



Water Footprint

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We live in a watery world, with the average American lifestyle fueled by nearly 2,000 gallons of water a day. What may come as a surprise is that very little of that only five percent runs through toilets, taps, and garden hoses at home. Nearly 95 percent of your water footprint is hidden in the food you eat, energy you use, products you buy, and services you rely on.

"The interest in the water footprint is rooted in the recognition that human impacts on freshwater systems can ultimately be linked to human consumption, and that issues like water shortages and pollution can be better understood and addressed by considering production and supply chains as a whole," says Professor Arjen Y. Hoekstra, creator of the water footprint concept and scientific director of the Water Footprint Network.

"Water problems are often closely tied to the structure of the global economy. Many countries have significantly externalized their water footprint, importing water-intensive goods from elsewhere. This puts pressure on the water resources in the exporting regions, where too often mechanisms for wise water governance and conservation are lacking. Not only governments, but also consumers, businesses and civil society communities can play a role in achieving a better management of water resources."

A new wave of research on "virtual," or embedded, water has given companies and governments new tools to track not just the water that they consume directly, but also the gallons that are embedded in everything from dishwashing detergent and Argentine beef to Spanish oranges and cotton grown in Pakistan. A cup of coffee takes roughly 35 gallons. A cotton T-shirt typically takes some 700 gallons of water to produce. A typical hamburger takes 630 gallons of water to produce more than three

times the amount the average American uses every day for drinking, bathing, washing dishes and flushing toilets.

Let us look at direct and indirect usage of water.

People use lots of water for drinking, cooking and washing, but even more for producing things such as food, paper, cotton clothes, etc. The water footprint is an indicator of water use that looks at both direct and indirect water use of a consumer or producer. The water footprint of an individual, community or business is defined as the total volume of freshwater that is used to produce the goods and services consumed by the individual or community or produced by the business.

Why should we bother about water footprint in the first place?

Freshwater is a scarce resource and especially in the Middle East, its annual availability is limited and demand is growing. The water footprint of humanity has exceeded sustainable levels at several places and is unequally distributed among people. There are many spots in the world where serious water depletion or pollution takes place: rivers running dry, dropping lake and groundwater levels and endangered species because of contaminated water.



There are several steps we can take to reduce the water footprint at home.

As a consumer, you can reduce your 'direct water footprint' (home water use) by installing water saving toilets, applying a water-saving showerhead, closing the tap during teeth brushing, using less water in the garden and by not disposing medicines, paints or other pollutants through the sink.

Supermarkets – Save Water

The 'indirect water footprint' – the water consumption and pollution behind all the goods you buy – is much larger than your direct water footprint at home. You have basically two options to reduce your indirect water footprint. One option is to substitute a consumer product that has a large water footprint by a different type of product that has a smaller footprint. Examples: eat less meat or become vegetarian, drink tea instead of coffee, or even better drink plain water. And replacing cotton clothes by clothes from artificial fiber saves a lot of water.





Some facts and figures

- The production of one kilogram of **beef** requires 15 thousand liters of water (93% green, 4% blue, 3% grey water footprint). There is a huge variation around this global average. The precise footprint of a piece of beef depends on factors such as the type of production system and the composition and origin of the feed of the cow.
- The water footprint of a 150-gram **soy burger** produced in the Netherlands is about 160 litres. A beef burger from the same country costs about 1000 liters.
- The water footprint of **Chinese consumption** is about 1070 cubic meter per year per capita. About 10% of the Chinese water footprint falls outside China.
- **Japan** with a footprint of 1380 cubic meter per year per capita, has about 77% of its total water footprint outside the borders of the country.
- The water footprint of **US citizens** is 2840 cubic meter per year per capita. About 20% of this water footprint is external. The largest external water footprint of US consumption lies in the Yangtze river basin, China.
- The **global water footprint** in the period 1996-2005 was 9087 Gm³/yr (74% green, 11% blue, 15% grey). Agricultural production contributes 92% to this total footprint.
- **Water scarcity** affects over 2.7 billion people for at least one month each year.

References – Water Footprint Organization, UN – FAO report