

# Science for Environment Policy

## A vegetarian diet can help reduce water consumption across Europe

**Different European regions** have very different diets and environmental conditions, meaning their water consumption varies widely. Despite this, switching to vegetarian diets in keeping with regional variation would substantially reduce water consumption in all areas, a new study concludes. Where people choose to eat meat, adopting a healthy diet low in oils and sugar will also reduce water consumption, although to a lesser degree.

**There is increasing pressure** on global [water](#) resources, with demand rising and the effects of [climate change](#) causing concern. Water use efficiency is therefore a key issue. In the EU, the consumption of [agricultural](#) products represents 89% of the water 'footprint', accounting for 4265 lcd (litres per person per day) out of a total of 4815 lcd. Diet is therefore thought to have a substantial influence on water consumption.

In this study, researchers examine the effects of diet on water footprint, taking into account the differences in regional diets. The four regions were those geographical regions defined by the UN for the compilation of statistics. They included the north (Denmark, Estonia, Finland, Ireland, Latvia, Lithuania, Sweden and the UK); the east (the Czech Republic, Bulgaria, Hungary, Poland, Romania and Slovakia); the west (Austria, Belgium, France, Germany, Luxembourg and the Netherlands); and the south (Croatia, Cyprus, Greece, Italy, Malta, Portugal, Slovenia and Spain).

The researchers calculated the different water footprints of three different diets for each region: 1. the current diet in the region (based on national food consumption statistics for 1996-2005); 2. a healthy diet, based on regional guidelines; and 3. a vegetarian diet, which was based on the healthy diet, but with the meat substituted with other sources of protein, such as pulses and nuts, etc.

The results demonstrate that vegetarian diets achieve the greatest reduction in water consumption across all four regions. The two lowest footprints of the current diets were in the north and west. In the north, the current water footprint is calculated as 3197 lcd and this dropped by 3% to 3091 lcd under the healthy diet and by 32% to 2166 lcd under the vegetarian diet. In the west, the total of 3761 lcd was reduced by 26% as a result of the healthy diet and 41% for the vegetarian.

In the south, the current water footprint was largest, as expected for hotter countries where, for example, irrigation may be required for crop production. However, consumption of meat was also high, with the current consumption of 58.9 kg per person per year almost three times the regional recommendation of 20.8 kg. The southern total of 5875 lcd dropped by 30% under the healthy diet and 41% under the vegetarian diet. Countries in the east eat the least meat and current water consumption of 4053 lcd dropped by 11% for the healthy diet and by 27% for the vegetarian diet.

This study shows that reducing the amount of meat, sugar and oils in a diet can have a significant effect on the water footprint, even when regional differences are taken into consideration. The researchers do note one important limitation: water footprint estimates for fish are not available and could not be included; however, they note that this will in fact result in underestimation of current water footprint.



**23 January 2014**  
**Issue 358**

**Subscribe to free**  
**weekly News Alert**

**Source:** Vanham, D.,  
Hoekstra, A. Y. & Bidoglio,  
G. (2013). Potential water  
saving through changes in  
European diets.  
*Environment International*.  
61: 45–56. DOI:  
10.1016/j.envint.2013.09.  
011.

**Contact:**  
[davy.vanham@jrc.ec.eu](mailto:davy.vanham@jrc.ec.europa.eu)  
[ropa.eu](http://ropa.eu) or  
[davy.vanham@yahoo.d](mailto:davy.vanham@yahoo.de)  
[e](mailto:davy.vanham@yahoo.de)

**Read more about:**  
[Water](#), [Sustainable](#)  
[consumption and](#)  
[production](#)

The contents and views  
included in *Science for*  
*Environment Policy* are  
based on independent,  
peer-reviewed research  
and do not necessarily  
reflect the position of the  
European Commission.

To cite this  
article/service: "[Science](#)  
[for Environment Policy](#)":  
European Commission DG  
Environment News Alert  
Service, edited by  
SCU, The University of the  
West of England, Bristol.