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Thirst for change

Accelerating progress to a water secure future
in the built environment sector

Andy Butterfield
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The entire lifecycle of the built environment, from construction to operation, end-of-life demolition or refurbishment, is highly water intensive and generates significant environmental impacts. As the population grows demand for new buildings is likely only to rise too.

At the same time, the sector has a huge opportunity to lead the charge towards a more water-secure society and accelerate progress towards a sustainable world. From adopting sustainable water management practices, embedding green infrastructure solutions, adopting new technologies and utilizing water-efficient building standards to name a few, there are many ways in which the built environment can drive positive change on water security.

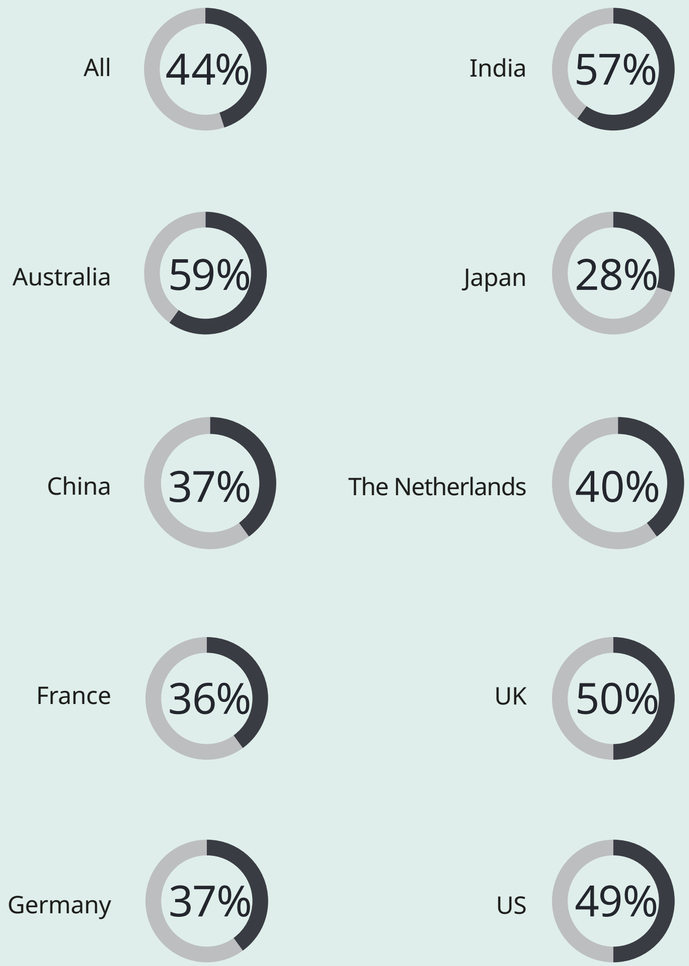
Organizations in this space should be proactively showcasing these solutions and making them a cornerstone of new development, just as many are with regard to carbon efficient buildings.

The other side of the coin is for individuals and organizations to embrace these solutions where they are offered. Engagement on water efficiency is crucial, both within the sector itself and with those that interact with it. As BSI's data shows, people are not yet bought in to solutions that would enhance water efficiency within the built environment. Under half globally think commercial and residential buildings should be designed with water efficiency in mind, and only a third would be willing to pay to install Rainwater Harvesting (RWH) systems. Sector leaders have the opportunity to educate building users on both the need for and benefits of water efficient design within the built environment, in order to help drive uptake of solutions.

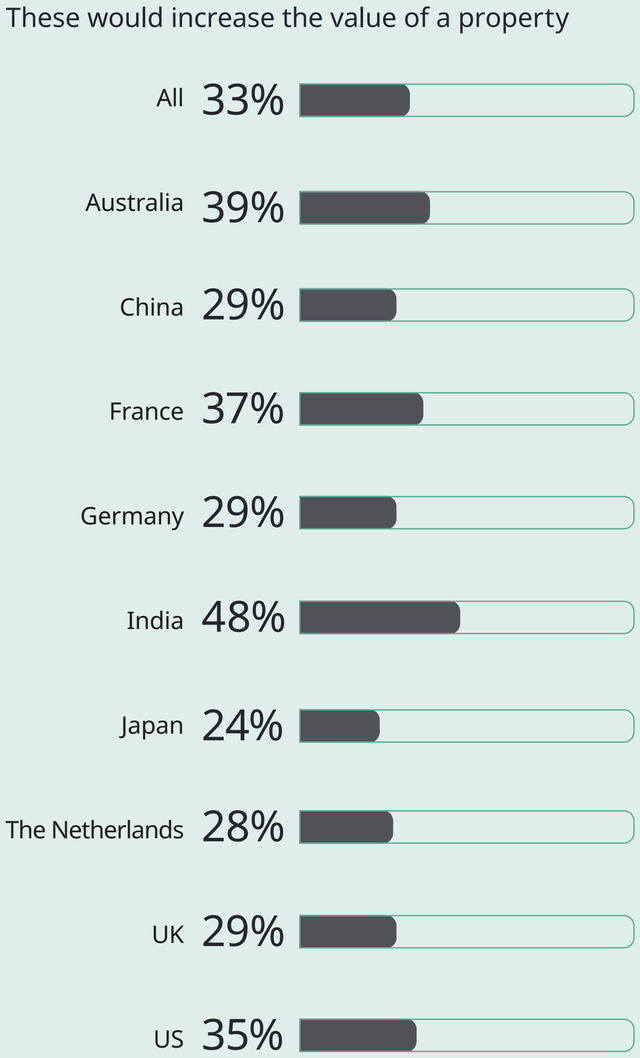
With collaboration, engagement and solution adoption across the lifecycle of built assets, there is ample scope for positive change. Every aspect of society interacts with the built environment in one way or another, so the sector is uniquely placed to accelerate progress on water security for the benefit of our society and our planet.

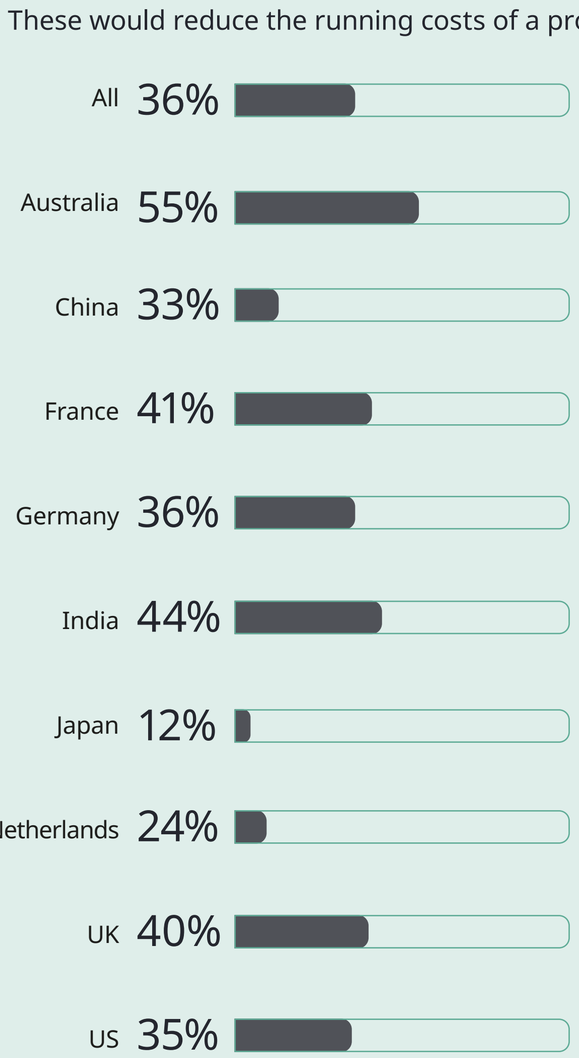
Public understanding of attitudes towards built environment water security solutions

Agree commercial and residential buildings should be designed with water efficiency in mind



Views on water efficient fittings and appliances





As set out in out 2023 Thirst for Change report, estimates suggest the construction of buildings and infrastructure accounts for over 15% of global freshwater use. In the US 12% of freshwater is used in the operation of buildings, and in Europe buildings are responsible for the majority of the 21% of abstracted water for public supply. It is therefore evident that effectively managing water use and reducing water wastage in both the construction and operation of built assets will be critical in accelerating progress towards a water secure future.

Despite this, BSI research found that under half of people think commercial and residential buildings should be designed with water efficiency in mind, and only a third would be willing to invest in rainwater harvesting systems for their property[1]. Tellingly, only a third (36%) understand that water efficient fittings and appliances could reduce the running costs of a property and just 36% see the potential for solutions such as a rainwater harvesting system to increase the value of a property. Only one in three suggest they would be willing to purchase water efficient appliances over less water efficient appliances at an increased upfront cost, with the same number expressing willingness to pay to install rainwater harvesting systems. Nor is water front-of-mind when people are choosing a property; only a third say flood risk is a factor when house-hunting. While a fifth say they would be more likely to object to local planning applications due to concern about water supply. What's clear is water security is slimily not a factor driving behavior in this regard.

This suggests that alongside implementing solutions to effectively manage its water use and reduce water wastage, the built environment has a clear responsibility to engage across the sector and show the public the need for and benefits of a water efficient built environment.

1 The Potential of RainWater Harvesting Systems in Europe – Current State of Art and Future Perspectives, Water Resources Management, May 2024

Water security solutions

Recommendations for the built environment sector from Jonathan Breton, Global Director Built Environment, BSI

Jonathan's career spans over 15 years driving digital transformation and sustainability initiatives in the built environment sector. Through a collaborative approach Jonathan helps leading sector organizations address complex sector challenges, particularly the adoption of sustainable, digital, and quality practices throughout every phase of the asset lifecycle.

Sustainable water management practices
Encourage adopting integrated water resource management (IWRM) in urban planning, focusing on efficiently using and reusing water in buildings and landscapes, can all offer benefits.

Green infrastructure solutions
Promote green roofs, permeable pavements, and rain gardens to enhance natural water absorption and reduce runoff, thereby supporting local water systems.

Smart technology
Advocate for integrating smart technologies like IoT sensors, hardware that detects changes in an environment and collects data, and AI to monitor and optimize water usage in real time within commercial and residential buildings.

Water efficient building standards
Stringent water efficiency standards and certifications for new developments can ensure all projects prioritize water conservation.

Community engagement and education
Emphasize the importance of community involvement in water management strategies, providing education on these and the impact of individual choices on water security.

Collaboration across sectors
Facilitate partnerships between the built environment sector, local governments, and water management authorities to develop cohesive strategies that address water challenges holistically.

Investment in research and innovation
Encourage funding and support for research into innovative water-saving technologies and methods, positioning the built environment sector as a leader in sustainable water solutions.

Policy advocacy
Advocate for policies incentivizing water-efficient designs and discouraging wasteful practices, creating a regulatory framework supporting sustainable water management in the built environment.

Water security measures in BSI assets

Ghinwa Chammas
Director of Group Sustainability, BSI

Ghinwa is BSI Director of Group sustainability, in charge of BSI's own internal sustainability performance and helping BSI become a more sustainable business in its operations. Ghinwa aims to achieve this through the use of sustainability standards and BSI's own commercial sustainability solutions. She leads the Operational Sustainability Excellence team and under her leadership BSI has been a finalist for several prestigious sustainability awards in 2023 and 2024 including Reuters Responsible Business awards, Business Green awards, Edie awards, and United Nations Global Compact Pioneer.

BSI has a relatively small water footprint in our own operations, with water rated low in our materiality assessment. Nonetheless we take water very seriously and have plans within our Operational Sustainability Excellence Strategy to ensure we manage it as best we can.

The starting point for us is understanding the situation globally, what data we have, what challenges we face and what the opportunities for improvement are – whether these are efficiency measures and the use of alternative water sources like rainwater and greywater.

Within our Milton Keynes offices, for example, water reduction and leak detection measures are already in place, with water pumps throughout the buildings connected to light sensors. When an area is not occupied, the water pumps in that area are disabled. If water keeps running, this is indicative of a leak that can be fixed promptly.

In our labs, each rig has its own specification and opportunities. Where specifications allow, rigs are designed to reuse water – for example for helmet spray testing, or the hot and cold pressure testing of pipes. This test can take months and the same water is captured and used in a closed cycle.

We have developed a checklist to assess whether properties we lease would help us achieve our net zero goals. Because we recognise that water and carbon are interlinked, the checklist also includes a water assessment, looking at what water efficiency measures are already in place and our ability as an occupier to introduce our own such measures.

Fixing leaks at British Sugar's factory

Making sugar is a very energy-intensive process. To reduce water consumption and environmental impact at British Sugar's factory in Newark, UK, the company is investing in technology and analyzing data to make infrastructure improvements to the pipes supplying their factory, which is over 100 years old[2]. Smart water meters were installed to enable all water flowing in and around the site to be continually monitored.

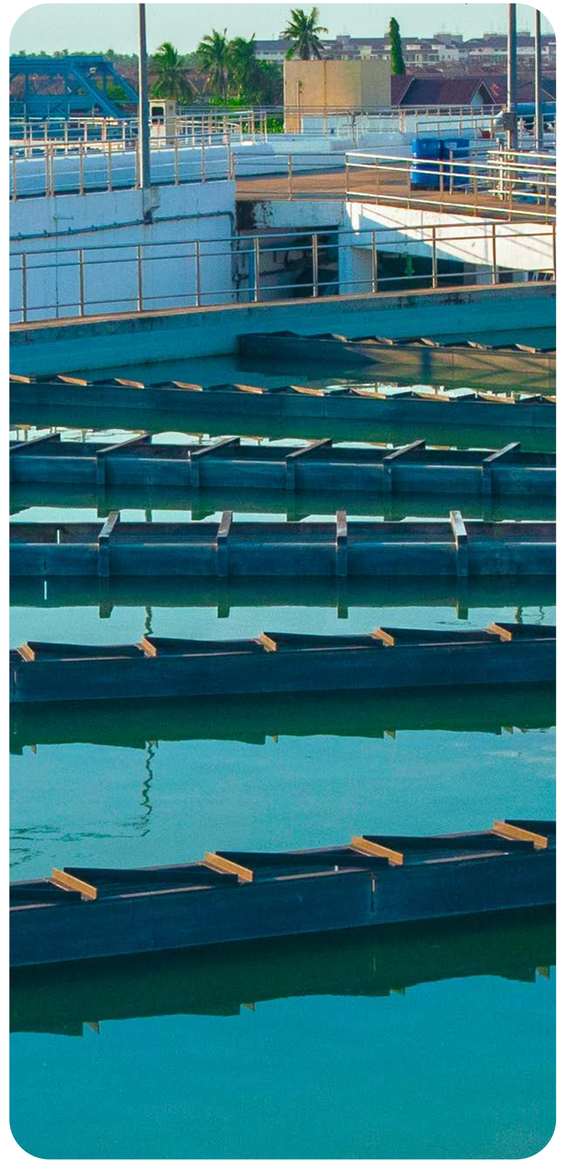
In 2021, the data indicated a discrepancy and revealed a leak that needed fixing. Working with their water supplier, part of the town's mains water pipe was repaired, which is estimated to be saving 26,280 cubic metres per year, equivalent to seven Olympic-sized pools and a 14% reduction in water being brought to the site from Newark.

2 Diving deep into data to save water waste, ABF Sugar, April 2022

Embedding water reuse requirements in building standards in San Francisco

In San Francisco, US, onsite water reuse is now required for new development projects over 100,000 gross square feet. This allows for the collection, treatment and reuse of alternate water sources for non-potable applications in individual buildings and at the district scale. Through matching alternate water sources with the right end use, for example irrigation and urinal and toilet flushing, valuable potable water supplies can be offset[3].

For larger development projects, water budget calculations assessing the available supply from alternate water sources and demand from non-potable uses must now be submitted. To illustrate, a utilities building of 277,500 gross square feet was completed in 2012 and employs wastewater treatment technology and rainwater harvesting system that reduces potable water use by 50%. Implementing both systems increased the building's total construction cost by less than 1%[4].



3 Onsite Water Reuse, San Francisco Water Power Sewer, accessed August 2024
4 San Francisco's Onsite Water Reuse System Projects, San Francisco Public Utilities Commission, December 2021

Find out more about sustainability in the **built environment**

Explore the **Thirst for Change campaign**

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