moist enough for life to keep growing. For all these reasons, forests play a very important role when it comes to water.