

## Event Report

### Developing the Evidence Base for Water Efficiency Waterwise Technical Symposium Series – Part 4

18<sup>th</sup> May 2011



#### **Introduction**

The Waterwise Technical Symposium Series is designed to bring together experts and practitioners to discuss in detail specific issues of relevance to water efficiency in the UK. The series is designed to complement Waterwise's more high level Annual Water Efficiency Conference. This fourth event in the Technical Symposium Series – Developing the Evidence Base for Water Efficiency was focused on gathering the views of those with an interest in improving the evidence base for water efficiency as to how they use the information, how it has helped, what might be done to improve it and what opportunities exist to enhance the project.

The Evidence Base for Large-scale Water Efficiency in Homes fulfills one of Waterwise's seven original objectives. For six years Waterwise has been developing the evidence base. The report for Phase I of Waterwise's Evidence Base drew on evidence from around 20 water efficiency trials and projects in domestic properties

that had been undertaken by water companies in the UK was published in October 2008. Phase II of the Evidence Base has recently been concluded. It has significantly contributed to the body of evidence that has been built up in both homes and schools retrofitting. The project is now moving into Phase III.

The feedback obtained during this Technical Symposium will be used to produce a scoping document that will help to further improve the project as we embark on Phase III to bring together the available evidence for water efficiency retrofitting and identify the knowledge gaps.

## **Content**

The speakers were:

- Alison Murphy, Regulations and Environmental Manager, Sutton and East Surrey Water
- Lucia Susani, Manager, Water Demand Management, The Environment Agency
- Mike Walker, Head of Water Efficiency, Defra
- Nicci Russell, Policy Director, Waterwise
- Ike Omambala, Technical Research Manager, Waterwise

A written contribution from Ofwat was also read to the audience.

The event was chaired and facilitated by Jean Spencer, Regulation Director, Anglian Water.

There were breakout sessions at the end of the morning and afternoon sessions which focused on the following questions:

*How has the Evidence Base been useful to you or your organisation? What are the features of the current evidence base which you have found most helpful? Why?*

*In what ways could the Evidence Base be improved? What are the features missing from the current Evidence Base which help to make it more useful to you and your organisation?*

*What opportunities exist to develop the Evidence Base in a way that would be most helpful?*

*What actions need to be carried out to take advantage of these opportunities to help develop the Evidence Base?*

## **Summary of Discussion**

### **Morning Session**

#### **The Evidence Base: where are we now?**

*Ike Omambala, Technical Research Manager, Waterwise*

Phase II was funded by CLG, Defra, the EA and Ofwat and Waterwise is extremely grateful for their support which has enabled the progress over the last two years. In

addition 11 companies have contributed to the Evidence Base through giving time and sharing data. Many of these also sit on the Evidence Base steering group and they were thanked for their valuable contribution. A brief summary of what we know about domestic and schools retrofitting was given. Data has been gathered from 9 trials, 8 companies and about 3500 homes. From these trials water savings of up to 41 lpd were measured and on average 27 lpd. But if we look at the distribution of water savings there is a huge range of savings.

Combinations of devices were installed which makes it more difficult to understand what savings are achieved from individual products. We know the uptake from each of the trials. It varies between 6 and 60% - and we think this depends on the numbers of letters, the extent to which we use telephone recruitment and even door-to-door engagement. We have cost information for each trial which includes the cost of recruitment, products and installation. In addition, we have the means to estimate the carbon emissions and the energy savings which result from the trials. This is possible using the Waterwise water and energy model – early on in Phase II we went through the process of cross checking this with the EST model and they are virtually equivalent.

In terms of evidence from schools, data has been gathered from 633 schools in 6 regions of England and Scotland. We have seen water savings of 20% on average. A similar methodology to that used in domestic retrofitting was applied to schools the aim was to understand water saving, uncertainty in savings, uptake, carbon and energy savings and cost effectiveness. However, for schools Waterwise investigated in addition how we could make use of a benchmarking tool produced by the then Department for Education and Schools. One of the recommendations from the resulting Waterwise analysis of the schools projects is that we can target our retrofitting activities better by using the benchmarking tool to filter out the worst performing schools.

### **A Water Company View on the Evidence Base**

*Alison Murphy, Regulations and Environmental Manager, Sutton and East Surrey Water*

The Evidence Base has assisted companies by adding confidence to the water savings that the company calculates in-house, by utilising statistical tests and in-depth analysis, and by allowing comparison different project types and individual devices. Further benefits from a company's viewpoint are found through the Evidence Base work that looks at options for alternative scenarios, such as working with energy companies, determining the framework for future projects, using Best Practice Guides and demonstrating company commitment to sharing evidence on water saving projects. The work carried out in schools has also provided the Sutton and East Surrey Water with a basis to set up a schools spend-to-save programme this year.

However, a number of ways in which the Evidence Base might be improved were also identified. Firstly, behavioural change has been under increasing focus over the last few years and its importance alongside water-saving devices needs further investigation through the Evidence Base. The effects of softer measures which seek to influence customers' behaviour are notoriously difficult to evaluate and there is currently a lack of expertise in the industry in this area.

Recruitment rates were highlighted as a key area for improvement – why do some projects have much higher uptake rates than others, due to the type of resident or the way the project is marketed? There is also a need to ensure that we include the appropriate devices, which may be different depending on the type of customer and property. However, devices which may not result in good savings may still be effective to enhance the attractiveness of the package.

The importance of understanding the best ways to explain to customers how to use products was also highlighted. For example, does it make a difference if the customer receives a face-to-face explanation? There is a need to evaluate new devices as there is a temptation to stick to known devices, especially because of the Ofwat assumed savings list for the water efficiency targets. It would also be helpful for the Evidence Base to investigate further factors which affect the cost-effectiveness of the devices such as longevity of savings and the long-term effect on behaviour.

### **The EA Perspective**

*Lucia Susani, Manager, Water Demand Management, The Environment Agency*

The Environment Agency's commitment to water efficiency and demand management is enshrined in a number of policies. In its corporate strategy, the Agency is committed to:

- protect and improve water, land and air
- work with businesses and other organisations to use resources wisely.

These commitments are being rolled out through a number of specific actions, including working with water companies to strike the right balance between developing new resources and reducing demand. The EA also has a dedicated Water Resources Strategy for England and Wales, published in 2009, in which it presents its vision of “enough water for people and the environment”. The strategy sets out a number of actions to ensure water is efficiently used, and some of these are the responsibility of Lucia's Demand Management team.

Another very significant driver for our activities is the Water Framework Directive: Article 9 of the Directive includes a requirement for “...adequate incentives ...to use water resources efficiently, and thereby contribute to the environmental objectives of this Directive”. The provision of a robust evidence base is fundamental to the development and justification of appropriate incentives.

The EA is pleased with its association with Waterwise. The EA is one of the founding members of the organisation, and has supported its work from the beginning. The EA has sponsored the first two phases of the water efficiency Evidence Base work, and has committed funding for Phase III for the next 3 years.

Ian Barker, Head of Land, Water, Fisheries and Biodiversity at the Environment Agency, is a Board Member at Waterwise and was a member of the Steering Group for Phase 1 of the Evidence Base work. Ian has been an enthusiastic supporter of the work. The EA has also been on the Steering Group for Phase 2 and Phase 3 to date and is therefore very familiar with the Evidence Base research, and the results provided to date. From the EA viewpoint, to date the Evidence Base has proved to be a useful tool for a number of reasons, in particular:

- It has built the case for the most cost-effective delivery of water efficiency in the UK.
- It has provided a recognised central place for robust data on water efficiency projects
- It has helped in understanding the value of water efficiency, reducing the uncertainty in reported water savings, making cost data available, looking at whether or not water savings decay or are enhanced with time.

The results of the Evidence Base research have also allowed the EA to appreciate and to recognise the good work carried out by water companies. It has also been widely acknowledged that the Evidence Base has played an important role in the previous price review (PR09), resulting in a significant increase in water efficiency activity. The EA expect that Phase III will further assist the industry during the next price reviews. The Agency have worked with Waterwise to ensure that the schedule for delivery of Phase III will make the evidence available in time to input into PR14.

As the main customers, water companies must drive this from the outset, with input from the EA as needed. There has been an initial meeting organised by Ofwat, and Steering Group discussions, on what Phase 3 should cover. This has resulted in an initial list of priority issues.

It is important to look to companies to help steer the project as it moves into Phase III. The Environment Agency are the sponsors but not the end users. The water companies have given their input to the priority areas to be included in Phase III.

### **Morning Breakout Group Session**

**Question: How has the Evidence Base been useful to you or your organisation? What are the features of the current Evidence Base which you have found most helpful? Why?**

Feedback

- Reinforces existing approaches to water efficiency retrofitting
- Very useful during the 2009 Price Review
- It is a flexible tool and useful for June Returns and the WRMP process as it provides data that helps with cost benefit analysis
- It brings all industry work together – all the evidence was not in one place before
- It provides a useful reference document on water efficiency retrofitting
- People have confidence in the outputs

**Question: In what ways could the Evidence Base be improved?**

Feedback

- Improved understanding of behaviour in homes and schools

- Understand what value could be added by good quality engagement and what this would look like
- Understanding of effectiveness of individual devices
- More work could be done on non-household, particularly SMEs but there could be an issue of competition between water companies preventing sharing
- It is currently very England-centric and could include Scotland more
- The project could bring together more info from across the industry including projects which have failed.
- Understanding which devices might be suitable for installation as part of compulsory metering
- A broader scale of project would help to improve the Evidence Base including smaller projects from smaller companies.
- Cost data is not easy to understand

**Question: What are the features missing from the current Evidence Base which would help to make it more useful to you and your organisation?**

Feedback

- Focus on understanding savings possible at the local level
- Breakdown of what is possible from different demographic groups
- Learning from international projects – what has worked and what has not worked.
- Reverse engineering – know what customers want and then give them products they want
- Guidance as to which messages work best for different customer groups

## Afternoon Session

### Priorities for Phase III

*Ike Omambala, Technical Research Manager, Waterwise*

During Phase II of the project Waterwise produced a strategy for the Evidence Base which has been signed off by the Evidence Base Steering Group. These are the main priorities that will form the basis of the work in Phase III.

- Link with Water Resource Management and Price Reviews across the UK Reports and dissemination from the project will be planned to ensure that outputs are available when most needed by companies and regulators.

- Broaden the remit beyond the domestic and school retrofit.

We aim to gain a better understanding of customer behaviour, rainwater harvesting and water reuse for non-domestic customers, metering – where there is a clear link with water efficiency – and working with small and medium -sized enterprises.

- Guide design of company projects to fill priority gaps in the evidence base and ensure consistency of approach.

Currently the methodology for evaluating projects is being defined long after projects have been designed. Phase II sets out clearly what we need to know to improve the Evidence Base and this experience should be used to inform water efficiency project

design. Incentives for companies to carry out projects which help improve the Evidence Base would also be helpful.

- Facilitate company input

Discussions took place at the most recent Evidence Base Steering Group on governance and linking with water companies, to avoid duplication of effort, simplify process for inclusion of company evidence and involve companies in peer review of Evidence Base. Meetings are currently underway to progress this issue.

The water companies have been extremely helpful by providing input to prioritising work in the Evidence Base. Each company highlighted 3 areas in the scope for the Evidence Base that they deemed most important. By far the most popular is understanding the impact of behaviour change and quantifying savings from soft measures. But several companies highlighted longevity of water savings as a priority as well as understanding the reasons for similar schemes resulting in different results and a better understanding of the links between energy and water use.

### **Future Policy and role of the Evidence Base**

*Mike Walker, Head of Water Efficiency, Defra*

The current UK policy context was described and it was explained that the Coalition Government approach is for less, rather than more, regulation. There is a preference for voluntary measures such as labelling and 'nudging' people to help them make the right choice. There is also the prospect of further European regulation such as through the EC Blueprint for Water in which water efficiency is expected to feature. There may also be a role for product standards and an Eco-label which is due to include taps, showers, toilets and urinals.

The Water Availability and Quality Evidence Programme aims to deliver high quality and high impact 'evidence' that supports existing, and shapes future, policy and practice in water management (availability and quality). Waterwise's Evidence Base is supported by Defra as one source of this evidence.

The Evidence Base has been a valuable tool for policy makers. It was quoted by Anna Walker's Review and has helped to identify the best methods for delivering water efficiency which have fed into plans submitted by companies through the Water Resources Management Plans. One of the key findings of the Evidence Base has been the bias against demand measures, the "capex-opex bias" on which a report has recently been published by Ofwat.

[http://www.ofwat.gov.uk/future/monopolies/fpl/pap\\_tec1105capex.pdf](http://www.ofwat.gov.uk/future/monopolies/fpl/pap_tec1105capex.pdf)

Water and energy-saving information from the Evidence Base was used to inform the evidence on Green Deal 'measures'.

In the future the Evidence Base will be important to improving our understanding of what is achievable through water efficiency, the link with affordability and the potential benefits of metering. It will also be important to gather more evidence on non-domestic water efficiency to identify high water-using businesses and push benefits (monetary, carbon and water), especially to SMEs. Another major need of the next Phase of the Evidence Base is to gain better understanding of the effects of behaviour which could give us greater insight into the long term impacts of retrofit.

### **Contribution from Ofwat**

*Extracts from a statement written for the Technical Symposium by Paul Hope, Head of Supply/Demand Balance, Ofwat*

Ofwat has supported Waterwise's Evidence Base work since the project began and places a high value on this work. When Paul Hope spoke at Waterwise's second symposium last July, he explained why Ofwat set water efficiency targets. One of the key drivers was a concern that water companies seemed to be under-investing in water efficiency measures. This seemed to be at least partly because companies were not confident that such measures were cost-effective.

Targets will drive more water efficiency activity. They will help to demonstrate how companies are meeting their statutory duty to promote the efficient use of water. And they will contribute to balancing water supply and demand. But if the targets are to be judged a success, the increased activity they generate must be used to build the evidence base – and so to establish which water efficiency measures really are cost-effective. At the end of Phase II of the Waterwise Evidence Base, we asked water companies if the work had been useful to them, and if they supported further development. The majority of companies responded positively.

Ofwat's water efficiency targets require the companies to contribute to improvements to the evidence base. Ofwat is currently working on a consultation to clarify what we expect of companies and what incentives they should have to contribute to the evidence base. Current thinking is centred around a proposal from water companies to establish a central research fund, for use in filling priority gaps in the current evidence base. The companies would identify, prioritise, scope, deliver and evaluate projects to fill these knowledge gaps. Contributions would be optional and would count against the 1 litre per property per day targets. Ofwat is considering whether a minimum contribution to the fund would be sufficient for companies to demonstrate that they have met the requirement in targets to contribute to the evidence base. Those companies that chose not to contribute to the central fund would still have to demonstrate how they have met the requirement to help improve the evidence base.

Ofwat's consultation will also propose removing the 30% limit that savings from so-called soft measures can make towards the 1 litre per property target. In return, Ofwat will suggest that companies that exceed the 30% must evaluate the impact of their 'soft' measures on demand. And Ofwat plans to remove any allowance against targets for savings that might arise when companies distribute products unsolicited. We plan to publish our consultation in the next summer.

For the longer term, Ofwat wants to make water efficiency targets redundant. This will be achieved when Ofwat is satisfied that water companies have the right incentives and the right information to manage water demand sustainably and economically. Ofwat's programme of work on the regulatory framework and market

reform aims to deliver the right incentives. But Ofwat needs the evidence base to continue to develop to provide the right information.

### **Afternoon Breakout Group Session**

***Question: What opportunities exist to develop the Evidence Base in a way that would be most helpful?***

#### **Feedback**

- Collaboration opportunities with housing associations and local authorities who are currently not looking at water
- The energy smart metering roll-out
- Low Energy Partnership
- Evaluation success of big programmes which have led to cultural change – drink driving, Keep Britain Tidy
- “Domestic” water use in non-domestic (kitchens, toilets, bathrooms)
- EU funding
- Private sector funding – working with companies under Corporate Social Responsibility such as HSBC and Sainsburys
- Working with companies awarded funding under the SELWE water efficiency targets
- Potential to work with the RENEW programme in London
- Assessing water efficiency in new build – understanding whether homes built under the Code for Sustainable Homes actually achieve their water efficiency rating
- Working with retailers, manufacturers and energy companies as both project funders and project funders
- Working with energy companies more to support water efficiency
- Incentives for water companies to carry out good quality research
- Work more with other parts of the UK apart from England
- Promotion of existing material to wider audience
- Incorporate wider Waterwise activities such as Tap into Savings into the Evidence Base

***What actions need to be carried out to take advantage of these opportunities to help develop the Evidence Base?***

#### **Feedback**

- A project team could be set up to take advantage of these opportunities for projects and funding
- Getting everyone on board and getting more input
- The Evidence Base evaluate evidence already completed but there is a need to know upfront what projects are being done by companies
- Look at methodology and develop a common language
- Developing better understanding of the longevity of savings

### **Closing Remarks**

*Nicci Russell, Policy Director, Waterwise*

The event provided really useful feedback on the Evidence Base and would be valuable as the project moves into its third Phase. Some of the areas which stood out as being priority areas to be addressed were improved understanding of customer behaviour and gathering evidence of water efficiency in small and medium-sized enterprises. The whole regulatory framework is currently up for grabs and the Evidence Base can play an important role in shaping it.

The Evidence Base is also playing a role in defining how water may eventually be included in the Green Deal. The point was made that the 'capex bias' is a real barrier to water efficiency in the industry and culture within companies may also play a part in this. Finally, the funding status of the Evidence Base was summarized: there is currently less funding for Phase III than for Phase II, for a bigger remit. Waterwise is looking at developing private sector funding in addition to the current funders of Phase III.