



Environment
Agency

Demand management bulletin

Series 2, Issue 17, January 2016

Planning for the long term - 2065!

'Demand management will remain at the forefront of any future planning framework and consideration needs to be given to further scope to stretch our ambition on sustainably reducing demand in the future. This will be a key part of the planning framework, building on best practice in the UK and more widely'.

This is a quote from the terms of reference of a project covering England and Wales - *Water Resources Long Term Planning Framework*. It is to be undertaken under the auspices of Water UK.

The project seeks to address '*some significant challenges and uncertainties - such as the impacts of a changing economy, a changing climate and an increasing population, which together will put more pressure on water resources and require the water sector to be more innovative in how it balances the supply and demand for water whilst also protecting the environment'*.

Setting the scene, the terms of reference states '*many water companies have extended water resource management plans to consider worst case climate change, population growth and sustainable abstraction scenarios. These extended plans confirm long term risks to supply demand balances at water company level. Maintaining the balance between supplies and demand drives demand management approaches, including a step change in water efficiency, stretching leakage and meter penetration targets. In many scenarios demand management is unlikely to bridge the whole gap between supply and demand and new upstream resources may be required*'.

The steering group for the project includes water companies, Defra, the Welsh Government, Ofwat, the Environment Agency, Natural Resources Wales and Natural England. The project's report is expected by the middle of 2016.

Philip Turton, Editor

UK Water Efficiency Awards 2016

The UK-wide search is now on to publicly recognise organisations that are taking responsibility to use water wisely to benefit society and the economy, and protect our natural environment.



The UK Water Efficiency Awards 2016 will again be a celebration of the achievements of organisations that 'Shout' about water efficiency, 'Solve' water demand management challenges and simply 'Save' water. The awards are free to enter to find out more

[\[link to Awards\]](#)

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Environment Agency

WRMPs technical guidelines



The Environment Agency is consulting on the new technical guidelines for water companies to follow when writing their *Water Resources Management Plans*. The guidelines have been jointly produced by the Environment Agency, Defra, Welsh Government, Natural Resources Wales and Ofwat. The consultation closes on 8 January 2016. [\[link\]](#)

Ofwat Water 2020

Ofwat has issued *Water 2020: Regulatory Framework for Wholesale Markets and the 2019 Price Review* [\[link\]](#) for consultation. It sets out how it sees the water industry developing over the next five years. In terms of demand management there are the following references.

For customers: reduced pressure on bills and improved and more innovative services, as companies are encouraged to make better use of their existing assets and resources, manage demand and to seek out new and more efficient ways of delivering water and wastewater services.

Key Question 2 cites demand management: '*Encourage companies to consider carefully how they can work in partnership with customers to design and deliver solutions (for example, demand management)*'.

Domestic competition by 2020?

The government has announced that there could be limited competition between suppliers by the end of this parliament. The choice will involve services such as billing and customer services, but not the water supply itself. [\[link\]](#)

Ofwat has welcomed the Government's decision to look into the benefits of providing competition for retail water services to household customers in England. The Government has asked Ofwat to carry out the review, reporting back next summer. Once complete, it will then be for the Government to decide if and when it wants to give household customers a choice. [\[link\]](#)

Resilience Task and Finish Group

Ofwat has a new primary duty on resilience. *The Resilience Group*, chaired by Waterwise's Jacob Tompkins, has now reported with a set of ten recommendations and a definition of resilience. [\[link\]](#)

'Resilience is the ability to cope with, and recover from, disruption, and anticipate trends and variability in order to maintain services for people and protect the natural environment now and in the future'.

How resilience is applied will have implications for demand management, leakage and metering.

This was debated at a session of the Future Water Association's conference in December where Ofwat's Rob Cunningham expanded on their resilience duty.

The resilience objective is defined as:

- (a) to secure the long-term resilience of water undertakers' supply systems and sewerage undertakers' sewerage systems as regards environmental pressures, population growth and changes in consumer behaviour
- (b) to secure that undertakers take steps for the purpose of enabling them to meet, in the long term, the need for the supply of water and the provision of sewerage services to consumers, including by promoting:-
 - (i) appropriate long-term planning and investment by relevant undertakers

- (ii) the taking by them of a range of measures to manage water resources in sustainable ways, and to increase efficiency in the use of water and reduce demand for water so as to reduce pressure on water resources.

He also confirmed that Ofwat are to respond to the Committee on Climate Change recommendations, including *Recommendation 8: Working with Environment Agency to Reduce Long-term Demand including through WRMPs*. [\[link\]](#)

Charges schemes 2016-17

Ofwat have issued an information note to announce a move away from an approval process to a rules-based approach. [\[link\]](#)

DCLG

Building Regulations



The Building Regulations &c. (Amendment) Regulations 2015 (S.I. 2015/767) [\[link\]](#) came into effect on 1 October 2015, making changes to the *Building Regulations 2010*. The changes apply in England and to excepted energy buildings in Wales.

With the demise of the *Code for Sustainable Homes* it introduces a methodology for the calculation of water efficiency in new dwellings.

The default requirement remains at 125 litres per person per day. A more stringent option, set at 110 litres/person/day applies where specified as a planning condition.

It also introduces a 'fittings based' approach as an alternative to carrying out the water efficiency calculation. This method requires the specification of maximum flow rates for fittings to demonstrate compliance, as shown in table 1.

Table 1. Maximum fittings consumption

Water fitting	Maximum consumption
WC	6/4 litres dual flush or 4.5 litres single flush
Shower	10 litres/minute
Bath	185 litres
Basin taps	6 litres/minute
Sink taps	8 litre/minute
Dishwasher	1.25 litres/place setting
Washing machine	8.17 litres/kilogram

The 'fittings based' approach cannot be used where no shower is to be fitted and when a waste disposal unit, water softener or water reuse is to be fitted.

UK Water Partnership

Richard Benyon at the helm

Ex Water Minister, Richard Benyon MP, has replaced Lord Chris Smith as chair of the UK Water Partnership.



He recently demonstrated support for water efficiency by speaking at the launch of the report on the water savings arising from Southern Water's universal metering programme, as reported in the July edition of the *Bulletin*. He also gave a keynote speech at a Waterwise annual conference in 2012.

The most recent of the Partnership's publications include high level reports on *Droughts and Floods - A More Holistic Approach* and on *Future Visions for Water and Cities*. [\[link\]](#)

CCWater

Water statistics

CCWater has provided a great service by publishing **Delving into Water 2015** that provides a wealth of customer information by water company. It reports

that 51% of households are now metered over England and Wales. Of most interest to demand management are:

Distribution input; total daily leakage as a percentage of water put into the system; company leakage levels; % household metering and % non-household metering; average water use/person/day.

[\[link to report and spreadsheet\]](#)

Waterwise

Water Efficiency Today

Waterwise has issued Water *Efficiency Today - A 2015 UK Review*. [\[link\]](#) It is essential reading for anyone interested in the state of water efficiency in the UK.

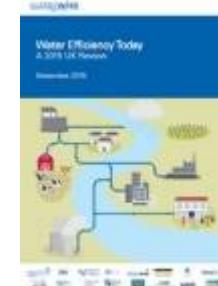
There is a summary of current activity, not only for each water company, but also for other key stakeholders.

The report concludes with a look forward to the next five years. *'There will be a continued move away from giving out water saving devices and 'top tips' towards more tailored and personal water efficiency delivery and home retrofit visits will become the norm.'*

'Hopefully we will see much larger water efficiency programmes running to hundreds of thousands rather than tens of thousands of home retrofits, and water efficiency will be seen as a serious alternative to developing new resource.'

'Water efficiency will increasingly be part of integrated demand management programmes involving metering, leakage and efficiency, and we will see increasing debate over the use of incentive tariffs in the next five years'.

waterwise



Perceptions of rainwater and greywater

Waterwise has carried out a literature review to find out what people really think about using rainwater and greywater. The top issues cited were health, level of personal contact and drinking versus non-drinking. You can read the full article on the Waterwise website. [\[link\]](#)

St Albans residents needed

Waterwise are looking for residents in the St Albans area to take part for a year in the DAIAD project (an EU project developing technologies for real-time water monitoring and knowledge extraction).

All participants will receive the complete DAIAD system for free including a smart water sensor, an app for your mobile phone or tablet as well as a dedicated website.

If you live in St Albans and are interested in receiving more information about becoming a participant [\[email\]](#) or for more detailed information link to DAIAD on the Waterwise website. [\[link\]](#)

Rainwater and greywater event

The Waterwise Rainwater and Greywater Event was hosted by WaterLIFE at the WWF Living Planet Centre in December.

The slides for the event can be found at [\[link\]](#) In the New Year, a summary of the event and position of rainwater and greywater by Waterwise will be made available.

Water company initiatives

Cambridge Water to support the UK's largest water recycling system

Cambridge Water (now part of South Staffs Water) signed a landmark agreement with the University of Cambridge to support the UK's largest water recycling system at its *North West Cambridge Development*.

The agreement will see two water supplies installed on the 150-hectare site – one which recycles rain and surface water to use for flushing toilets, clothes washing and garden watering, and another supplying high quality treated water for drinking, cooking and bathing.

Both are designed to minimise potable water consumption on the development site which will include 3,000 homes, 2,000 post-graduate student rooms, a supermarket, hotel and primary school, as well as other community facilities including a community centre, supermarket and shops.

When the water recycling technologies are used in conjunction with high efficiency water fittings, such as aerated showerheads and taps, the development should reduce average potable water consumption down to 80 litres per person per day, almost half of the UK average.

The agreement is a vital part of delivering the *Sustainable Urban Drainage System* across the 150-hectare site, which will enable the University to meet its ambitious sustainability targets for the development, supporting the target to meet the Code for Sustainable Homes Level 5.

Phil Newland, Managing Director for Cambridge Water, said: 'we are delighted to be able to support the University of Cambridge in this innovative and



highly sustainable development which fully embraces the need to conserve water. "The commitment to provide the UK's largest water recycling system will help raise awareness of the need to conserve water, and seek to encourage other developers to consider water efficiency when proposing new developments".

Rain and surface water from the site will be collected in a series of specially designed lakes and naturally filtered through reed beds within the development. The water will then be re-filtered, sterilised by UV and dosed with chlorine, before being used for toilet flushing, clothes washing and outdoor use.

Brian Nearney, Commercial Director of the North West Cambridge Development said '*the agreement between Cambridge Water and the University is an innovative collaboration that meets the high sustainability targets for the development. The pioneering method of recycling rainwater in this region in particular is something to be proud of, given the relative water scarcity in the area*'.

The first phase of the *North West Cambridge Development* is due for completion by Spring 2017.

Essex & Suffolk Water #WATERSAVINGSELFIE

Essex & Suffolk Water's (ESW) latest communications initiative shows that the possibilities are endless when working with teenagers! This was a result of working collaboratively with teenagers to identify a problem, create an innovative solution and then make it reality... all within the space of a year.

The #WATERSAVINGSELFIE blends water efficiency with social media. Using the platforms of Twitter, Facebook and Instagram, students at The Gable Hall School in Corringham were encouraged to wear a t-shirt provided by the company, take a creative 'selfie' and post their picture along with a

creative water saving hint, tip or pledge on their preferred social media site. They were encouraged to 'WEAR IT, SNAP IT, SHARE IT'.

And so #WATERSAVINGSELFIE was born back in Spring 2014 when the company joined a project run by Thurrock Council called Thurrock's Next Top Boss. This is an annual project working with twelve education partners (secondary schools, academies and colleges) within the Thurrock area of Essex.

This project provides young people with the chance to work with employers on real business challenges to learn about the range of career opportunities and develop employability skills that employers really want. The company's involvement in 2014 was to set the students a 'Green Solution Business Challenge'.

The water efficiency challenge for the participating students was to help the company change the way teenagers and young adults use water. They were asked for ideas that could be implemented in home retrofit projects and the wider education programme.

The 'Fresh Thinking' team at The Gable Hall School in Corringham, Essex won the competition with their concept. The concept was to use social media as a platform to engage with teenagers and young people in such a way that long-term and sustainable behaviour change is realised.

The team came up with the idea that ESW should provide teenagers with a t-shirt which can be worn to post a 'selfie' about saving water. ESW were so impressed with the idea that, with Fresh Thinking's help, it has now been implemented and delivered in their own school. ESW took their concept and developed it further, working alongside the winning team of teenagers.

In September 2015, the #WATERSAVINGSELFIE project was launched at Gable Hall School. A tube,

containing the t-shirt and a series of leaflets, was distributed to over 1,600 students at an assembly and a subsequent stall held over lunchtime.

With immediate effect students, adorned in their t-shirts, were posting 'selfies' on Facebook, Twitter and Instagram, sharing water saving tips, messages, hits and pledges with their friends and family. To encourage teenagers to post their #WATERSAVINGSELFIEs, ESW offered a prize (an iPad Air 2) to be awarded to a lucky winner.

The initiative was a huge success and the plan is to tweak and improve the project based on feedback, and then to deliver it at another school in 2016.

Southern Water



The Water Efficiency Team at Southern Water will be launching their Water Saving Mission at primary schools in January 2016. Primary schools will receive a free water-saving visit from our contractors, Aqualogic, as part of their *Water Saving Mission*. The latest water-saving technology will be fitted to the schools' toilets, taps, urinals and showers.

School children will launch their *Water Saving Mission* in an assembly, then take part in daily challenges to join our team of Water Heroes, helping to save water, energy and money.

Teachers will use resources from the brand new education pack to inspire children to investigate the importance of water, estimate how much water they use, and to discover simple ways to save water both at school and at home.

Missions will also engage with the wider school community, as children quiz their families about their water-using habits.

In February 2014, Southern Water undertook a pilot project at Elm Grove Primary School, Brighton. The savings for this primary school are calculated to be in the region of £5,000 per year.

Southern Water will be visiting 234 primary schools with their *Water Saving Week Campaign* by March 2020. Sally Lambert, the new Community Education Manager, will be building partnerships with local authorities and community organisations to help maximise the reach of the programme.

Sally said '*our work with primary schools in our community will not only help schools to reduce their water consumption and water bills, but it will also help to shape the water-using habits of future generations'*.

Thames Water



Londoners could cut £60 million from their energy bills every year by reducing the time they spend in the shower. That is the conclusion of new research by Thames Water, which claims people only need to reduce their shower time by one minute to make those savings – equivalent to £7 for each resident.

A family of four could also save up to £180 on their annual bills by using water and energy-saving freebies – such as showerheads that use less water and shower timers.

Around 15% of the average household's gas and electricity bill is made up of energy used to heat hot water. By spending that extra minute in bed instead, Londoners could also help save 25 billion litres of water every year.

Andrew Tucker, Water Efficiency Manager at Thames Water, said '*London and the south east is classed as seriously water-stressed by the Environment Agency so we all need to do everything*

we can to use less water. An extra minute in bed, a saving on your energy bill and a boost to the local environment and wildlife – that sounds like a winner to me'.[\[link to article\]](#)

Ireland

Irish Water's *First Fix Free* scheme, which has been underway for just six months, is already delivering significant results, saving an estimated 18 million litres of water every day.

That was the good news. However the Irish Mirror reports a poll that revealed that 80% of people admitted they will ultimately pay for water charges. The survey found that 37% have not yet paid but a large number said they intend to.

The combined percentage of people who intend to pay the charges and those who have already paid for it has reached 78%. That leaves 22% adamant they will never pay for water. [\[link to article\]](#)

Research

WRMP19 demand projects



UKWIR is running a series of projects to improve methodologies for the Water Companies' next *Water Resources Management Plans*, due in 2019.

The projects, thus far, are shown in the table below. They are being carried out in collaboration with the Environment Agency. The EA is undertaking its own, complementary, research.

The demand related projects are nearly finished and were the subject of recent dissemination workshops that demonstrated some of the new methods that companies will be able to use in developing their plans.

The *Population Property and Occupancy Forecasting* project examined how these factors, which play an important role in forecasting water demand, can be forecast. The main output from the project is a manual and supplementary report that provides practical guidance to UKWIR members on how to forecast these components together with worked examples. An essential part of the approach is for water companies to take account of local development plans so that planned growth can be enabled.

The project *Demand Forecasting Methods* looked at household consumption forecasting and reviewed all the available methods.

The project concentrated on where to limit the complexity of the forecasting approach based on the vulnerability of each water resource zone to supply demand deficits, the understanding of uncertainty and increased flexibility in the methods available to companies.

The manual will describe 10 methods for forecasting demand and considers the pros and cons of each in respect to a water company's water resources situation.

Table 2. UKWIR 2019 Water Resources Management Plans Projects

Project	Contractor	Completion
Demand forecasting methods	Artesia	End of 2015
Decision making methods	Atkins/NERA	Early 2016
Risk-based planning methods	Atkins/Met Office	Spring 2016
Population, properties & occupancy forecasting	Cascade/CACI/ Ricardo-AEA	End of 2015

[\[link to UKWIR\]](#)

Non-Domestic ADSM

Imperial College Healthcare NHS Trust and ADSM (Advanced Demand Side Management), were awarded the *Value and Improvement through Outsourcing Award* at the *2015 Health Service Journal Value in Healthcare Awards*. This was for gaining an annual efficiency improvement of 17%. The awards were held at the Grosvenor House Hotel in London with a record breaking 532 entries.

Guy's and St Thomas' NHS Trust and ADSM also reached the *Sustainability Leaders Awards* final. The winners were announced at an awards ceremony on the 19th of November. [\[link\]](#)

WRAP

According to a WRAP press release in November [\[link\]](#) 'in just two years retailers, brands and organisations from across the clothing supply chain have reduced water impacts by a significant 12.5% per tonne of clothing, against a 15% reduction target by 2020'.



This has been achieved through the collective action of 82 signatories and supporters of the *Sustainable Clothing Action Plan's (SCAP)* sector commitment - SCAP 2020, led by WRAP.

Awards

SWIG Awards 2015

In his introduction to the awards the Sustainable Water Industry Group (SWIG) Chair, Neal Landsberg, was upbeat as he related that the number of entries was double that of 2011 and the quality was even higher. In the event it was decided to increase the number of categories.



The awards entries covered the range of water sustainability but many included a significant element of demand management.

The table shows the main demand management related awards. Full descriptions are available on the SWIG website [\[link\]](#).

2015 SWIG Awards * winner + highly commended

Domestic building

*Watermatic	Stanner Hill House
*Northumbrian Water	Every Drop Counts
Non-domestic building	
*Southern Water	Water Efficiency Retrofit Schools
Communication - Education	

*ech2o	The mysterious case of the sinking flamingo
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Communication - Other

*The Water Label	Bathroom & Kitchen Product Labelling Scheme
+Essex & Suffolk Water	Save a Bucket Load with Christine Walkden.

Open Spaces & Agriculture

*London Wildlife Trust	Lost Effra
+Rainharvesting Systems Ltd	Lower Stanbridge Farm

Product - Sanitary Appliances

*Amphiro AG	Amphiro B1 Smart Shower Meter
+Waterblade	Waterblade, Water Saving Product

Product - Other

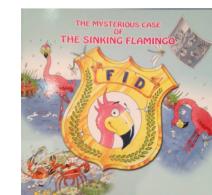
+Rainwater Harvesting Systems	Zeta 02 automatic pump controller
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International

+Engineers Without Borders	The Cloud Juice Project, Mexico
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WIZO award

In her newsletter, ech2o [\[link\]](#), Cath Hassel announced that Avi Djanogly of GabiH2O won the award at the *WIZO UK Commitment Awards* as an individual who has made an outstanding contribution to improving the environment.



Cath herself was a runners-up. Avi was the 'other' UK representative at *WaterSmart Innovations* in Las Vegas busily working in partnership with US companies. Cath also won a SWIG Communication Award for her book *The Mysterious Case of the Sinking Flamingo* (pictured).

Sustainable City Awards

The UK-wide *Sustainable City Awards*, run by City of London Corporation, are designed to recognise the sustainability initiatives of all businesses big or small across the full range of sectors.

Categories include *Resource Conservation* which recognises and rewards organisations that are taking positive steps to improve resource conservation through reducing the consumption of water, gas or electricity. The awards ceremony will be in March 2016. [\[link\]](#)

SWIG Masterclass

There was a masterclass following the awards which emphasised the move towards sustainable solutions on a holistic scale aiming to improve life in urban settings. Particularly impressive was Pete Wilder's presentation on how the use of drones and hydrological modelling is at the centre of shaping the development of future sustainable cities in China.

Nearer to home is the huge development at Old Oak Common and Park Royal described by Tom Cardis and Greater London Authority's Alex Nickson, description of *Accelerating Delivery of the London Infrastructure 2050 Plan* and actions by the Green Infrastructure Taskforce. [\[link\]](#)

Conferences

Future Water Networks

Future Water Association (formally SBWWI) built on their



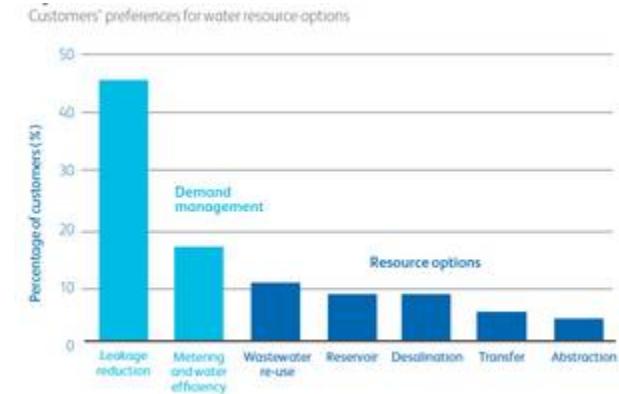
successful *Leakage and Metering Conferences* with *Future Water Networks - Taking a 10 Year View*. With all the changes taking place in the water sector, particularly wholesale/retail separation, it proved to be a timely and stimulating event.

Water efficiency was a significant element of proceedings. Data was seen as a crucial issue and especially its ownership. It remains to be seen whether information from smart meters is deemed to belong to the wholesale company, the retail company or the customer.

The Environment Agency's Tora Hallett introduced the section on resilience with the definition '*resilience is the capacity to maintain essential services under a range of circumstances from normal to extreme. It is achieved through the ability of assets, networks, systems and management to anticipate, absorb and recover from disturbance, whilst ensuring the environment and ecosystems support that and can recover to their original state*'.

Neil Pendle of Waterscan asked '*what opportunities will retail competition bring to business customers?*' Waterscan has a number of businesses that operate over the UK and they help with billing and water efficiency. Neil added that '*data is the key*' and cited the case study of Sainsbury's who now have two '*water neutral*' stores and where a 50% reduction in consumption had resulted in £4.2 m cost savings since 2012. [\[link\]](#)

Thames Water's Water Efficiency and Affordability Manager, Andrew Tucker, set out his company's initiatives that have been covered in recent editions of the *Bulletin*. He showed the following graph illustrating how leakage and demand management were at the forefront of customers minds.



He also set out the savings due to the company's water efficiency initiatives that are predicted to rise from 17.3Mld in the 2010-15 AMP5 period to 38.8MI/d in the 2015-2020 AMP6 period.

Oluseyi Onifade, Metering Manager at South East Water, looked at *Metering and Customers*. Their *Customer Metering Programme* is well underway with 74% of customers metered in 2015, rising to 90% by 2020.

The metering team had concentrated on engaging with customers and this has had a positive impact on the *Complaints and Service Incentive Mechanism* (SIM). [\[link\]](#)

Ian Dawes, WRc, presented *Open Water – A Knowledgeable Customer's View*. WRc decided to test how competition might work post 2017 and unearthed several issues surrounding smart metering and billing. He wondered how many retailers would come calling in the near future.

The purpose of the conference was look at the issues the industry and the supply chain face over the next 10 year relating to operations, leakage and metering. To facilitate this Dene Marshallsay (Artesia Consulting), Mark Smith (RPS) and Andy Godley set

out A 10 Year View. [\[link\]](#) The delegates then fed back their thoughts on the tensions facing the sector. [\[link\]](#)

This is just a taster of the presentations that can be found at [\[link to presentations\]](#)

The Water Event

The Water Event

2015 featured a very clear presentation, *Getting Fit for Competition*, from José Davila of United Utilities. He concluded that:

- we are up for competition
- the retailers who succeed will be those who best meet customer needs
- we have been successful in Scotland and are applying what we learn to England
- we are focussed on making sure we are ready to compete nationally on day 1
- customers who are keen to move early have work to do – we can help.

Craig McKinlay, Business Development Manager at Business Stream and Fred Jefferiss, House of Fraser Finance Controller described how their relationship is working. For a full list of presentations. [\[link\]](#)

Minimising Water Impact of the Built Environment



A WATEF Masterclass was held in early December at ARUP in London on the subject of *Minimising Water Impacts of the Built Environment*.

Nick Gilbert of Affinity Water introduced the phase 2 of the *Leaky Loos Project* that was described by Ricardo AEA's Stuart Ballinger.

He said that a key part of the project was the physical investigation in assessing the scale of such leakage. The causes were predominately problems with the rubber and plastic seals.

The project involved investigating leakage types and causes by examining 300 toilets suspected of leaking. These were identified by water companies through high consumption queries, AMR and metering programmes and water regulation visits. Additional households identified through home visit water survey's and leakage detection strips within participating water company areas.

Nearly two thirds of all leakage was found to be caused by three factors; flush valve seal degradation, faulty fill valves and the most common factor, faulty dual flush valves. All leakage from WCs with siphons associated with fill valves. For further details [\[link\]](#)

At the Future Water Networks conference Thames Water's Andrew Tucker gave a presentation on the project and confirmed that the causes of the leaks were primarily dual-flush drop/flapper valves and ball valves. He added that:

- investigations show that 5% of metered households have leaky loo
- leaky loo % expected to be higher in unmetered homes
- our analysis suggests the average leaky loo repair saved 405 l/day or 212 l/d if you include the properties where there were no obvious savings.

He also set out *Leaky Loos scenarios* as the *Progressive Metering Programme* comes to fruition. [\[link\]](#)

Doug Clarke, Severn Trent Water, introduced the project *Objective Monitoring of UK Showering Behaviour and a Behavioural Intervention to Reduce Water Use in the Shower*. The study was carried by Unilever and Mouchel with support from Essex & Suffolk Water, Wessex Water and Severn Trent Water.

Unilever's Hilde Hendrickx described how the project had used sensor technology to refine UK evidence

base on shower behaviour and water use. It developed and tested a scalable behavioural intervention to reduce water and energy use in the shower as well as exploring some of the determinants of shower duration and water use.

339 households participated in the study after a careful selection process.

It used a combination of a shower diary (which participants fill out immediately after taking shower) questionnaires and a shower monitor. The monitor comprised multiple sensors (rumble, acoustic, temperature, real time clock) and used data processing algorithms to derive time and duration of showers.

Half way through monitoring there was the intervention of fitting water efficient showerhead with a flow rate of 7.6 litres a minute. Occupants gave a written pledge linked to specific goal such as only taking three short showers a week.

The average shower length turned out to be 6 minutes and 37 seconds and the average water use was 53.65 litres. The presentation gives further details of shower use.

In the afternoon there were a series of plenary sessions, introduced by ARUP's Martin Shouler, that looked at technology and people, the role of water efficient fittings in reducing peak flows and the potential for water re-use in bridging the supply gap.

To see the above presentations and more [\[link to presentations and videos\]](#)

Drought Buda restrictions

The City of Buda is currently under *Stage 1 Drought Restrictions* [[link](#)]. Waste of water is prohibited, including any of the following:

- failing to repair a controllable leak, including a broken sprinkler head, a leaking valve, leaking or broken pipes, or a leaking faucet
- operation of a permanently installed irrigation system with a broken head, a head that is out of adjustment and the arc of the spray head is over a street or parking lot, or a head that is misting because of high water pressure.

Any irrigation that allows water to:

- run off a property and form a stream of water in a street, gutter, ditch, drain, creek or any other natural or man-made water course for a distance of 50 feet or greater
- pond in a street or parking lot to a depth greater than one-quarter of an inch
- run off from a property onto adjacent properties.

Missed targets in California

Overall, the state met its monthly conservation goals in September as California residents reduced water use by 26 percent on average. However, according to the State Water Resources Control Board, Beverly Hills, Indio, Redlands and the Coachella Valley Water District missed their mandates by wide margins. Each was fined \$61,000. [[link](#)]

Australia & New Zealand

Queensland halves water use

South-east Queenslanders have stuck to their water-saving ways since the 2001-09 drought. In 2015 they are using almost half the water per person they used

in 2001. In 2001 the average person used 300 litres of water per day to wash, eat, drink and within the garden. In 2015 each person uses just 169 litres per day.

That water saving, started by water restrictions to get homes in Southeast Queensland to use 130 litres/person/day, effectively means Southeast Queensland now does not need a new drinking water dam until 2030. [[link](#)]

Drought support

The Victorian government has unveiled the first drought support package aimed at curbing the high rates of mental health issues and financial stress in drought-stricken farming communities. The new measures aim to support farming families experiencing increased mental and financial stress after two consecutive seasons in a row of extreme weather have resulted in failed crops.

Under the \$10 million package, rural financial counsellors will receive \$270,000, while another \$300,000 is earmarked to assist families with school uniforms, shoes and other school items.

[[link to article](#)]

USA & Canada

WaterSmart 2015

More than 1,000 professionals working in a wide range of water-related disciplines participated in the seventh annual *WaterSmart Innovations Conference and Exposition* in October in Las Vegas. [[link to presentations](#)]

Alliance for Water Efficiency's Mary Ann Dickinson gave the keynote speech. She reflected on the progress made since the Alliance was established



and then looked forward by setting out a wish list of 10 things she wanted to see come to fruition.

[[link to video](#)]

Chasing Water

The AWE member meeting and reception featured a talk by **Brian Richter**, Chief Scientist for the Global Water Program of The Nature Conservancy, President of Sustainable Waters.



His talk was based on his latest book *Chasing Water: A Guide for Moving from Scarcity to Sustainability* in which he told the story of water scarcity: where it is happening, what is causing it, and how it can be addressed. Chapters are devoted to the Colorado and Murray/Darling basins. He puts forward his seven principles for sustainability, most of which involve demand management. To find out what they are [[link to book](#)]

Cloud seeding

There was an interesting presentation by Amy Vickers. Amy came over from the US to bring a wealth of US knowledge to help set up the Environment Agency's *Demand Management Centre* and help kickstart the subject in the UK. Her paper on cloud seeding [[link](#)] gained a good deal of attention at the WaterSmart conference.

There are still a number of cloud seeding companies advertising their wares in the US and experiments still going on around the world, especially in China.

The consensus of the attendees was that the water sector should know much more about what is going on. There should be a framework of how it should operate as there are significant implications for the distribution water availability if it works.

Innovation leader

'California is an innovation leader and can leverage this strength to meet the increasing demand for solutions to its drought and water shortage challenges'. This is the verdict of the report *California Innovation and Meeting the Water Challenge*, produced by NEXT10, an independent nonpartisan organisation.



Innovation is clearly seen as important in solving the demand/supply balance. 'In 2014, California registered nearly twice as many water patents as the next leading state of Texas. Over the last decade, water technology patents grew steadily, reflecting growing research efforts'.

In the report there are some excellent US water use statistics including how some of the cities are doing to meet their recent water use reduction targets.

[\[link to report\]](#)

California drought update

Despite residential water use in October being 22% below 2013 levels, California is still on track to meet Governor Jerry Brown's mandate to use 25% less water than the state used in 2013.

The California Department of Water Resources has warned that more drastic measures remain a possibility, saying it would allocate only 10% of contractual supplies unless there is significant rain and snow this winter. The department warned that those conservation targets won't be enough to bail out the state if the anticipated wet El Niño winter fails to materialize. [\[link\]](#)

El Nino to the rescue?

The Los Angeles Times reported Bill Patzert, a climatologist for NASA's Jet Propulsion Laboratory in La Canada Flintridge as saying 'January and February are just around the corner. If you think you

should make preparations, get off the couch and do it now. These storms are imminent, El Niño is here. And it is huge.... At this point, we're just waiting for the impacts in California' [\[link\]](#).

Meanwhile, Governor Jerry Brown has extended his executive order requiring Californians to conserve water as the state prepares for a fifth year of drought. The move gives state water officials expanded authority to take new measures to deal with the parched conditions and cope with potential storms from an El Niño weather pattern. [\[link\]](#)

World

Alliance for Water & Climate Change

The *Business Alliance for Water and Climate Change* was launched at the Paris Climate Conference. The Alliance commits to taking the following actions:

- analyzing and sharing water related risks to implement collaborative response strategies.
- measuring water footprint with existing standards.
- reducing impacts on water availability and quality in direct operations and all along the value chain.

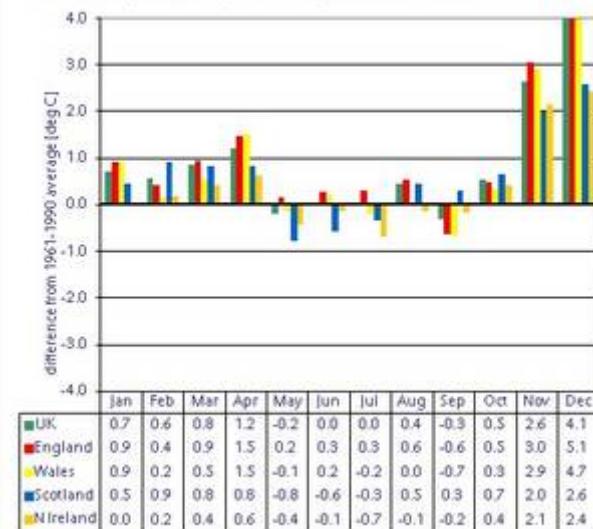
[\[link\]](#)

World's warmest 12 months

Global temperature data published by the EU's Copernicus programme shows that the 12 month period to the end of October was the warmest on record. [\[link to article\]](#)

The graph illustrates how warm it has been in the UK, especially over England compared to the 1961-90 average temperatures. Note that the December temperatures are off the scale on this Met Office graph.

Mean temperatures (1961-1990) anomalies for 2015



South African drought

South Africa is in the midst of its worst drought since 1982, with 2.7m households facing water shortages. The lack of rain has been accompanied by soaring temperatures in many areas, including record highs in Johannesburg (36C) and Pretoria (39.8C). Some cities, including Johannesburg, have implemented water restrictions, drastically reducing the amount of water residents can use on their gardens and limiting showers to just three minutes. [\[link to article\]](#)

Cape Town too

Cape Town intensified water restrictions as SA's worst drought in more than two decades where users are required to cut water consumption by 20% from 10%. A strengthening El Niño weather pattern has brought dry conditions to the sub-Saharan region. [\[link to article\]](#)

Bangkok drought

Households in and around Bangkok have been urged to store at least 60 litres of drinking water until May next year for possible water shortages.

[\[link to article\]](#)

Special drops

New SuDS Manual

This welcome guidance manual, produced by CIRIA, provides best practice guidance on the planning, design, construction, operation and maintenance of sustainable drainage systems (SuDS).

[\[link to article\]](#)

Not so green grass valley

The City of Grass Valley is considering the adoption of the *Model Water Efficient Landscape Ordinance*, to increase water conservation efficiency through stricter regulations of irrigation designs and water uses on landscapes. [\[link to article\]](#)

Dirty cars

With California in the midst of a serious drought, Volvo is officially asking people to stop washing their cars for one month in order to potentially save as much as 80ML of water. [\[link to article\]](#)

Whitbread cut again

Whitbread has a target of a 20% cut in water consumption by 2020 compared to 2014. In 2014/15, the company delivered a 30% reduction in water consumption compared to 2009. [\[link to article\]](#)

Desalination to double

Increasing water scarcity and rapid urbanisation across the globe will mean that the desalination market is set to double in size by 2020, according to a report, *Analysis of Global Desalination Market*, by analysts Frost & Sullivan. [\[link to article\]](#)

Supply demand gap

ING have issued *Too Little, Too Much - The Diverse Sectoral Challenges of Water*. It concludes that, by 2040, this could lead to a gap of 50% between the available (sustainable and reliable) supply of fresh water and demand. [\[link to report\]](#)

Brewing Green

This is the title of the BBPA's annual environment commitments report. Water efficiency rose by 6% in 2014, with a 39% increase in efficiency since 1990, on track to reach the 42% reduction target by 2020. [\[link to report\]](#)

Dairy roadmap

The Dairy Roadmap 2015, produced by a taskforce made up of 25 organisations from across the UK dairy industry states that 70% of dairy farmers have taken up water efficiency methods by 2015.

[\[link to report\]](#)

Diary

31 Jan to 3 Feb 2016 - IWA Water Loss 2016

To be held at The Lalit Ashok, Bangalore, India [\[link\]](#)

1 March 2016 - Waterwise Water Efficiency Awards

Winners and runners-up will be invited to the *Waterwise Water Efficiency Awards* ceremony, to be held on 1st March 2016 at the House of Lords. [\[link\]](#)

2 March 2016 - Waterwise Annual Conference

The 2016 conference is to be held at RSA House, 8, John Adam Street, London WC2N. [\[link\]](#)

22 to 24 March 2016 - Efficient Water Middle East 2016

To be held in Abu Dhabi with a pre-conference workshop and a two day conference 'focusing on using water more efficiently and so helping to meet an ever increasing demand with a diminishing supply of fresh water'. [\[link to event\]](#)

7 to 9 September - WATEFCON 2016

Next year's Water Efficiency in Buildings Network's conference theme is *Water Demand Reduction, Scale and Process*. It is to be held at the University of Coventry, hosted by Professor Sue Charlesworth, Centre for Agroecology, Water and Resilience.

The deadline for submission of abstracts is 29 January 2016. [\[link to event\]](#)

26 to 29 September - Global Leakage Summit

The Global Leakage Summit is returning to the UK for its 8th conference. For details [\[email\]](#)

5 to 7 October 2016 - WaterSmart Innovations

The eighth annual *WaterSmart Innovations Conference and Exposition* is to be held at the South Point Hotel, Las Vegas. The deadline for receipt of abstracts is Friday, February 5, 2016. [\[link to event\]](#)