



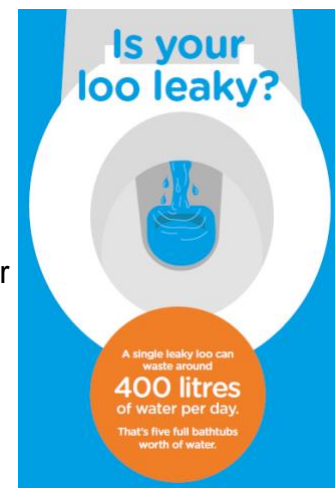
## Leaky Loos - Position Statement

**Fixing leaky loos can reduce water wastage, lower customers bills, increase resilience to drought and reduce carbon emissions.**

- A leaking toilet wastes between 215 and 400 litres of clean drinking water on average every day. It's like having a couple of extra people using water in your home!
- Between 5 and 8% of toilets are leaking, mostly dual flush toilets. Fixing one can halve a customer's water bill if they pay by meter, but most customers are unaware their toilet is leaking.
- Around 400 million litres of water is currently estimated to leak from UK toilets every day, which is enough water to supply 2.8 million people - the populations of Edinburgh, Cardiff, Belfast, Manchester, Sheffield, Liverpool and Bristol combined. This figure will increase without action.
- Fixing leaky loos could contribute at least 10% of the additional water capacity needed to cope with an extreme drought in England.
- Without greater action the cumulative losses from leaking toilets over the next 25 years are calculated to be over 16,900,000 million litres of treated drinking water at an average cost of £42 per household per year contributing 17 MtCo2e of emissions.

**We urgently need a UK-wide approach to dealing with Leaky Loos, to include:**

- **Designing out the issue.** Bathroom manufacturers need to improve dual flush toilet design so that it minimises, or avoids altogether, the cause of the leakage problem.
- A **national campaign**, coordinated by Waterwise, is needed to **raise awareness** of leaky loos amongst domestic and business water customers, fittings manufacturers, plumbers, housebuilders, water industry leaders and government policy makers.
- A review of conformity performance **testing standards** for the relevant products, along with the effectiveness of self-certification, **approval** schemes, labelling and **enforcement** processes. Successful testing should ensure that products cannot cause such significant water loss issues, whether they are approved or self-declared.
- A **scaling up** by the water sector of **best practice** approaches to **find and fix existing leaky loos** in both domestic and business users (to include providing information in bills, distributing leak strips, analysis of meter data, targeted home and business visits).





## **Leaky Loos - Background Information**

### **How much clean water is being wasted by Leaky Loos?**

The Water Company Collaborative Water Efficiency Fund Phase II report<sup>1</sup> highlighted that approximately 4.1% of toilets leak. More recent data from Thames Water suggests it may be nearer 8%.

The Phase II study identified a mean of 215 litres/toilet/day of water lost with a median of 72 litres/toilet/day. Of the 138 leaking toilets investigated in the Phase II study 80% had a leakage rate of less than 300 litres / toilet / day with 36% less than 25 litres / toilet / day. Around 12% were above 500 litres / toilet / day.

Based on the Phase II figures some 397 million litres is estimated to leak from UK toilets currently every day which is the equivalent of the daily water consumption of 2.8 million people. Toilet leakage represents between 1.65% and 4.63% of average per capita consumption (2.3 to 6.5 litres/person/day) and the losses are comparable in magnitude to the total planned reductions in water consumption planned between 2020 and 2025 by water companies in England and Wales. Fixing leaky loos could contribute at least 10% of the additional 4000 million litres of water capacity needed to cope with an extreme drought in England according to the National Infrastructure Commission (2018)<sup>2</sup> and the National Framework for Water Resources (2020)<sup>3</sup>.

More recent work by EST has estimated that without greater action the cumulative water losses from leaking toilets over the next 25 years could be as high at 16,900,000 million litres of treated drinking water at a carbon cost of 17 MtCo2e and an average financial cost of £42 per household per year<sup>4</sup>.

### **What is causing Leaky Loos?**

The root cause of most leaky loos is the mechanical flush valve which has many moving parts; relies on plastic or rubber seals and has no air-gap between the cistern and the toilet pan.

- Three separate studies have found that around 80% of leaking toilets had a flush valve mechanism rather than a siphon. As well as the 80% reported in the Phase II study Anglian Water also found 78% of 326 leaking toilets in Newmarket had a push button mechanism. Thames Water has found 80-90% of leaking toilets have a dual flush mechanism.
- Two-thirds of all leakage is caused by three factors. These are flush valve seal degradation; faulty fill valves and faulty dual flush valves.

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<sup>1</sup> [https://www.waterwise.org.uk/wp-content/uploads/Leaky-Loos-Phase-II\\_Final-report.pdf](https://www.waterwise.org.uk/wp-content/uploads/Leaky-Loos-Phase-II_Final-report.pdf)

<sup>2</sup> <https://www.nic.org.uk/publications/preparing-for-a-drier-future-englands-water-infrastructure-needs/>

<sup>3</sup> <https://www.gov.uk/government/publications/a-national-framework-for-water-resources>

<sup>4</sup> <https://waterwise.org.uk/knowledge-base/water-labelling-phase-2-project-technical-report/>

- The most common single cause of toilet leakage is flush valve seal degradation whilst the highest rates of leakage were generally associated with faulty fill valves and faulty dual flush mechanisms.

Thames Water's research has found significant variation in the frequency of leaks in different brands and models of toilets and fittings and further work is needed to determine whether some brands are more prone to leaks than others.

Non-compliant flush valve products can be legally purchased and installers do not require any form of certification or accreditation. There is no requirement for flushing mechanisms and components to be labelled so it is difficult to establish whether a leaking device is compliant with the Regulations or for an installer to verify product compliance at installation. Tightening the WRAS testing process to prevent leak prone fittings being used along with better enforcement to around non-compliant products is needed.

## **A growing problem!**

The use of flush valve toilets was enabled by changes to the Water Supply (Water Fittings) Regulations in 1999. This means that newer properties built since 2000 are currently more likely to develop leaking toilets than houses built in other time periods. They are also more likely to have more than one toilet. However, it also means that as bathroom fittings are replaced in older housing stock built before 2000 the extent of the leaky loo problem is likely to get worse.

Evidence from the Thames Water Smarter Home and Business Visit programme shows that leaky loos are even being found on new build or recently refurbished properties, sometimes only months old.

## **How easy is it to spot a Leaky Loo?**

Leaky Loos can be difficult for customers to spot especially if they aren't consciously looking for them. The Phase II research suggests that a leak needs to develop to around 300 litres / day before the customer starts to recognise there is an issue either as the leak is audible, it becomes more visible, or through higher bills.

Leak strips can be used by customers and placed in the toilet bowl to help detect leaking toilets. Alternatively food colouring can be put in the cistern between flushes to see whether it shows up in the toilet pan. New innovations such as toilet leak alarms are also about to hit the market.

Smart meter data is being used by water companies such as Thames Water to identify households (and businesses) with high usage or constant background consumption levels that may be due to leaking toilets.

## **Fixing Leaky Loos**

Water companies have found that once a leaking toilet is found around 70% of them can be fixed by the plumber on the first visit. The remainder required specialist components or structural alterations.



Many water companies such as Thames and Northumbrian Water will fix a leaking toilet found in a home or business visit for free delivering a cost beneficial water saving for both the water company and customer.

Anglian Water has found that once a leaky loo was found in a home visit and customers found out how much was being lost, and how much that was costing them, almost every customer opted to fix it.

A key issue with toilet flush mechanisms is the need for regular maintenance. However, the flush mechanism is becoming less accessible to the enthusiastic DIYer and the development of concealed cistern systems is adding further complications to maintenance.

## Designing out the problem in the first place

Whilst spotting and fixing leaks is important we also need bathroom manufacturers to redouble efforts to design out the problem in the first place so that leaks in dual flush toilets fitted in our homes and businesses in the future are avoided or minimised. This should be possible, for example through choices of materials; changes in valve design or the use of siphonic dual flush systems.

## Recommendations

The main recommendations of the UK Water Efficiency Strategy Steering Group are:

- **Designing out the issue.** Bathroom manufacturers need to improve dual flush toilet design so that it minimises, or avoids altogether, the cause of the leakage problem.
- A **national campaign**, coordinated by Waterwise, is needed to **raise awareness** of leaky loos amongst domestic and business water customers, fittings manufacturers, plumbers, housebuilders, water industry leaders and government policy makers.
- A review of conformity performance **testing standards** for the relevant products, along with the effectiveness of self-certification, **approval** schemes, labelling and **enforcement** processes. Successful testing should ensure that products cannot cause such significant water loss issues, whether they are approved or self-declared.
- A **scaling up** by the water sector of **best practice** approaches to **find and fix existing leaky loos** in both domestic and business users (to include providing information in bills, distributing leak strips, analysis of meter data, targeted home and business visits).

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