

# ‘Everyone can benefit from handwashing’: how a new device is improving access to hygiene

Inspired by watching his son playing in the bath, engineer Daigo Ishiyama created a tap that works without the need of running water

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Non-independent content produced as part of a commercial deal with Guardian Labs



Around 2 billion people globally lack access to handwashing facilities. Photo: Moyo Studio/Getty Images

When Daigo Ishiyama contracted Covid in the spring of 2020, he felt grateful knowing he had the basics in place to keep his family safe. “In the developed world, we tend to take access to water, sanitation, and hygiene for granted,” he says. “But a steep inequity in access means many go without these basic human necessities – I knew I was among the lucky ones.”

The global pandemic was a stark reminder that one of the most effective ways to stop the spread of a virus is also one of the most direct: handwashing. But [according to Unicef](#), 25% of the world’s population – about 2 billion people – still do not have access to basic handwashing facilities at home; in some of the least developed countries, it is as high as 75%.

Handwashing with soap and clean water helps to reduce the transmission of a range of diseases, it lowers risks of respiratory infections and diarrhoea, and is the most effective and economical remedy against antimicrobial resistance.

Yet almost [half of schools](#) around the world do not have handwashing facilities with water and soap, and [one in three](#) healthcare facilities globally lack hand hygiene resources at points where patients receive care. The global hygiene crisis puts children, students, teachers, doctors, patients – all of us – at risk.

This was the conundrum facing Ishiyama while he isolated in his New Jersey home in 2020 as news of the virus wreaking havoc around the world blared from his TV screen. As the global death toll quickly began to rise, he felt a desperate need to do something about it.

As the innovation leader for Sato, a brand of [Lixil](#) – a global pioneer of water and housing products – where he has worked for more than two decades, Ishiyama has been closely involved with some of Lixil’s most innovative toilet and hygiene systems, including the products of its award-winning social business Sato, which develops off-grid sanitation and hygiene solutions and serves communities in rural and peri-urban areas globally, particularly in Africa and Asia.

“We needed to approach the problem from the end user’s perspective and work backwards in order to create an appropriate and effective solution,” he says. “From experience, I knew we needed something that would be straightforward to use and did not rely on plumbing or access to running water.”



*The Sato Tap works with bottles of water and includes a soap holder*

The idea came to him a few weeks later while he was giving his six-year-old son a bath. “One evening as I watched my son play, dribbling water from one plastic toy to another, the inspiration for a tap solution came to me,” Ishiyama recalls.

He quickly got to work from his basement and, within six weeks, he devised the [Sato Tap](#) – although the process was not always straightforward. Under strict social distancing rules, he waited hours in line to get materials at the local hardware store, underwent five major design iterations, and carried out prototype testing from home. “My family acted as primary testers during the development process,” he says.

The Sato Tap is designed to rely on pressure and gravity to create a simple on-and-off mechanism, without needing access to running water. It enables handwashing with as little as 100ml of water while still providing a steady flow. The unique handwashing device consists of a plastic base and nozzle that can be fitted with widely available plastic bottles – which would otherwise go to landfill – and, importantly, includes a soap holder.

Having soap and water in key settings is crucial to habit adoption and behavioural change. Various studies have shown that people with access to designated handwashing facilities in their homes and public spaces are [twice as likely to wash their hands](#). The Sato Tap can be operated with a simple nudge, ensuring minimal contact and releasing just enough water to practise safe hygiene.

“Crucially the design is simple and very cost effective, which is key for accessibility so everyone, everywhere, can benefit from handwashing,” says Ishiyama. “The final product consists of two plastic parts, one injection moulded and the other blow moulded – both common manufacturing methods for mass production in developing countries.”

There were other considerations to bear in mind beyond the design. The solution had to be within users’ means. Hygiene markets around the globe often do not work well for low-income consumers; affordable and appealing hygiene solutions are limited and cashflow priorities can deter families from investing in basic facilities such as taps and toilets.

“Offering products at a price point users can afford is paramount in all that Sato does,” says Ishiyama. “Product affordability is a critical driver of sustained behavioural change.”

As part of its efforts to accelerate the rollout of the Sato Tap, Lixil also built on its existing [Make a Splash! \[Pdf\]](#) partnership with Unicef, which focuses on building sanitation and hygiene markets across Asia and Africa.

Since Lixil started offering the Sato tap, the response has been overwhelmingly positive across different countries. According to findings from Unicef, in India, for example, families liked being able to choose the placement of the tap according to their individual preferences and needs.





*The Sato Tap is affordable for users while offering local businesses opportunities to distribute and sell the product. Photo: Unicef/Bizuwor*

In Bihar, India, households placed their Sato Tap outside their homes, close to a well or piped water, and said being close to a water source made filling the bottle easier. Others placed it outside on the veranda to enable handwashing on entry into the house, and some put it inside to prevent theft.

In Kenya, families appreciated the sustainable aspects of the product. One family shared that the Sato Tap uses water economically compared with the use of a basin to wash hands, which they felt wasted a lot of water. While in Ethiopia, families found it easy to use and wanted to buy more than one tap to place in different parts of the house.

User feedback is essential to Sato's design process for all its products. For example, as a result of the field testing that was carried out with the help of Unicef, the flow rate of the Sato Tap was adjusted to optimise for different handwashing habits.

“It's been wonderful to hear such positive stories from people using the Sato Tap,” says Ishiyama, who was surprised to learn that his product had been selected by Time magazine as one of the [100 Best Inventions of 2020](#) – Ishiyama's invention also became a finalist in Fast Company's [World Changing Ideas Awards 2021](#).

Promoting good hygiene has always been one of the core parts of Lixil's work, and the Sato Tap is just one of its award-winning products helping to raise hygiene standards across the world.

“The Sato Tap was created by our team leveraging valuable insights and feedback from our partners’ networks in multiple countries and contexts,” says Erin McCusker, senior vice president, Lixil, and leader, Sato and Lixil Public Partners. “Feedback from users and stakeholders, including from industry partners and the most remote communities, enabled us to create a solution that addressed specific consumer challenges, as well as tackling gaps left by other handwashing solutions.

“To ensure that we don’t face a crisis where 2 billion men, women and children continue to live without access to handwashing solutions, everyone must unite to accelerate hand hygiene access and make better hygiene a reality for everyone, everywhere.”

***Find out more***

*To find out more about Sato products and improving sanitation and hygiene access in developing countries, visit [sato.lixil.com](https://sato.lixil.com)*

