



# AQUAPATH

Project

## AquaPath – Module 4

# SUSTAINABLE LIFESTYLES AND WATER

[WWW.AQUAPATH-PROJECT.EU](http://WWW.AQUAPATH-PROJECT.EU)



Erasmus+



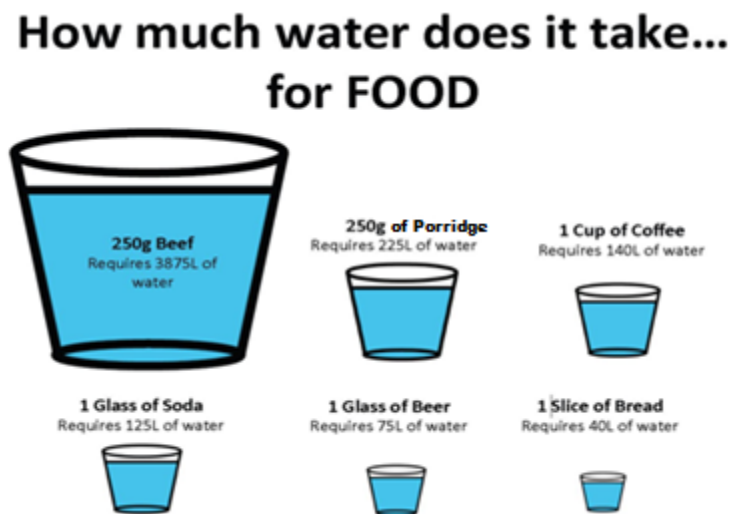


## 1. FOOD

First of all, within this module you will learn more about the water footprint of our food.

While our body needs 2 to 4 litres of drinking water per day, producing our daily food requires from 2000 to 5000 litres. For example, as you can see in the figure below, producing 250 g of beef requires more than 3000 litres of water.

**How is it possible?**



**Figure 1.** Water footprint on our food (Source: Project 90 by 2030).

Global animal production requires about 2422 billion cubic metres of water per year (87,2% green, 6,2% blue, 6,6% grey water). One third of this volume is for the beef cattle sector; another 19% for the dairy cattle sector. Most of the total volume of water (98%) refers to the water footprint of the feed for the animals (Mekonnen and Hoekstra, 2010<sup>1</sup>).

### Did you know that?

An alimentation based on food of vegetable origin reduces the water footprint to 2300 litres/day, which means a reduction of 36%. As expressed in the table below, you can reduce your water footprint by reducing your consumption of food of animal origin.

<sup>1</sup> Mekonnen, M.M. and Hoekstra, A.Y. (2010) The green, blue and grey water footprint of farm animals and animal products, Value of Water Research Report Series No.48, UNESCO-IHE.

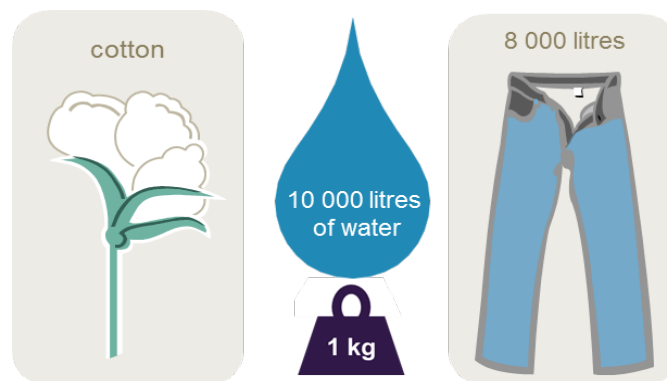


**Table 1.** Water Footprint of food in industrialized countries<sup>2</sup>

	Kilo calories per day	Litres per calorie	Litres per day	Kilo calories per day	Litres per calorie	Litres per day
<b>Animal origin</b>	950	2,5	2375	300	2,5	750
<b>Vegetable origin</b>	2450	0,5	1225	3100	0,5	1550
<b>Total</b>	3400		3600	3400		2300

## 2. TEXTILE

Our clothes have also a high water footprint level; as you will learn within this section.



**Figure 2.** Water footprint of cotton in clothes<sup>3</sup>

As incredible as it may sound, you have to know that dressing a man costs about 15000 litres and dressing a woman costs about 11000 litres. This is because the amount of water used depends on the size of the clothes and material used; cotton based clothing has a high water footprint.

Cotton is one of the thirstiest crops in the world and cotton products represent 2,6% of the global water footprint. Around 80% percent of the total cotton agriculture water footprint is located in countries such as China, Pakistan, India and Uzbekistan where there are water scarcity and water pollution problems exist. Unsustainable cotton farming, with massive inputs of water and pesticides, has already been responsible for the destruction of large-scale ecosystems such as the Aral Sea in central Asia and the deteriorating health and livelihoods of people living there. Cotton production is also

<sup>2</sup> Hoekstra, A.Y. (2012) The hidden water resource use behind meat and dairy, *Animal Frontiers*, 2(2): 3-8.

<sup>3</sup> [www.waterfootprint.org](http://www.waterfootprint.org)





located in several large river basins with severe water scarcity including the Indus River in Pakistan, the Murray-Darling Basin in Australia, and the Rio Grande in United States and Mexico.

### 3. ENERGY & TRANSPORT

This section will outline the water footprint of energy and transport, as other dimension of sustainable lifestyle.

You may not realize it, but when you use energy, you're also using water – lots of it.

Water and energy are cardinal to every aspect of human life. Both are interdependent – water is used in the generation of energy while energy is needed to supply water.

All energy carries have a water footprint but bioenergy and bio fuel have the highest. Do you know that if 10% of the fuel used in the transport sector is replaced by bio-ethanol, biofuel-based transport in Europe which will require a water volume equal to about 10% of the European water footprint of food and cotton consumption? The increase of biofuel used for transport has worse consequences for national water resources. Globally, we expect the blue biofuel water footprint to rise from 0,5% of the available blue water in 2005 to 5,5% in 2030.

Driving less, carpooling and using public transportation are all good ways to reduce fossil fuel use and save water. So too is using energy more efficiently at home by switching to energy- (and water-) efficient appliances and light bulbs and turning off electronics when they're not being used. Energy- and water-efficient appliances play a critical role because saving water saves energy, which reduces the strain on water resources even further. It also helps in the fight to clean our air and slow climate change.

Small efforts to conserve energy and water really add up, and we each have the power to save.

### How much freshwater does it take... for Energy Production

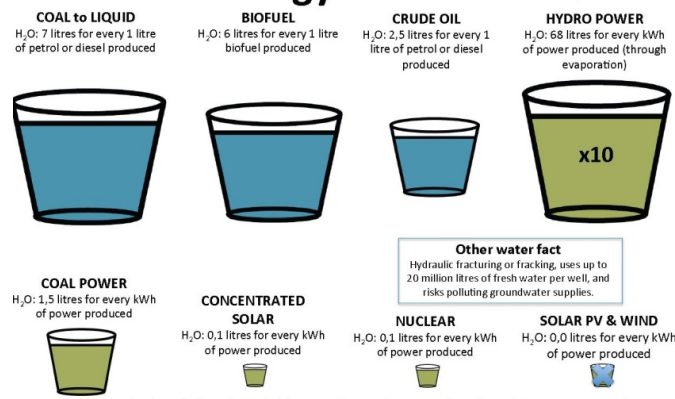


Figure 3: The amount of water needed to produce energy (Source: Project 90 by 2030)



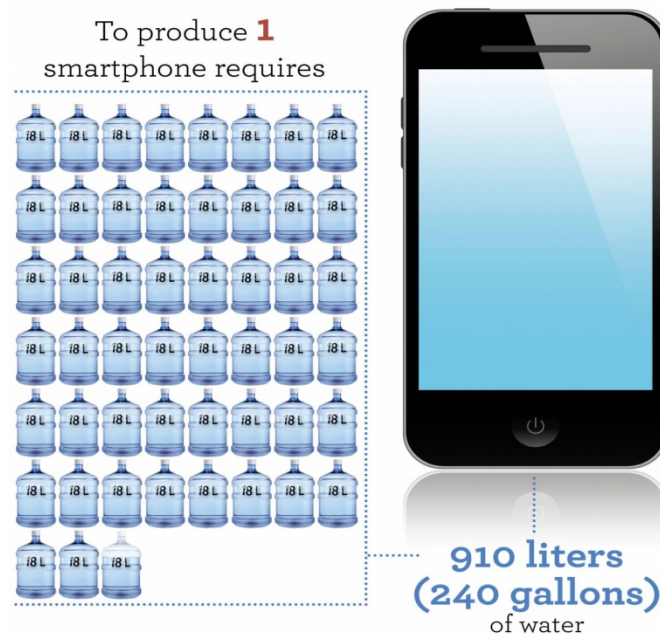
**Do you know that?**

Using less water, driving less, carpooling and using public transportation are all good ways to reduce fossil fuel use and save water. Energy- and water-efficient appliances play a critical role because saving water saves energy, which reduces the strain on water resources. Moreover, renewable energies constitute an interesting alternative to what we are used in consuming and have surely a less important water footprint.

**4. ELECTRONIC GOODS**

This chapter will explain to you the water footprint of electronic goods, through using the example of smart phones, which incorporate the same materials and processes of most of the other electronic devices.

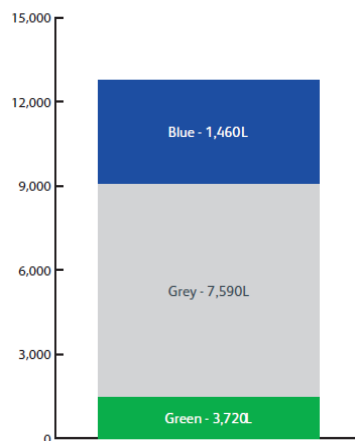
The global market for smart phones is growing fast, with more than one billion handsets produced in 2013. They have revolutionized our way of living, but these tiny pocket computers require raw materials extracted from across the globe and the manufacturing process has a significant footprint as well.



**Figure 5.** The amount of water required for a smart phone (Source: youwaterfootprint.me).



Smart phones include minerals such as lithium, tantalum and cobalt and rare metals such as platinum. They all contribute to a heavy footprint for such a small product, with the overall footprint of a generic smartphone estimated to be 12,760 litres or 160 baths during their production.



**Figure 6.** Blue, grey and green water footprint in supply chain of generic smartphone (Source: Mind your step report, 2015).

The analysis of the water footprint showed that manufacturing of the components and assembly accounted for the largest sector of overall water use (40%) with grey water, used to dilute pollutants, accounting for almost all (95%) of this.

## 4. CONCLUSIONS

People are not much informed about their impacts on water resources and water scarcity. For this reason, it is needed that consumers demand more transparency to companies and other relevant stakeholders in relation with water footprint of products. In that sense, if consumers are properly informed, they can choose and have the chance to change their consumption habits, such as buying food or clothes which have less impact on water resources.

On the other hand, using public transport, train and ship for travelling, instead of fuel or biofuel vehicles, could reduce the water footprint for 36% per person in 1 year!

Your lifestyle can be more sustainable in terms of water footprint! A small effort to conserve water generates exponential benefits, and each citizen has the power to have a significant impact on it!