

WATER SUSTAINABILITY

During your visit to Expo City Dubai, you learned how filters can clean dirty water. Let's find out more about how we can clean water. Terra, the Sustainability Pavilion recycles its own water using different filters like the ones you made during your visit.

The different types of water that are filtered include:

POTABLE	GREYWATER	BLACKWATER
Water which is safe for drinking	Water which has been used, but does not contain harmful chemicals – such as water from bathroom sinks and floor drains	Water from toilets which may contain harmful bacteria



reed recycled waste net-zero solids large kill remove algae

When someone flushes the toilet, the _____ water is recycled by Expo City Dubai. It first passes through a mesh screen which filters out _____ particles and _____ waste (which is sent to the municipality for treatment). The remaining waste water then passes through _____ beds which surrounds the pavilion.

Gravel and sand in the reed beds act as a natural filter while _____ and roots absorb other things in the water, even soap particles.

The filtered water is then sterilised to _____ unwanted germs before the water is pumped back into the pavilion to be used to flush the toilets again. This helps Expo City Dubai work towards achieving its goal of _____ water use.

POTABLE AND GREY-WATER

Terra also recycles its grey water so that water from hand washing basins can be treated and recycled over and over again.

How does the UAE get potable water?

Terra, the Sustainability pavilion doesn't collect enough water to give everyone in the country fresh water to use and drink. Over 90% of the UAE's potable water comes from the desalination of seawater.

Around the UAE there are lots of factories which use large amounts of energy to filter sea water and remove the salt. The clean water is bottled as drinking water or pumped into your home. The waste salt is put back into the sea.

The UAE currently desalinates enough water each year to provide over 2,000 bottles of water for every person in the country!



Give three reasons why we should reduce water consumption and our demand on desalinated water:

1. _____
2. _____
3. _____

DID YOU
KNOW?

Mangrove forests are natural desalination factories!

They grow in salt water and cover around 30 million square meters of the UAE. The UAE is also planning to plant another 100 million trees by 2030.

Mangroves survive in salt water because they are able to desalinate water themselves by a process called '**capillary driven desalination**' – and it works perfectly!



Engineers and Scientists are trying to create new technology by mimicking mangrove trees.

Have you ever been to the mangrove forests in Abu Dhabi, Umm al Quwain or Ras Al Khaimah?

See if you can find out more about how (and why) the UAE is protecting and growing its mangrove forests.