

# Make **water** **management** *your business*

by Marcio Viegas

Water is the source of life, and business. Yet despite its seeming abundance, water crises have been identified as one of the highest global risks of our time. On the occasion of the United Nations World Water Day, we look at why measuring our water footprint is taking on a new appeal.

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Water is not just vital to sustain life; it's also a crucial resource for businesses. From food and clothing to cars and mobile phones, it is an essential input throughout the supply chain. And with plenty of free-running water, rain, and even floods, it is hard for us to imagine it ever running out.

Yet only 1% of the world's water is freshwater, available for consumption. To make matters worse, the precious liquid is unevenly distributed across the Earth, with some regions blessed with bountiful rainfall while others are plagued with prolonged droughts. Add to that an exploding global population, polluted waterways and the devastating effects of climate change and it's no wonder the World Economic Forum identifies water crises as one of the three risks with the highest potential global impact – far above the spread of infectious diseases and interstate conflict.

Supplied at the flick of a tap, water is also generally cheap and is often taken for granted until there is a severe shortage episode – as seen recently in California and São Paulo – bringing agriculture and industry to a standstill and costing billions of dollars to the economy. Managing our “blue gold” efficiently is therefore paramount to developing flourishing societies and businesses.

Celebrated annually on 22 March, World Water Day highlights a specific aspect of freshwater. Under this year's theme “Water and jobs”, it focuses on the two-way relationship between water and decent work opportunities in the quest for sustainable development.

## **How big is your footprint?**

Water is an invaluable commodity in terms of trade and economics. For example, it takes 15000 l of water to produce 1 kg of beef. Water consumption in the supply chain represents as much as 90% of the total water footprint of industrial users. What then happens when the taps run dry?

In the World Economic Forum's Global Risks Report 2016, chief executives and world leaders said they regarded water crises among the top five global risks to business. And with good reason – water scarcity or pollution incidents can halt production, disrupt the supply chain, lead to conflict with other water users, and harm corporate reputations. In the light of looming water scarcity and the growing demand for resources, businesses and government are taking note of the need to better manage their water.

Current patterns of production and consumption undoubtedly have an impact on the environment, climate change and water resources.



Understanding this impact – or “footprint” – is a vital step towards finding strategies to reduce it. This can be achieved by measuring its use, and the impact of this use, throughout the life cycles of products, processes and organizations.

The solution comes in the form of water footprint assessment (WFA), a technique to better understand an organization’s water-related impacts so that they can be better managed. In fact, its popularity is such among the business world that WFA methodologies have mushroomed in the last decade.

To reign in the confusion, in 2009 ISO launched a global effort to develop a harmonized framework for the quantification and reporting of water footprints. The result was ISO 14046:2014, designed to help organizations assess and report the potential impacts of water use and pollution of products and processes, based on a life-cycle assessment.

### A business decision

Developed by experts from all over the world, the standard has already seen good uptake across many sectors in over a hundred countries, starting with the more water-intensive industries such as food and beverages, power and utilities, construction, and chemicals. But interest is also rising in the automotive and oil & gas industries, where the need to properly manage water shortage risks is gaining ground.

The main driver behind the movement is risk management and the realization that organizations cannot afford to be grounded for lack of water or because of the burden they impose on the environment. Interestingly, agriculture, which is responsible for around 70% of the global water consumption and is the first to be impacted when it runs dry, has yet to get firmly on board, although it may soon come round to the idea that it can produce more with the same amount of water.

### Drinking from the same fount

So what is the appeal of ISO 14046? For a start, it is the first truly “international” standard for water footprinting based on life-cycle assessment. This is important because it provides organizations with the means to measure their water footprint in a uniform and accurate manner across the globe.

ISO 14046 comes with 50 definitions which lay down basic concepts of water footprinting that are accepted worldwide. The standard also puts forward 13 principles, notably the importance of considering a water footprint assessment from a “life-cycle perspective”, i.e. taking into consideration all stages of the life cycle of a product or an organization.

Secondly, the standard’s content is flexible enough to be applied to products, processes and organizations. Moreover, it is at the pinnacle of hydrological knowledge and includes geographical and temporal dimensions that help determine the quantum of water used and the changes in water quality.



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Based on life-cycle assessment, ISO 14046 specifically helps assess the magnitude of potential environmental impacts related to water, identifying opportunities to cut down those impacts, promote water management optimization at all levels, and provide reliable and scientifically consistent information for reporting water footprint data that can be monitored over time.

### No trivial exercise

A water footprint assessment according to ISO 14046 is the result of a comprehensive analysis including four phases:

- 1. Goal and scope definition:** identifying the life-cycle assessment’s purpose and determining the boundaries
- 2. Inventory analysis:** quantifying the energy, raw material inputs and environmental releases associated with each stage of production
- 3. Impact analysis:** assessing the impacts on human health and the environment associated with the energy and raw material inputs, and environmental releases quantified by the inventory
- 4. Interpretation of results:** evaluating opportunities to reduce energy and material inputs, or environmental impacts at each stage of the product life-cycle

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The assessment culminates in a water footprint profile that considers various environmental impacts – from scarcity to eutrophication (i.e. the addition to water bodies of external nutrients) to acidification and more – making it possible to identify the weak points in the life cycle of the system studied. These then become the focal point for improving the system from an environmental point of view.

Water footprinting, however, is no trivial exercise. A good way to start is by assessing the water scarcity footprint of an organization. Water is a local resource bound to seasonal variations, so the impact of its use on, for instance, water scarcity can only be evaluated by comparing the water consumption against the locally available water resources. To mitigate this, one solution is to normalize the values obtained – using the concept of litres or cubic metres of water equivalent – with each local scarcity level and, if relevant, at different seasons.

### A reference for the future

ISO 14046, it seems, is poised for success, not least because it supports the United Nations Sustainable Development Goals (SDGs). Adopted in 2015 as part of the 2030 Agenda for Sustainable Development, the SDGs cover a wide range of drivers across the three pillars of sustainable development, including a dedicated goal on water and sanitation (SDG 6) that sets out to “ensure availability and sustainable management of water and sanitation for all”.

With water at the very core of sustainable development, SDG 6 not only has strong linkages to all the other SDGs (food, health, cities and sustainable consumption and production), it has the ability to underpin them.

As more and more organizations jump on the bandwagon, ISO 14046 is well on course to becoming the international reference for water footprint assessment and reporting. This can lead to a more robust risk management and, potentially, increased production and better products, as the water “bottlenecks” and impacts are better understood. ■

