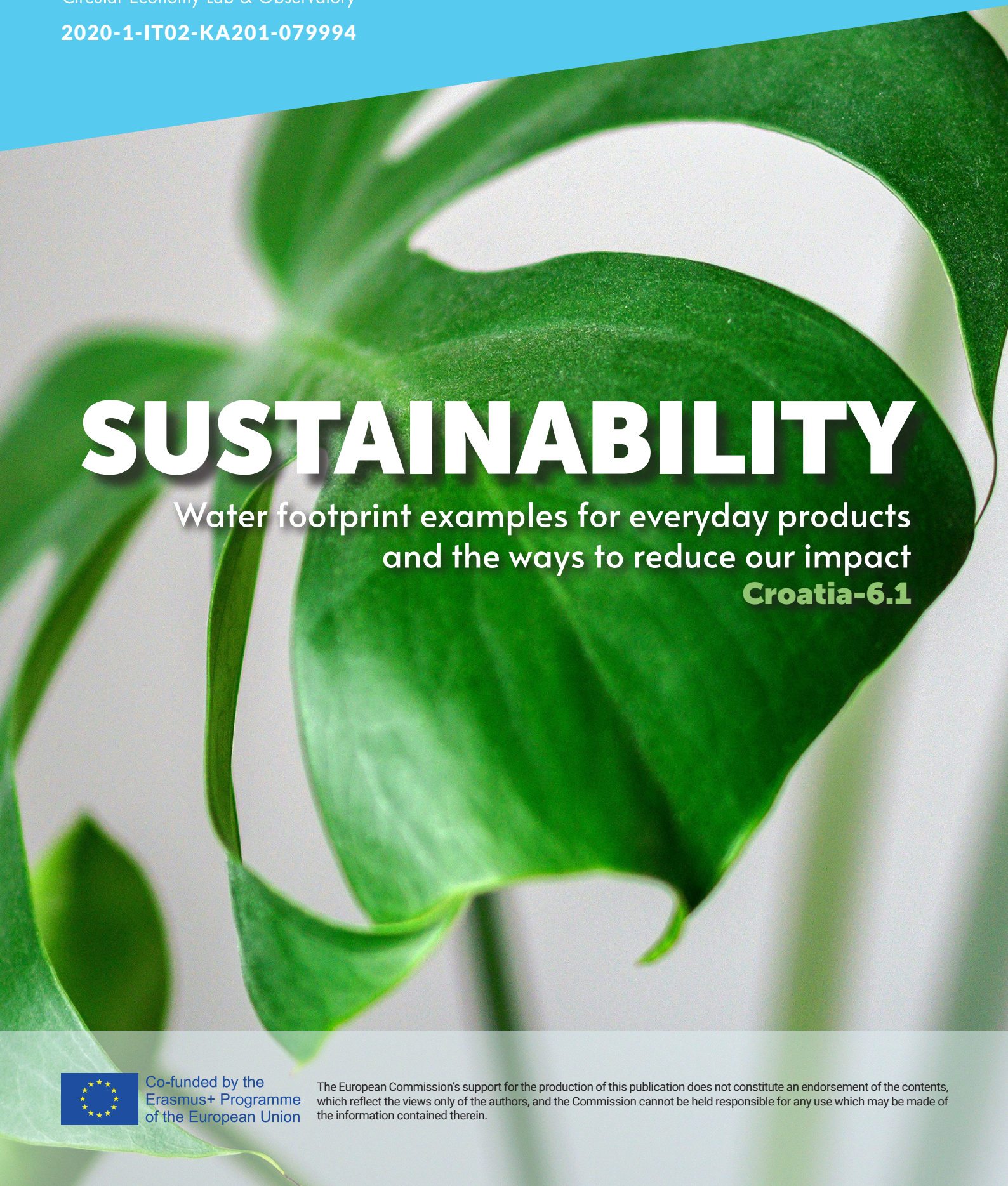
Circular Economy Lab & Observatory

2020-1-IT02-KA201-079994



SUSTAINABILITY

Water footprint examples for everyday products and the ways to reduce our impact

Croatia-6.1

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Water constitutes one of the most essential components for life, as everyone knows. Water loss is a significant issue for any and all living creatures as a result, not just humans, and when it gets to that point, changes must be made. What is water footprint? A water footprint illustrates how much water is used in relation to human use. The entire amount of freshwater utilized to generate the products and services that a person, community, or company consumes or produces is referred to as the water footprint of that person, community, or business. The amount of water used (evaporated) or contaminated per time unit is measured.

Water is one of the most important resources in the world (https://cdn.pixabay.com/photo/2014/12/24/05/02/drop-of-water-578897_1280.jpg)

Any well-defined group of consumers (such as an individual, family, village, city, province, state, or nation) or producers (such as a public sector organization, private ownership, or sector of the economy), for a single process (such as growing rice), or for any good or service, can have their water footprint calculated.

Water usage has historically been dealt with from the production side by quantifying the three water use categories of agricultural, industrial, and home water withdrawals.

Despite the fact that this offers useful information, it is a limited means of examining water consumption in a globalized world where goods are not necessarily consumed in their nation of origin. International commerce of industrial and agricultural goods really results in a worldwide flow of contained water (similar to the concept of embodied energy, a calculation of all the energy that is used to produce a material or product [1]).

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Water footprint has many distinct components, and as a result, numerous definitions and metrics are used to define them.

The terms “blue water footprint” and “green water footprint” relate to the use of surface or groundwater, respectively, while “grey water footprint” corresponds to the quantity of water required to wash away contaminants.

The scarcity of water is a potentially significant consequence of global warming, which makes the issue of water footprint that much worse.

We will describe the particular procedures to follow if we want to lower it for all households.

We really do have to immediately respond as a community to this problem in order to discover solutions that will help us minimize it.
There are numerous methods for minimizing water consumption, and there are many opportunities for recycling water and using it in multiple ways.

Green, blue and grey water footprint (https://www.researchgate.net/figure/Green-blue-and-grey-water-footprints_fig1_268444544)

We can no longer turn a blind eye towards this issue and overlook the very serious situation we will find ourselves in, if we don’t confront it, which we will do in the next paragraph of the text. Water is one of the most important resources in today’s world, so much that we couldn’t imagine living without it. Aside from being very important for our body as a drink we also use it a lot on daily bases for different activities in our households (in kitchens, bathrooms, gardens). A big problem is that a lot of people are not careful enough with how much water they use every day.

Because of this a lot of water used for daily activities goes to waste and most people aren’t even aware of it. Water is renewable but not infinite and that is why we have to be careful about it. Every day the population is growing and so is the need for water yet we are using it more than we can sustain it. The average global water footprint of an individual is 1,385 m^3 per year. The United States has one of the biggest water footprints of individual per year which is 2,842 m^3 and China on the other hand has one of the lowest which is equal to 1,071 m^3.[2]

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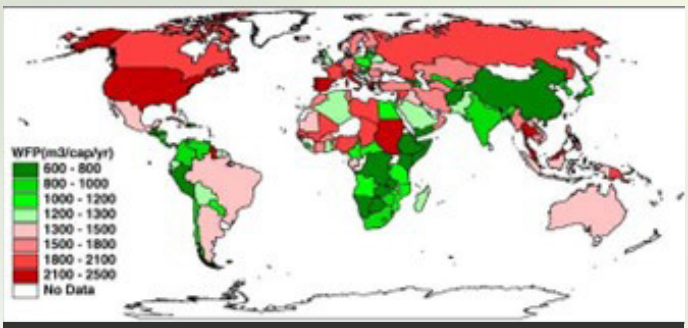

Water footprint per capita (https://www.researchgate.net/figure/Average-national-water-footprint-per-capita-m-3-capita-yr-Green-means-that-the_fig3_227077846)

In our households a lot of water is used for flushing toilets, about 24%.

When flushing a toilet, we can't control how much water we use.

Some toilets have an option to use less water, but a great amount of water still goes to waste since in most cases we don't need that much water to flush a toilet.

When showering we also use plenty of water to get ourselves clean while not even realizing how much water we waste. Another familiar example where a significant amount of water goes to waste is leaving the faucet open while brushing teeth. The majority of people do it and by doing that a large amount of water (about 5 litres) goes to waste.

People who have a garden also use a lot of water, especially those who have multiple plants and a large garden.

Taking care of plants and gardening requires quite a large amount of water. Using too much water to water plants can be bad for both plants and water footprint because it goes to waste and plants usually don't need such amounts of water to grow. When watering it's also important to check if there are any leaks in the hose as it can lead to even greater water usage as well as the water leaks in the house.

Leaks in water installations can be a big and serious problem if they don't get fixed quickly because it will result in more water going to waste and some other issues like mould growth, some electrical problems and damage to the house's structure or foundation.

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Most of the leaks go unnoticed, which is why it's important to act fast.

Aside from the already mentioned situations, we also use a lot of water for dishwashing, cooking, washing a car, etc.

These are just some examples of how much water we waste on a daily basis and how it impacts our water footprint. Water is a limited resource and because of that we need to take action and find solutions and ways to reduce our water footprint.

Toilets are important for our everyday needs (https://images.unsplash.com/photo-1569597967185-cd6120712154?ixlib=rb-4.0.3&ixid=MnwxMjA3fDB8MHxwaG90byIwYWdlfHx8fGVufDB8fHx8&auto=format&fit=crop&w=1074&q=80)

The direct water footprint of a household can be reduced in many ways. Most of the water used in the home is consumed in toilets and for bathing. Therefore, installing water-saving toilets and water-saving showerheads will reduce a greater part of the water used in a house. Shorter shower time will help also, as well as taking a shower instead of taking a bath. We should close the tap during activities when water is not immediately needed, like during teeth brushing. Also, when we pour paints, chemicals, or another pollutant through the sink, we need a lot of water to rinse it – so we shouldn't do it.

There are recycling yards where we should dispose of such chemicals. Leaks of water from the household pipes, taps or machines should be fixed as soon as possible. Washing clothes in small quantities consumes much water; instead, we should wash clothes when it is piled up to fill the washing machine.

In the garden we should avoid unnecessary use of water for grass and flowers. More efficient water sprinklers will save much water compared to a usual water hose. Collecting rainwater for plants can be also a great and efficient way to waste less water.

Cities often use excessive amounts of water for beautification and eye-catching tourist features like fountains, which could be reduced to the necessary minimum. Producers (industry, companies) have to make an extra effort to define water issues, measure their water consumption and analyse how much water they really need in production processes. Employees must be educated concerning the water footprint problems.

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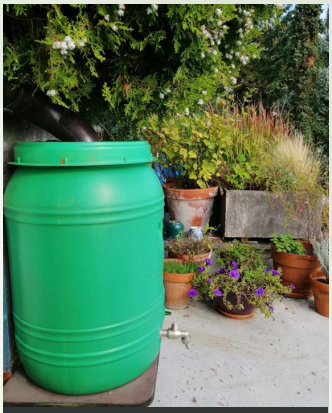

Collecting rainwater (Photo by Cro-group-6.1)

They have to improve industrial processes to use minimal water and to control water waste. In industry equipment efficiency will make your product or service cheaper and at the same time efficiency means that your resources (including water) are optimally used.

Investing in better equipment pays off in the long run and is critical for a lower water footprint.

Some industries like the textile industry can do much for their water footprint, just by reusing the already wasted water partially cleaned through the filters and water purifiers.

Another example of industry with high water impact is food and beverage production, where better management can save significant amounts of water.

In methods of water purification that can be used in industry there are physical, biological and chemical processes.
Physical are filtration, reverse osmosis, sedimentation and distillation.[3] Examples of biological processes are slow sand filters and biologically active carbon.

Fountains use a lot of water for a decoration (https://images.unsplash.com/photo-1569011204746-39b72622afle?ixlib=rb-4.0.3&ixid=MnwxMjA3fDB8MHxwaG90byIwYWdlfHx8fGVufDB8fHx8&auto=format&fit=crop&w=1031&q=80)

Chemical processes are flocculation (a type of sedimentation by grouping “waste” particles into larger clusters so they can fall more easily to the bottom) and chlorination (used in drinking water to kill parasites and viruses). Water can also be cleaned by use of electromagnetic radiation such as ultraviolet light.

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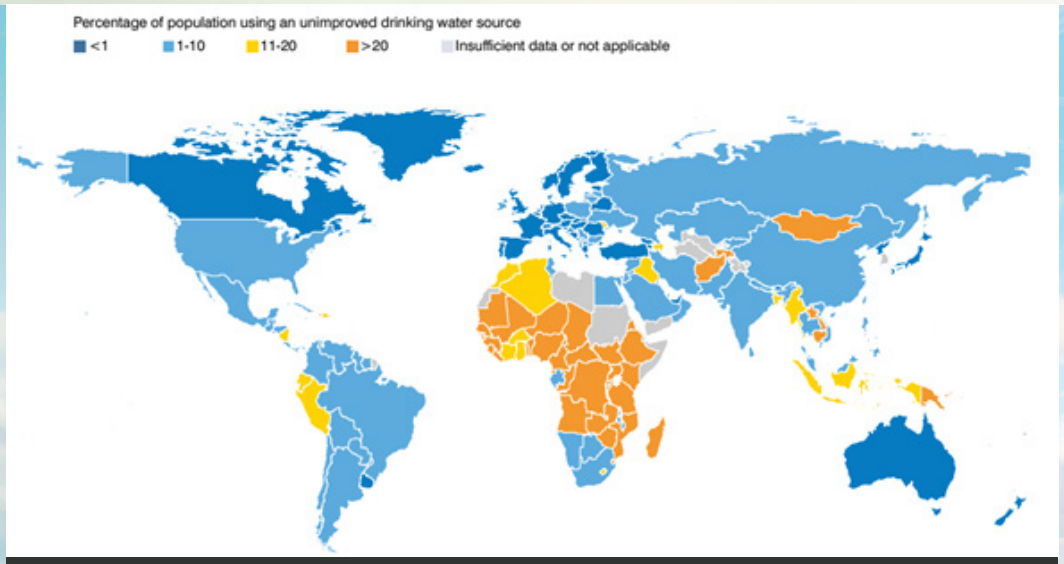

Percentage of population using an unimproved drinking water source (https://bosaq.com/drinking-water-supply-around-the-world/)

Water represents one of the most important resources in the modern world, as we have stated before. We are unable to sustain life without it. We consume it numerous times every day for various home chores (in kitchens, bathrooms, gardens) in addition to being highly necessary for our bodies as a drink. The biggest issue overall and the most significant problem we are facing in our societies is that many people are not sufficiently cautious with how much water they consume on a daily basis.

Due to this, a large amount of water consumed for everyday activities is wasted, and the majority of people aren't aware of it. We must be careful with water since it is not an endless resource, especially in the age of climate change. We are consuming more fresh water than our ecosystems will be able to sustain, as both the population and the need for it are expanding daily.

Saving water is important for saving our planet (https://unsplash.com/photos/8CwoHpZe3qE)

These are some of the most significant concerns that we have discussed in previous paragraphs, and we will now review some of the most effective solutions offered here. We mentioned the installation of several water-saving gadgets in bathrooms as well as refraining from wasting water in the garden on the grass and flowers.

Cities frequently use more water than is necessary for city beauty and tourist attractions like fountains, which might be scaled back to the absolute minimum.

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Apart from being used for our daily activities and city's needs, a lot of water is used for making products. Everything we consume or use has a water footprint (like leather shoes – 8000 litres or a sheet of a4 paper – 5.1 litres [4]).

By reusing water that has previously been wasted and has only partially been cleansed by filters and water purifiers, certain industries, like the textile industry, may significantly reduce their water footprint, and also the food and beverage manufacturers. There are several techniques that can be employed to reduce water use and water waste, as we have mentioned.

Some solutions are incredibly user-friendly and accessible to everyone so that more people can save the water they use. Nowadays a water footprint might not seem like a big problem but if we don't do something to save water our future won't be as bright, and it is possible that there will be a water shortage around the world.

Even now there is not enough water in some countries (Chad, Niger, Ethiopia, etc.) where people are dying because of it. In Croatia there is a lot of clean water, yet we are wasting it instead of saving it. Some people today are becoming aware of our situation regarding water, but the majority is still irresponsible when using water. More people should be educated about the water footprint and solutions to reduce it so that more will take action.

This would be a step in the right direction because one person can't make much difference but together, we can. We will have a worldwide influence if we each start changing things individually. The only way to extend life on earth is for some people to pay attention and follow our advice.

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GROUP

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2020-1-IT02-KA201-079994