

# The Future of Sustainable Showering

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## Introduction

Anyone in any doubt about the immediate seriousness of water scarcity and drought need only look at recent headlines from around Europe for a dose of reality. It's here – everywhere, in fact – and it must be addressed now.

From the reservoirs around London to the Po River basin in Italy, and beyond, droughts and water scarcity are no longer rare or extreme events in Europe. Almost half of the European Union and UK face the risk of drought, with alert level threats impacting 9% of these territories, according to the latest *Drought in Europe* report from the European Commission.<sup>1</sup>

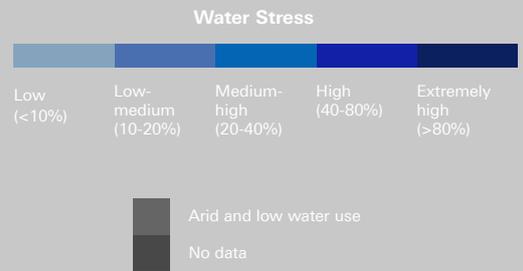
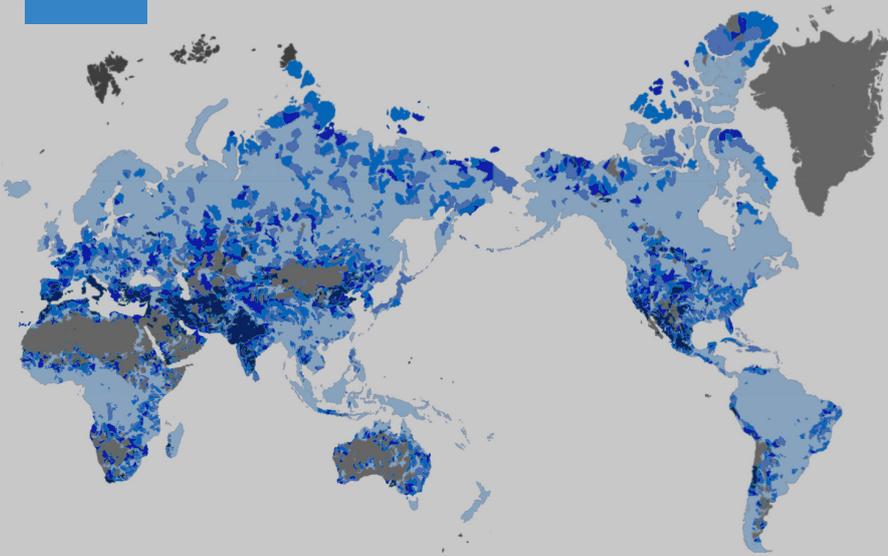
Heat waves and low rainfall – almost 20% less than the 30-year average across all EU and UK warning areas – have led to rivers, reservoirs, water reserves, and groundwater levels becoming severely depleted across much of the continent.

Low water reserves and dry conditions increase the threat of wildfires, and are impacting already strained yields of cereals and various other crops in countries including France, Spain, Italy, and many others. A combination of climate change and the planet's growing population is creating a perfect storm, leaving communities in Europe and on every continent facing water shortages.<sup>2</sup>





WATER STRESS ACROSS THE GLOBE



Source: WRI Aqueduct, accessed on 30 August 2022, [aqueduct.wri.org](https://aqueduct.wri.org)

Even areas with little or no water scarcity face challenges as an energy crisis in Europe has sent prices soaring, making it very expensive to heat water.

There is no single solution to these problems. However, technology can help by creating sustainable hygiene and sanitation solutions that conserve water in homes, business premises, and other buildings – after all, technology intended to make a positive impact can only do so if end users can get their hands on it.

Just as technology is changing what is possible with products, a parallel transformation is needed in the way people interact with water. Today’s business-as-usual approach to overconsuming increasingly scarce resources is not sustainable, and urgent change is required.<sup>3</sup> Every day, news headlines show us that we need to reimagine our relationship with water: to do more with less.

In households, bathing and showering make up the largest share of water use. A sanitary brand like GROHE can make a big difference here, already having decades of experience developing water-saving products. With water at the core of its business, GROHE is aware of its responsibility and strives to further advance the creation of sustainable solutions, taking resource conservation to the next level.

One example of this is a new shower concept that encourages people to reuse water. The shower solution is fitted with a water-recycling mode that enables users to enjoy a guilt-free, long shower while still conserving water.

This sustainable enjoyment approach aims to help people make a positive impact on scarce resources while allowing them to continue indulging in water.



**15%**

Water heating accounts for 15% of household energy usage in the EU

Source: Eurostat (2020)



# 1.

## Water Scarcity and Drought Are Not 'Tomorrow's Problem'

The threat of too much or too little water can devastate both lives and livelihoods – and millions of people across the globe are living with that risk today.

It's no secret that our world is warming. Human-induced climate change is increasing both the frequency and intensity of extreme weather events such as droughts, floods, wildfires, and violent storms.

**Adding to the challenge is the fact that the current global population of nearly 8 billion is expected to reach 9.7 billion in 2050, and increase to 10.4 billion by 2100.<sup>4</sup>**

Changing weather patterns and soaring demand for water increase pressure on the planet's already stretched water resources. The result is an accelerating global water crisis that threatens entire communities.

Global water use has grown at more than twice the rate of Earth's population over the past century,<sup>5</sup> making water stress a reality for an increasing number of regions. Water stress occurs when communities are unable to fulfill their water needs, because of either a lack of water or a lack of infrastructure needed to supply it.

Around 2.3 billion people live in water-stressed countries,<sup>6</sup> with 733 million residing in high and critical water-stressed countries. Intense water scarcity could displace 700 million people worldwide by 2030.<sup>7</sup>

The Middle East and North Africa region is one of the most – if not the most – water-stressed regions on Earth,<sup>8</sup> with low rainfall and many fast-growing, densely populated urban centers that require a lot of water.

Millions of people in places including the UK, Italy, Turkey, and many other developed economies, are living with water scarcity and shortages too. In Germany, studies have found a decline in levels of the groundwater that makes up the majority of the country's drinking water supply.<sup>9</sup> Such problems will only increase as the physical impacts of climate change intensify.<sup>10</sup>

In Europe, research shows that soaring temperatures between 2018 and 2020 caused a record-breaking drought of unprecedented intensity, affecting one-third of the continent for more than two years. And the region should brace for more of the same.<sup>11</sup>

"Droughts and water scarcity are no longer rare or extreme events in Europe, and about 20% of European territory and 30% of Europeans are affected by water stress during an average year," according to a European Environment Agency report.<sup>12</sup>

**With average temperatures now 1.1°C warmer than in pre-industrial times, the potential to keep global warming to within the Paris Agreement's climate goal of 1.5°C is disappearing fast.**

The risk of water scarcity is forecast to become high at 1.5°C, impacting southern Europe more than the north. As temperatures increase, heat stress, drought, and flooding could lead to forced migration as suitable living space is reduced, substantial agricultural production is lost, and numerous other disruptive impacts emerge.<sup>13</sup>

Unless measures are in place to mitigate and adapt to climate change, many communities in these regions and other parts of the world face an uncertain future.



# 2. How Water-Efficient Buildings Can Help

Rethinking current business-as-usual attitudes to how we use water is a key part of addressing this challenge. Success here rests on designing products and buildings to conserve this precious resource.

Architects, developers, and other professionals involved in creating the buildings of the future – or retrofitting those that already exist – have an important and urgent role to play in helping communities use water more efficiently.

In Europe, the building sector accounts for half of all extracted materials, half of all energy consumption, and a third of water consumption.<sup>14</sup> The continent could reduce its water consumption by 40% by making technological changes to improve efficiency, according to European Commission estimates.<sup>15</sup>

As part of the European Green Deal, the European Commission has launched its Level(s) framework for sustainable buildings. This provides a common language to assess and report on the sustainability performance of buildings,<sup>16</sup> to help policymakers, developers, architects, and other stakeholders improve the green credentials of existing and new buildings.

The European Commission points to four areas that future legislation could address to tackle the threat from water scarcity and drought.<sup>17</sup>

1. Making buildings more water efficient
2. Introducing water-efficiency standards at EU level for products in residential, commercial, industrial, and agricultural sectors
3. Reducing leakage in water distribution networks
4. Preventing activities that cause desertification

EU regulation is already in place to reduce water flow in products like toilets, but policymakers have largely overlooked many other water-saving measures.

Attitudes and regulations relating to water conservation also differ greatly from one member state to another, making policy decisions difficult.

Countries such as the Netherlands – which is aiming for a fully circular economy by 2050<sup>18</sup> – have long-held and strictly enforced laws regulating water conservation in buildings, for example.

However, in other countries, including Poland, European water-saving regulations are less strictly enforced. Poland registers low-medium baseline water stress on the World Resources Institute’s National Water Stress Rankings<sup>19</sup>.

“It’s important to raise water-saving up and ensure it receives the same political support as reducing CO<sub>2</sub>,” says Piotr Strzalkowski, Leader, Activation Professional Channel, Education & GROHE X Eastern Europe, LIXIL, EMENA.

“Not many people in Poland understand that we have the same resources as some Middle Eastern countries. We don’t have deserts, so nobody here is thinking that we don’t have water,” he says.

“We need to educate both installers and the wider public in Poland about the need for water conservancy – and the cost benefits that can be derived from saving water.”



A three-person household uses an average of 86 m<sup>3</sup> of cold water and 48 m<sup>3</sup> of warm water every year

Source: German Environment Agency (2020)



THE ROLE OF POLICY IN CREATING WATER-SUSTAINABLE COMMUNITIES

While there are no uniform standards for sustainable buildings, there are some established “green” building certification and best-practice programs that encourage energy and water-efficient buildings. These include:

**1. Leadership in Energy and Environmental Design (LEED):**

An internationally recognized green building certification by the US Green Building Council that promotes efficient water use.<sup>20</sup>

**2. Building Research Establishment Environmental Assessment Method (BREEAM):**

One of the world’s leading sustainability assessment methods for master-planning projects, infrastructure and buildings.<sup>21</sup>

**3. Deutsche Gesellschaft für Nachhaltiges Bauen (DGNB):**

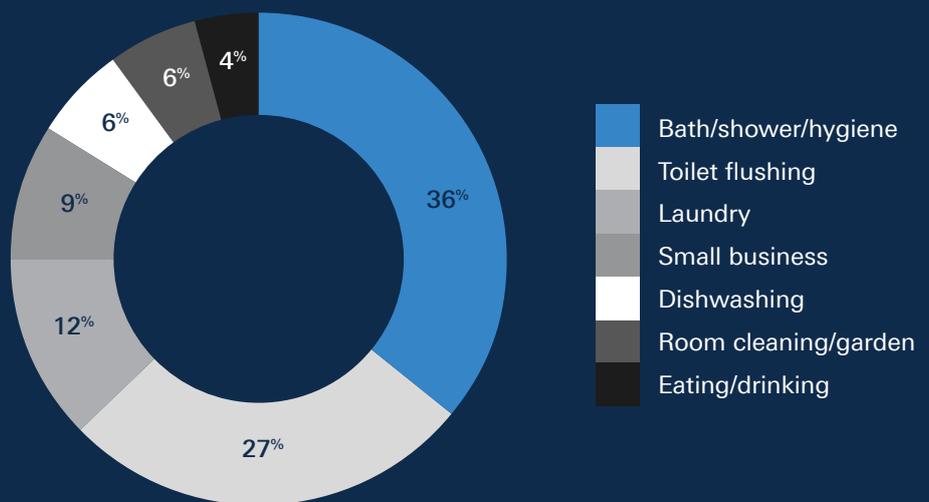
Run by the German Sustainable Building Council, Europe’s biggest network for sustainable building assesses the entire lifecycle of new and existing building projects.<sup>22</sup>



MORE THAN A THIRD OF HOUSEHOLD WATER USAGE COMES FROM BATHS, SHOWERS AND HYGIENE

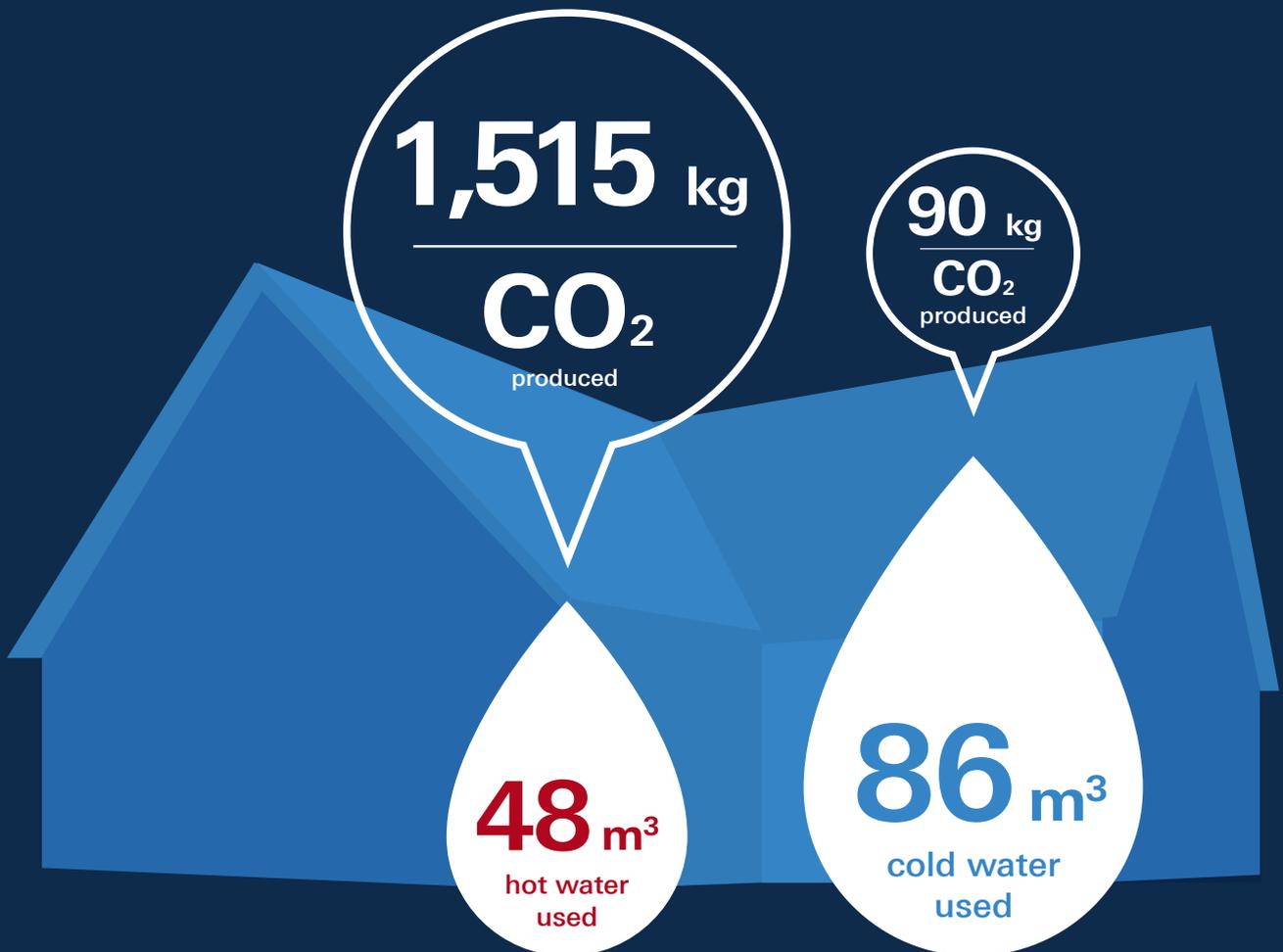
Reducing water consumption in the bathroom could have a significant impact

Source: BDEW-German Association of Energy and Water Industries (2021)





# THE HIDDEN COST OF ONE YEAR'S HOT WATER



An average three-person household's hot water consumption produces 1,515 kg of CO<sub>2</sub> per year, while cold water consumption produces 90 kg

Source: German Environment Agency (2020)



# 3 ■ Getting Smart on Saving Water

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It's time to get smart about saving water. Fitting resource-efficient kitchen and bathroom equipment in buildings can help people consume less without changing lifestyles dramatically – a first step towards water-efficient homes.

GROHE products address the challenge of water scarcity by conserving water, without undermining user experience.

“Our product designs aim to provide that indulgent moment, that 'me time', but this has to be balanced with issues like water and energy costs, consumption and sustainability,” says Patrick Speck, Leader LIXIL Global Design, EMENA.



**127 l**

Average water used daily by one person in Germany

Source: BDEW-German Association of Energy and Water Industries (2021)

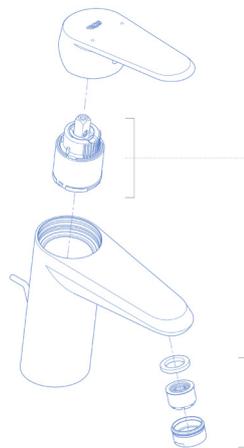


These products – see below – have been designed to encourage people to behave more sustainably and to own their experience by choosing to save energy or save water. They reflect the design thinking that runs throughout LIXIL, combining market intelligence, design, and R&D to create forward-thinking products.

While this approach alone won't resolve water stress, it is part of the solution – and a step toward the wider goal of changing global perceptions of water and how we use it.

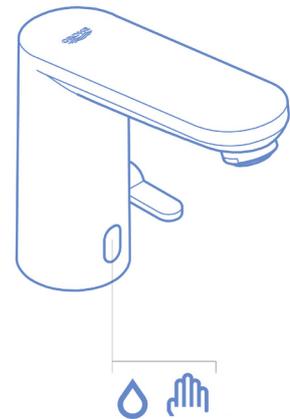
**GROHE EcoJoy**

A faucet fitted with a flow-restrictor, which can halve water consumption. Despite reducing the rate of water flow from 10 liters per minute to just over five, an aerator makes the flow feel the same as that from a regular faucet. The technology is also available on numerous models of showers across style and price segments. The integrated flow restrictor automatically reduces water consumption to 9,5 l/min.



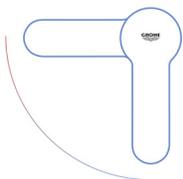
**GROHE Touchless**

This range of touchless faucets is fitted with infrared sensors that detect hand movement so water only flows when it is needed, enabling users to manage their water consumption more responsibly.



**GROHE SilkMove ES**

The starting point of the lever in the mid-position only allows the flow of cold water and prevents unnecessary hot water consumption, which saves energy.



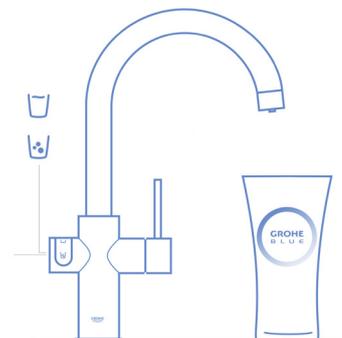
**GROHE EcoButton**

The GROHE EcoButton reduces water flow, resulting in water savings of up to 50% without compromising on the shower quality. By simply pushing a button, users can increase the water volume if they want to. With this extra step, GROHE aims to make users aware of their actions and try to nudge them toward more sustainable water consumption.



**GROHE Blue**

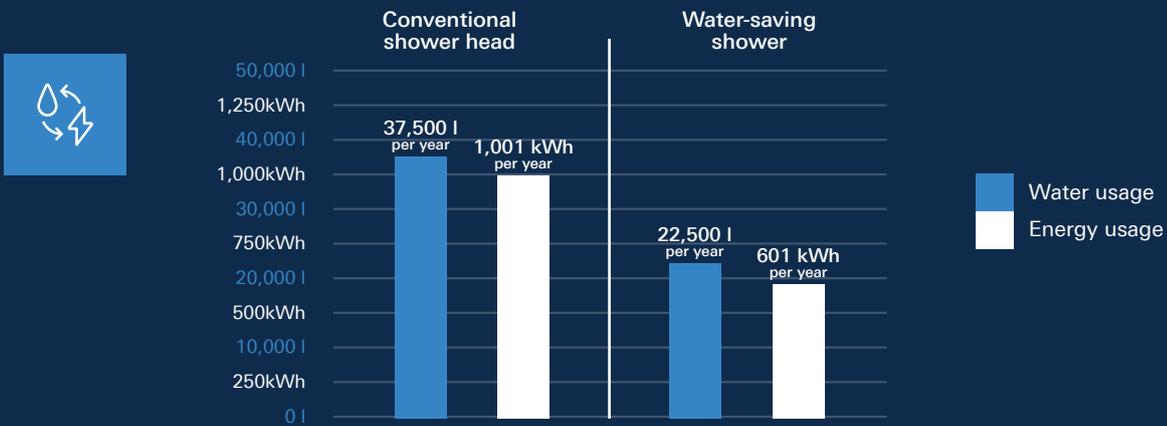
A water system that provides sparkling, medium-sparkling, and still drinking water that is filtered and chilled directly from the kitchen tap, eliminating the need to buy bottled drinking water.



# THE WATER-SAVING SHOWER IN NUMBERS

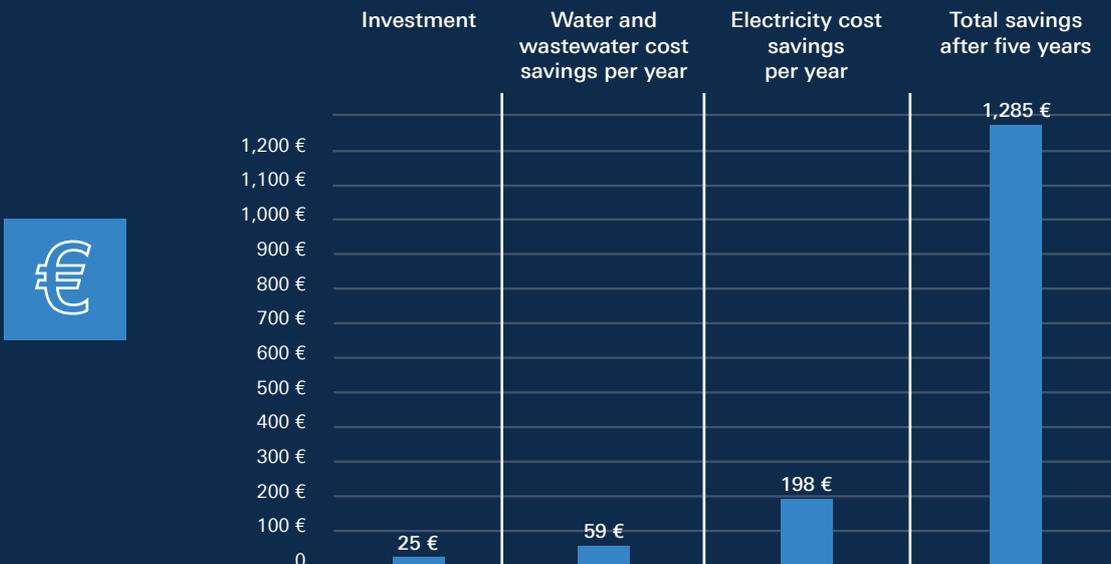
## POTENTIAL WATER SAVINGS

Source: The Öko-Institut



## POTENTIAL COST SAVINGS

Source: The Öko-Institut (figures adjusted for 2022 energy prices)





# 4. A Step Change in Shower Technology

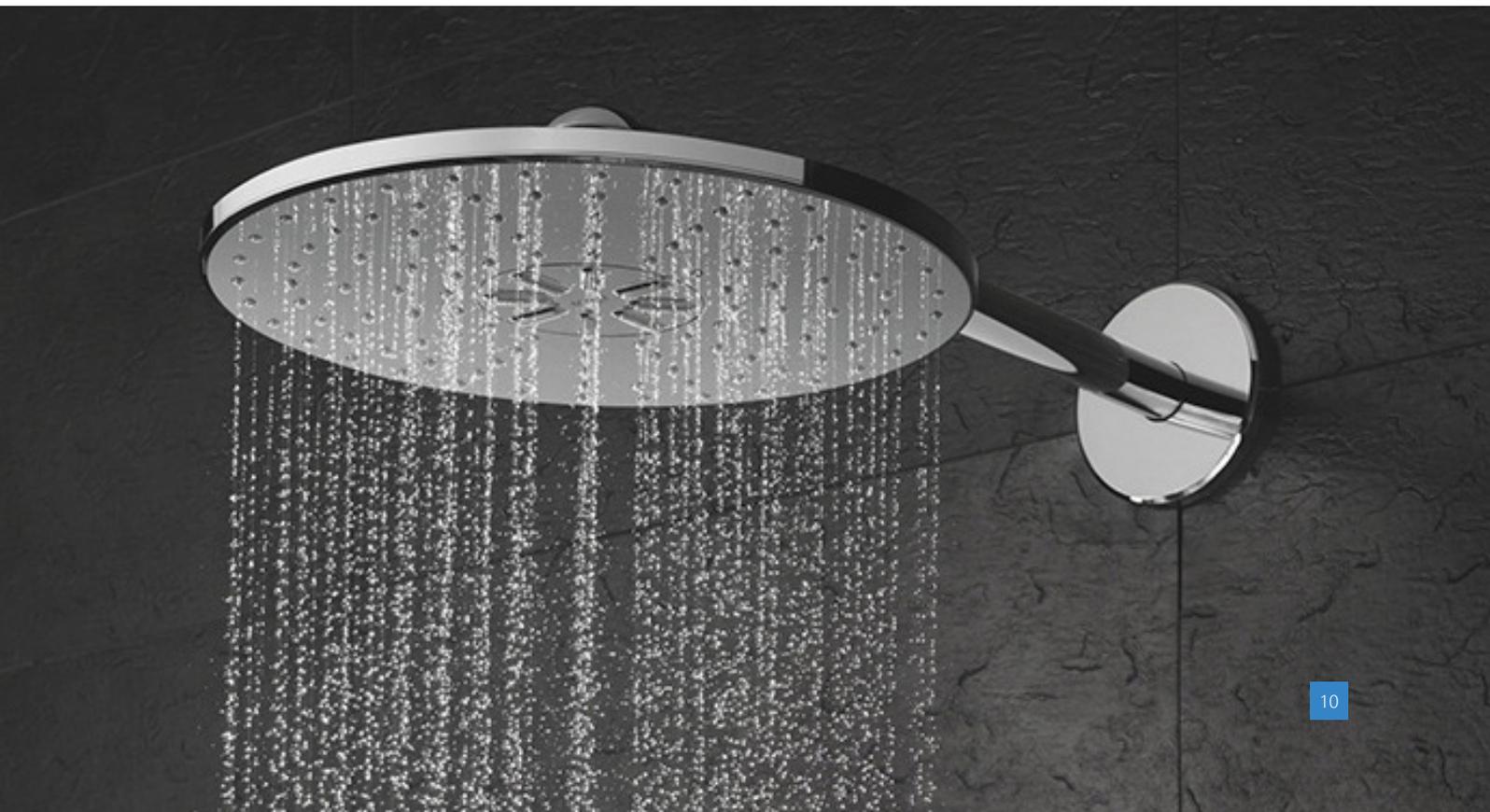
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GROHE is breaking new ground in water conservation with innovations like its water-recycling shower concept, which combines a wide range of technologies already in use across the brand's product range. Still at the prototype stage, the solution is a step change that would enable users to make sustainable water choices while maximizing their enjoyment.

Bathing and showering make up the largest share of water use in households – around 34% – research shows.<sup>23</sup>

Heating water is also expensive and harmful to the environment: the average German private household uses around 12% of its total energy consumption to generate hot water,<sup>24</sup> for example. Most emissions from household water use are generated by heating water.<sup>25</sup>

Reducing water and energy consumption here involves rethinking how showers function.

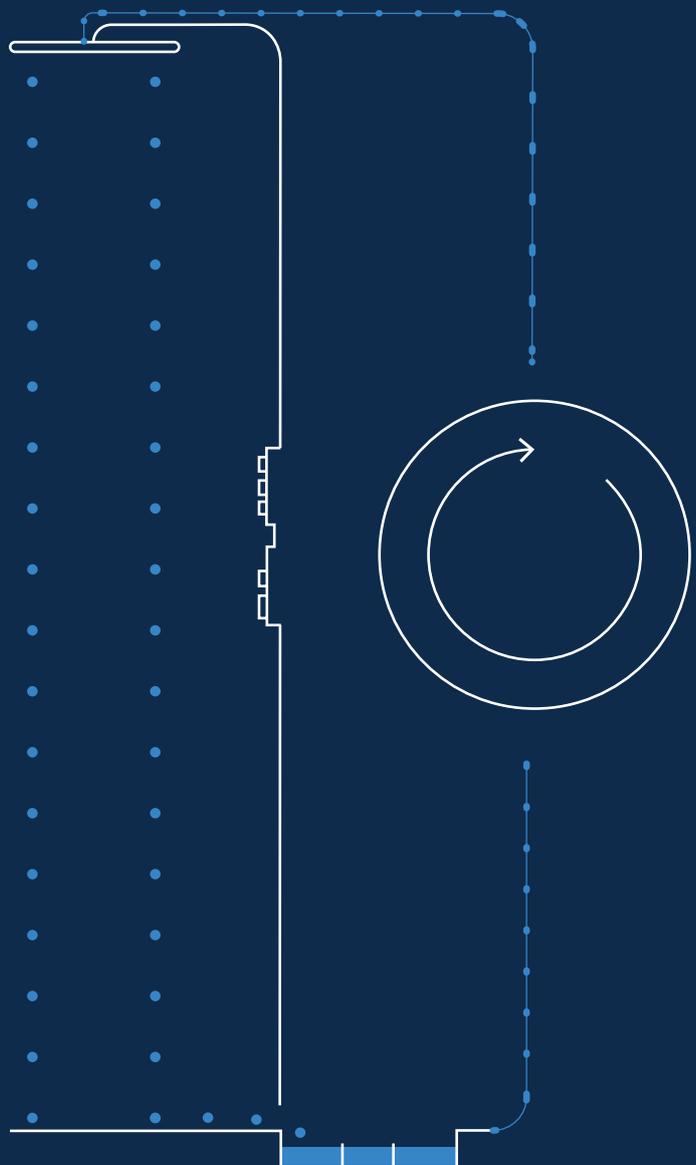




## HOW IT WORKS

The new shower technology combines two systems into one product: a freshwater mode that can be used like a conventional shower, and a water-recycling system that is completely separate.

- 1.** First, users start the shower with fresh water, as with any regular shower.
- 2.** Once finished using the shampoo or soap, the user can switch mode. The water collected in the drain after switching is pumped into a circuit, maintaining the desired temperature and hygienically treating the water.
- 3.** After use, cleaning takes place to prepare the shower for the next user.





Users can choose to take a traditional freshwater shower. But, unlike a traditional home shower that delivers fresh water constantly, the new design's recycle-water mode allows a longer shower with a high flow rate. This uses less energy than a conventional shower and conserves water that would otherwise go down the drain.

As with a regular shower, users begin showering with fresh water. Once they are finished washing with shampoo and soap, activating recycle-water mode collects water in the drain, which is

pumped through into a circuit, maintaining the desired temperature and hygienically treating the water. After use, the shower unit is cleaned ready for the next user.

An average conventional shower consumes around 120 liters of fresh water in 10 minutes, but in recycled mode it could consume as little as 30 liters – leading to an overall water saving of up to 75%. Using recycled water can also reduce energy consumption by up to 65% compared with a conventional shower.

### Conventional shower



### Recycling shower concept



**27,000 l**

per year can be saved when using a shower that recycles water

Source: LIXIL R&D



**150**

The number of bathtubs' worth of water you could save by using a shower that recycles water

Source: LIXIL R&D



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## TAKING CONTROL OF WATER CONSERVATION

This is all about helping customers choose to make a positive impact. Like other GROHE concepts, the water-recycling shower design gives users a conscious choice to switch to recycled mode rather than it being an automated function.

Giving control to users serves two purposes: firstly, it allows them to know which mode the shower is operating in; and secondly, it raises awareness of the need to act more sustainably, getting buy-in on the fact that behavioral change can help solve the world's water challenges.

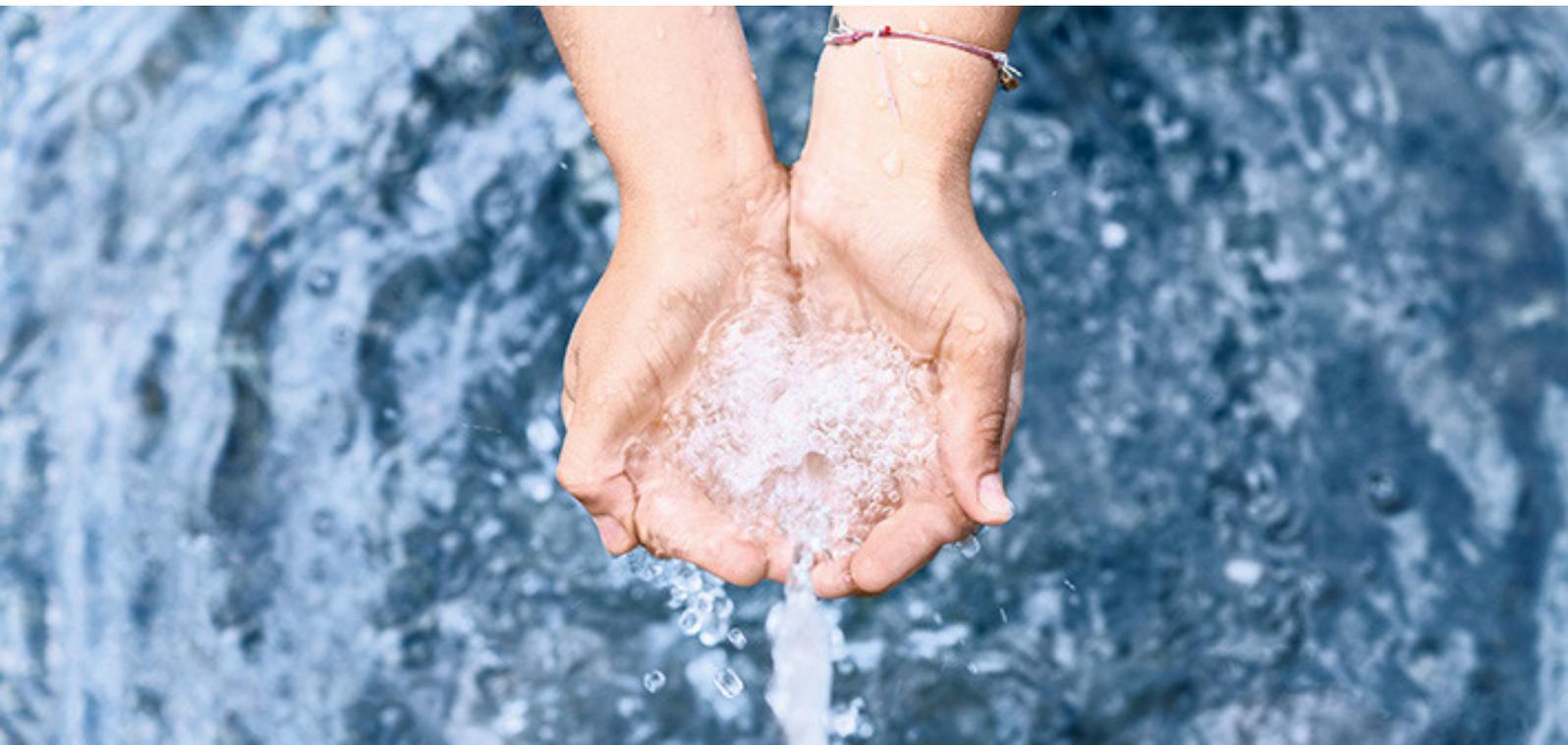
"You do something good for the environment and you get rewarded with more water," says David Mainka, Leader, Electronics and Innovation R&D at LIXIL EMENA.

Innovations like this set the standard for industry leaders to create a new portfolio

of sustainable products that put water and energy conservation top of mind without compromising user experience. They also drive real change by making it easy for users to consume less water, while still fully embracing the joy of water.

"The innovation process is not a sole journey, it's a trinity of market intelligence, design intelligence, and R&D intelligence coming together," says Patrick Speck.

As part of LIXIL's strong brand portfolio, GROHE's sustainability activities and product developments are embedded in LIXIL's Environmental Vision, which calls for Zero Carbon and Circular Living. Water sustainability is one of the focus areas here. The goal is to help people enjoy water while ensuring sustainable water use on a global scale to have a positive impact on the planet.



## Conclusion

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While there is no single solution to the growing challenge of water scarcity, if enough people change how they interact with water, it can help conserve this precious resource.

Changing people's long-held patterns of behavior is easier said than done. But the task is simpler if the kitchen and bathroom equipment in homes, business premises, and other buildings offer users a choice to reduce water consumption without compromising their experience.

**That's why we're calling on the building industry and others to join us in helping bring about this change. It's imperative that, together, we ensure people everywhere have access to sustainable hygiene and sanitation products that will make a real difference.**

As momentum grows for greener buildings, products, and ways of living, we can all – individuals, builders, architects, policymakers, and other stakeholders – create a better future by embracing water-efficient homes.

“Industry leaders must lead by example and have the courage to develop new concepts that provide a quality experience and respect our natural resources,” says Patrick Speck. “We need to make sure the planet is going to be healthy for future generations.”





## References

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- <sup>1</sup> [European Commission \*Drought in Europe\* report, 2022](#)
- <sup>2</sup> [UN Water, \*Water Facts, Water Scarcity\*](#)
- <sup>3</sup> [UN Water, \*Water Facts, Water Scarcity\*](#)
- <sup>4</sup> [United Nations, \*World Population Prospects 2022\*](#)
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- <sup>6</sup> [UN Water, \*Summary Progress Update 2021\*](#)
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- <sup>8</sup> [UNICEF, \*Running Dry: The impact of water scarcity on children in the Middle East and North Africa, August 2021\*](#)
- <sup>9</sup> [Nature Communications, \*Deep learning shows declining groundwater levels in Germany until 2100 due to climate change, 2022\*](#)
- <sup>10</sup> [IPCC WGII Sixth Assessment Report, 2022](#)
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- <sup>13</sup> [IPCC WGII Sixth Assessment Report, 2022](#)
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- <sup>15</sup> [European Commission, \*Water Scarcity & Droughts in the European Union\*](#)
- <sup>16</sup> [European Commission, \*Level\(s\) European framework for sustainable buildings\*](#)
- <sup>17</sup> [European Commission, \*Water Scarcity & Droughts in the European Union\*](#)
- <sup>18</sup> [Government of the Netherlands, \*Accelerating the transition to a circular economy\*](#)
- <sup>19</sup> [World Resources Institute, \*17 Countries, Home to One-Quarter of the World's Population, Face Extremely High Water Stress, 2019\*](#)
- <sup>20</sup> [US Green Building Council](#)
- <sup>21</sup> [Building Research Establishment \(BRE\)](#)
- <sup>22</sup> [German Sustainable Building Council](#)
- <sup>23</sup> [Waterwise](#)
- <sup>24</sup> [German Environment Agency](#)
- <sup>25</sup> [BBC, \*The hidden impact of your daily water use, 2020\*](#)



## Contacts

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### About GROHE

GROHE is a leading global brand for complete bathroom solutions and kitchen fittings. Since 2014 GROHE has been part of the strong brand portfolio of LIXIL, a manufacturer of pioneering water and housing products. In order to offer "Pure Freude an Wasser", every product is based on the brand values of quality, technology, design and sustainability. Portfolio highlights such as the GROHE Eurosmart line or the GROHE thermostat series as well as groundbreaking innovations such as the GROHE Blue water system are the perfect embodiment of these values. Focused on customer needs, GROHE creates life-enhancing and sustainable product solutions that offer added value for consumers. To make everyday work easier for its professional partners, the brand also offers a comprehensive range of services, including the GROHE + loyalty program and GIVE – a training program for the next generation of installers.

With water at the core of its business, GROHE contributes to LIXIL's corporate responsibility strategy with a resource-saving value chain: from CO<sub>2</sub>-neutral\* production, water- and energy-saving product technologies, the removal of unnecessary plastic in the product packaging, all the way to the launch of Cradle to Cradle Certified® products. With the hybrid communication ecosystem GROHE X, the brand provides further impulses for the industry. Whether digitally on the brand experience hub, physically or hybrid in the GROHE X Brand & Communication Experience Center in Hemer, Germany or on the road with the GROHE X Motion Trucks, the brand connects people to enhance LIXIL's purpose to "make better homes a reality for everyone, everywhere".

\*includes CO<sub>2</sub> compensation projects  
more on [green.grohe.com](https://www.green.grohe.com)

### About LIXIL

LIXIL (TSE Code 5938) makes pioneering water and housing products that solve everyday, real-life challenges, making better homes a reality for everyone, everywhere. Drawing on our Japanese heritage, we create world-leading technology and innovate to make high quality products that transform homes. But the LIXIL difference is how we do this; through meaningful design, an entrepreneurial spirit, a dedication to improving accessibility for all, and responsible business growth. Our approach comes to life through industry leading brands, including INAX, GROHE, American Standard, and TOSTEM. Approximately 55,000 colleagues operating in more than 150 countries are proud to make products that touch the lives of more than a billion people every day. Learn more at [www.lixil.com](https://www.lixil.com)

E-Mail: [media@grohe.com](mailto:media@grohe.com)

Grohe AG  
Feldmühleplatz 15  
40545 Düsseldorf  
Germany