

# UNDERSTANDING THE WATER FOOTPRINT OF FACTORY FARMING

Water scarcity is one of the key crises facing the world today. Professor Arjen Y. Hoekstra, explains the connection with factory farming.

The desirability of reducing our carbon footprints is generally recognised – if not necessarily acted upon – by governments, corporations and individual consumers. Yet the related and equally urgent need to address our water footprint is often overlooked.

Campaigns aimed at getting the public to save water usually focus on reducing domestic or industrial consumption of water. But only 10% of our water consumption is related to industrial products and only 5% to household use. About 85% of humanity's water footprint is in fact related to the consumption of agricultural products, particularly animal products, as they generally use much more water per caloric value than crops. This means that if people are considering reducing their water footprint, they need to look at their diet rather than at their water use in the kitchen, bathroom or garden.

The biggest contribution to the total water footprint of all animal products comes from growing feed, rather than the water the animals drink. Many grain crops are grown specifically for animal consumption. In the United States, for example, 68% of the grains produced are used for animal feed. But this step is the farthest removed from the consumer, which explains why people generally have little notion that animal products require a lot of water.



## THE WATER FOOTPRINT

A water footprint generally breaks down into three components:

The **BLUE WATER** footprint is the volume of fresh water that is consumed from surface and groundwater.

The **GREEN WATER** footprint is the volume of water consumed from rainwater stored in the soil.

The **GREY WATER** footprint is the volume of water that is required to dilute polluted water to such an extent that the quality of the ambient water remains above agreed water quality standards.

Purely from a water-saving point of view, it is more efficient to eat the crops directly rather than having them processed into meat. Moreover, the water footprints of two seemingly similar pieces of meat can largely differ. Even though taste and other measurable characteristics may be the same, water footprints may be completely different depending on how the animal has been reared and fed.

The water footprint of beef from an industrial system may partly refer to irrigation water (blue water) to grow feed in an area remote from where the cow is raised. This can be an area where water is abundantly available, but it may be an area where water is scarce and where minimum environmental flow requirements are not met due to over exploitation. In contrast, the water footprint of beef from a grazing system will mostly refer to green water used in pastures. If the pastures used are either dry- or wetlands that cannot be used for crop cultivation, the green water flow turned into meat could not have been used to produce food crops instead. If, however, the pastures can be substituted by cropland, the green water allocated to crop production ceases to be available for meat production. So the social and ecological impacts of water use at a certain location depend on the scarcity and alternative uses of water at that location.

