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Thirst for change: Securing a water positive future

Infographics and Data
Visualisations



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Water is one of earth's most fundamental and precious resources and the importance of conserving it is critical. BSI partnered with Waterwise to obtain and collate credible, referenced and traceable data, covering the UK, US, Japan, China, Australia, France and Germany.

A Global Challenge

Whilst water is abundant on Earth, only between 1-3% is freshwater, of which approximately 0.5% is considered accessible⁴. Water use has increased eightfold in the last century and is expected to grow through to 2050, driven by a combination of rising population, socio-economic development and changing consumption patterns⁵.

Although definitions of water stress vary, increasing demand for water is putting available resources under greater and greater pressure.

The Blue Thread

Using the water we have efficiently, together with minimising wastage, can:

- Make us more resilient to climate change and drought
- Meet the rapidly increasing demands of a growing, more urban population
- Support economic growth, as water is essential for the production of raw materials, for agriculture and industry and for worker welfare
- Bring biodiversity gains
- Help ensure equity and affordability

Broader Insights and Trends

Leakage – Leakage from water supply networks and other sources is a significant issue both in terms of lost revenue and wasted resources.

Good design – This is critical for any water saving measure, as the examples of dual flush toilets and water-efficient showers demonstrate.

Smart water metering – The data from this could be an opportunity to reduce leakage and water consumption and a way for governments to drive change on a societal level.

Inefficient products and water efficiency labelling – Unlike with energy, in most countries it is challenging for domestic and business customers to make informed choices. Improved water labelling could be a key tool to reduce water use.

Embracing circularity – Reusing water provides a huge opportunity. This includes rainwater harvesting (RWH) systems, as part of a Sustainable Urban Drainage System (SUDS). Another potential technical solution is the use of desalination to remove salts from seawater.

Water neutrality and water positivity are emerging approaches – The former essentially means that the additional water demand on the environment arising from an activity is zero. Some organizations are going further and looking to use the approach to deliver a net gain to the environment – known as “water positive”.

The **Thirst for change: Securing a water** positive future research identifies that using water wisely can bring important benefits, including enabling equitable global access, protecting precious habitats and making the global community more resilient to climate change and drought. It makes a series of recommendations.

Source: Thirst for change: Securing a water positive future, BSI & Waterwise, Page 7

Recommendations

01 Recognize water wastage as a serious challenge

Visible and meaningful effort by water utilities around the world to reduce network leakage, driven by government action to incentivize change, can have a direct impact and persuade individuals and organizations to acknowledge their own role and act to reduce wastage at homes and in workplaces.

02 Ensure it is easy to choose water saving products

If more countries facing water stress embrace mandatory water efficiency labelling, this could be helpful in accelerating progress towards a sustainable world.

03 Get smart when it comes to saving water

Embrace innovation and make better use of data. Smart water meters have the potential to be a game changer – through steps such as legislation, regulation, use of standards, enhanced funding and upskilling workforce capability, governments can facilitate progress so that water saving becomes the norm.

04 Encourage a water saving culture

We can effect change if we step up efforts to prioritize addressing water availability challenges and encourage a positive water saving culture amongst individuals, organizations and society, at home and in the workplace, and across different sectors.

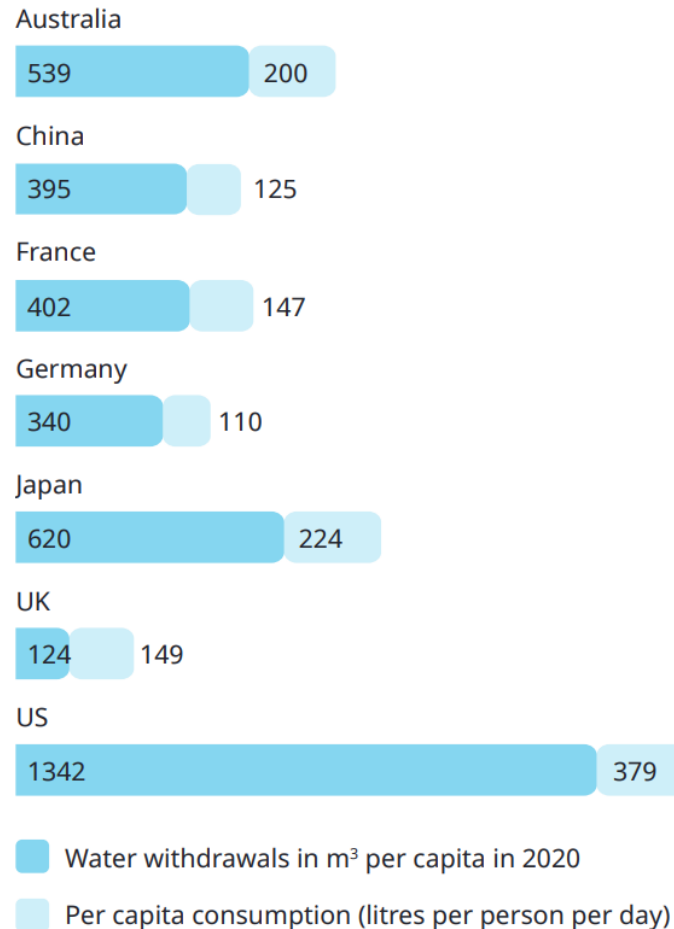
05 Close the loop

Applying a circular economy mindset to the water security challenge can help tackle some of the key drivers of the issue. Reusing water provides a huge opportunity to reduce freshwater withdrawals/abstraction and to address rising water demand.

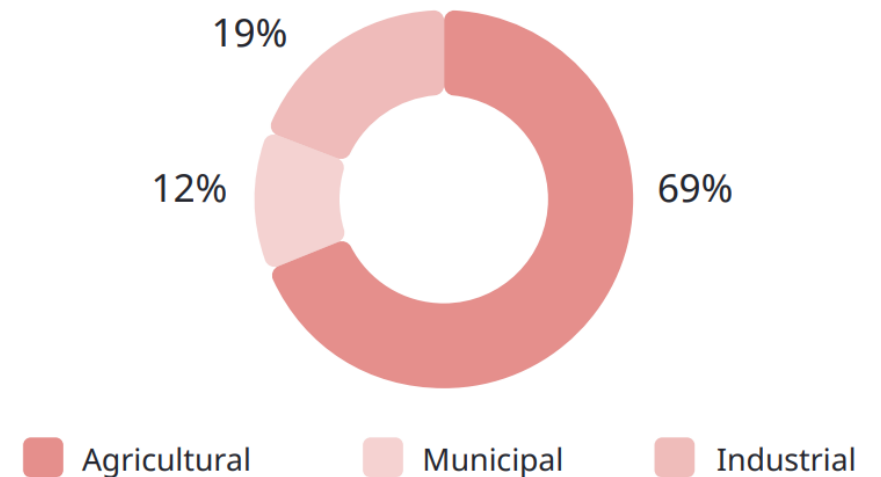
06 Collaboration is king

Water is the blue thread that connects our world. Collaborative effort across a wide range of players can help us address the growing challenges around water availability.

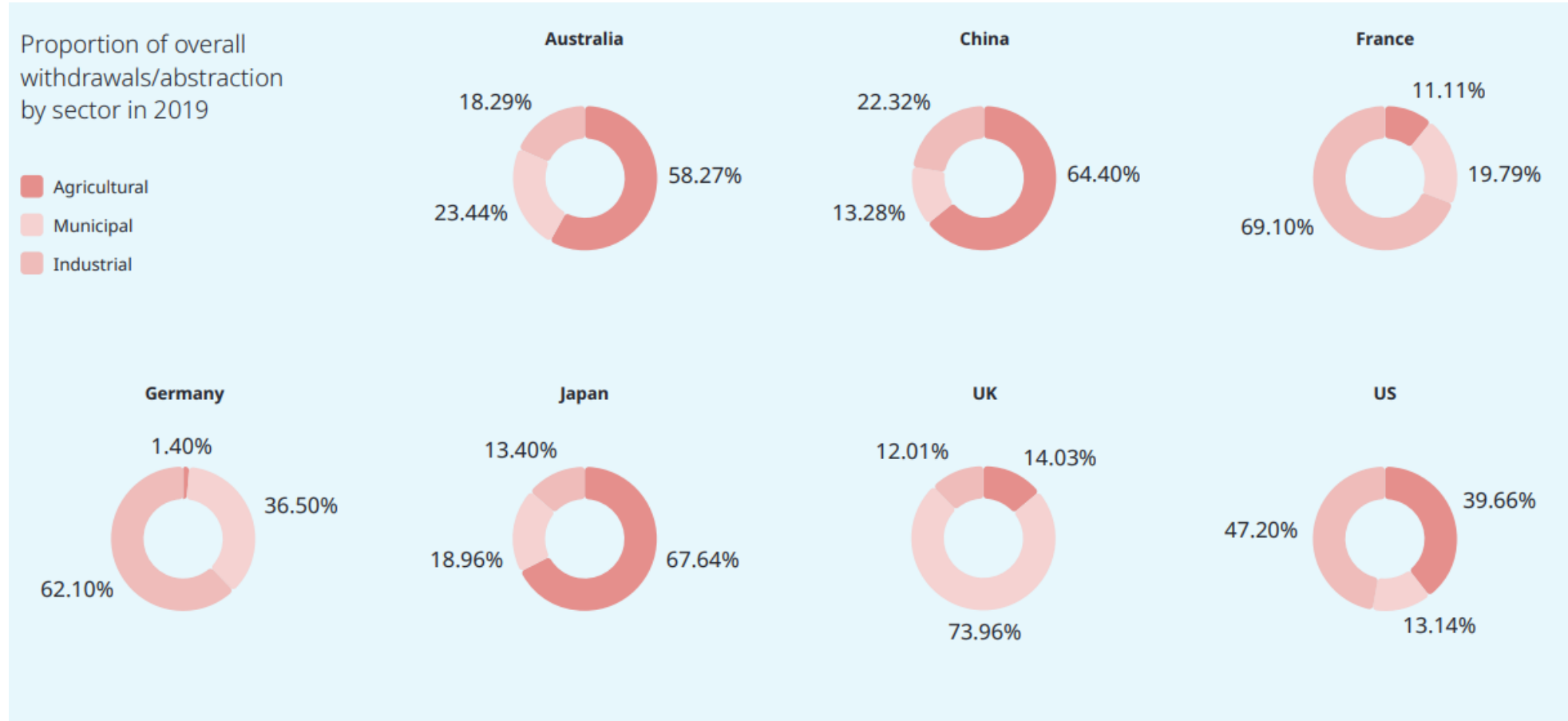
The data shows the variation in the water abstracted per person (abstraction is the process of taking or extracting water from a natural source), with much of the variation down to the volume of water being abstracted and used in agriculture. The two countries with the highest per capita consumption also have the highest per capita withdrawals. The growth in global water use since 1900 has largely been driven by population growth and, over the first five or six decades, was mainly for agricultural purposes.



Global water withdrawal or abstraction ratios



Source: Thirst for change: Securing a water positive future, BSI & Waterwise, Pages 9 & 10



Source: Thirst for change: Securing a water positive future, BSI & Waterwise, Page 11

Using the water we have efficiently, along with minimizing wastage, can help make the planet more resistant to climate change and drought, whilst also reducing carbon emissions.



Source: Thirst for change: Securing a water positive future, BSI & Waterwise, Page 16

Using water efficiently can help ensure that we have enough to meet the rapidly increasing demands of a growing, more urban population.

0.8 to 4.4 billion

Increase in global population living in cities between 1950 and 2020 (a rise from 29.6% to 56.2% of the total)

6.7 billion

Projected global population living in cities by 2050, accounting for 68.4% of the total

2.373 billion

Global urban population projected to be facing water scarcity in 2050, up from 933 million in 2016

9 out of 30

Megacities located in perennially water scarce regions, including Los Angeles and Beijing. Tianjin (China) and New York are seasonally water scarce



Source: Thirst for change: Securing a water positive future, BSI & Waterwise, Page 20

Preventing water wastage has the potential to bring biodiversity gains; every litre saved leaves more in the environment to support precious habitats and species. This matters because, while freshwater ecosystems cover less than 1% of Earth's surface, they are home to at least 10% of Earth's species.

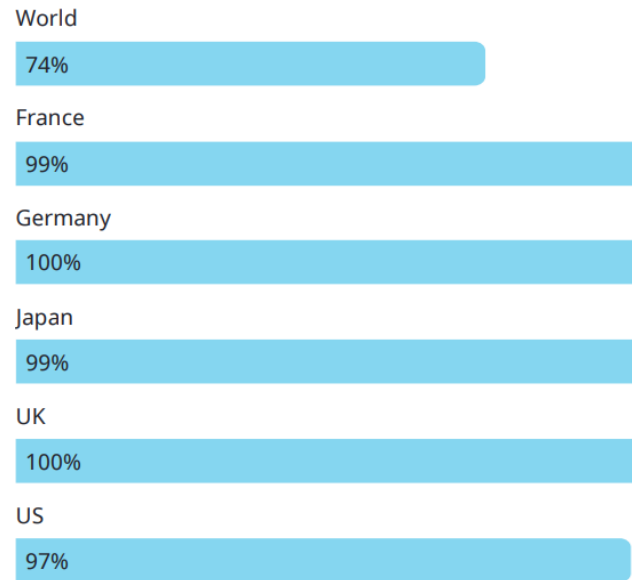


Source: Thirst for change: Securing a water positive future, BSI & Waterwise, Page 24

Access to safely managed drinking water and sanitation services is key to ensuring equity and affordability of water, as set out in the United Nations Sustainable Development Goals (UN SDGs).

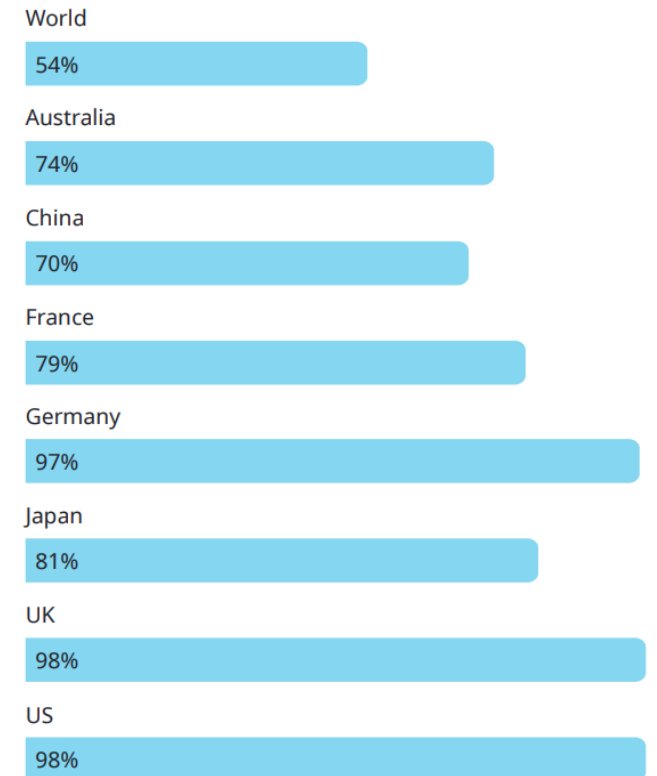
To meet water availability challenges, build a more equitable global society and accelerate progress towards a sustainable world, everyone has a part to play.

% population using a safely managed drinking water service*



* Data for Australia and China was unavailable.

% population with access to a safely managed sanitation service



Source: Thirst for change: Securing a water positive future, BSI & Waterwise, Page 26

A circular economy, where resources are redeployed or reused, material use and resultant waste is addressed, and waste flows are turned into inputs for further production, can help reduce dependence on finite raw materials and the volumes cast off as waste.

Reusing water provides a huge opportunity to reduce freshwater abstraction and to address rising water demand.

Water reuse (closing the loop)

As set out by Arup and the Ellen MacArthur Foundation, a circular water system would include the following:

- **Avoid use** – through rethinking products and services and eliminating ineffective actions
- **Reduce use** – driving continuous improvements through water use efficiency and better resource allocation and management
- **Reuse** – pursuing any and all opportunities to reuse water within an operation (closed loop) and for external applications within the surrounding vicinity or community
- **Recycle** – within internal operations and/or for external applications
- **Replenish** – efficiently and effectively returning water to the basin



The healthcare sector is a large water user and relies on a secure supply of water, whether in hospitals, for the manufacture of medicines by pharmaceutical companies, or to maintain hygiene in medical settings.

83 million

litres of water per day in total used by the healthcare sector in England and Wales (3% of total non-household public water supply)

7%

Proportion of total water use in commercial and institutional facilities in US hospitals and healthcare facilities

4%

Proportion of total public water supply non-household use by healthcare sector in Australia's most populous state, New South Wales

25-30%

Proportion of total water withdrawals by France's chemical industry, which includes pharmaceuticals (along with petrochemicals, phytosanitary etc.)

Source: Thirst for change: Securing a water positive future, BSI & Waterwise, Page 40



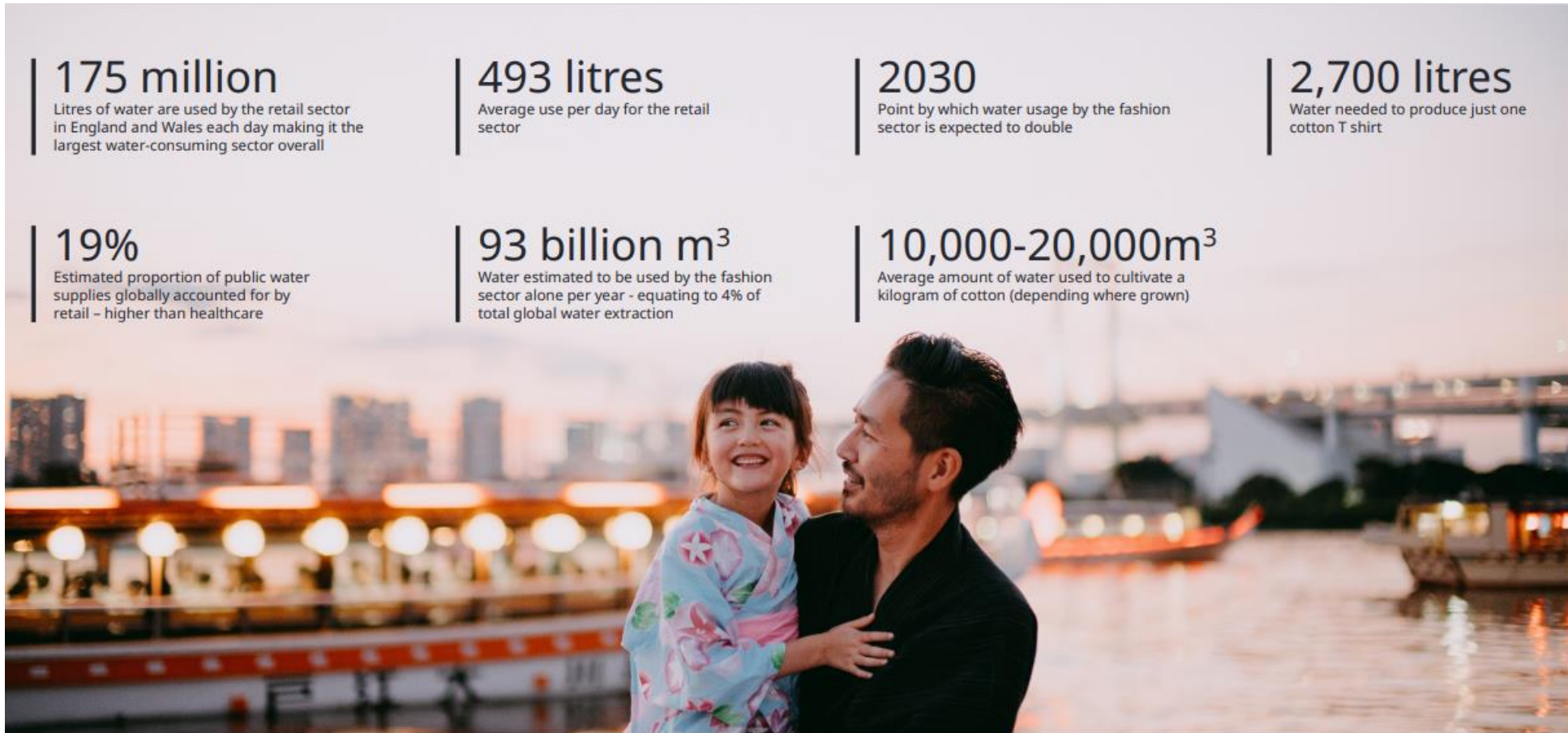
Source: Thirst for change: Securing a water positive future, BSI & Waterwise, Page 41

Retail water use is estimated to account for nearly a fifth of public water supplies globally, driven not least by fast fashion, use of materials like cotton and the electronics market.

Key steps that could improve the water footprint of the fashion sector

- Sourcing cotton from certified sustainable farms – organic cotton is produced with healthier soils that retain more moisture, benefiting overall sustainable water management
- Water-saving or waterless dyeing and textile processing. This can not only reduce water used but also prevent excess pollutants ending up in local water bodies. Examples include H&M's capsule collection jeans and SIAM NITORI's waterless colouring process of kneading pigments directly into recycled raw materials
- An increase in alternative sources such as effluent reuse to improve water efficiency
- Brands providing clear instructions to consumers on how to reduce energy and water use when caring for items
- Consumers choosing pre-loved clothing. GlobalData forecasts that the global apparel resale market will reach US\$338.4 billion in 2026

Source: Thirst for change: Securing a water positive future, BSI & Waterwise, Page 45



Source: Thirst for change: Securing a water positive future, BSI & Waterwise, Page 46

Construction in all its facets puts pressure on our water supplies and the wider environment due to the various embodied impacts of increased water demand. But with the population rising, there is the opportunity for the sector to lead the way in building water efficiency into our built environment. Water neutral developments can enable sustainable growth without increasing the demand for water.

Considerations for achieving water efficient buildings

- Upholding water efficient practices during the construction process (dust suppression, wheel washing, washing concrete wagons)
- Considering, and where possible mitigating, water footprint of building materials
- Installing alternative water supply systems where appropriate
- Installing water efficient fixtures and fittings (including plumbing systems, taps, toilets, urinals, irrigation systems, dishwashers etc.), ideally using any available labelling schemes as a guide
- Metering (ideally smart meters) and sub-metering where needed
- Effective soil management and use of plants suitable to the local climate
- Taking inspiration and learnings from best practice case studies around the world
- Setting targets as part of a water management strategy
- Seeking relevant green building accreditation to drive improvement and reward progress
- Water efficiency labelling schemes, such as the US WaterSense scheme

Source: Thirst for change: Securing a water positive future, BSI & Waterwise, Page 50