

## **Waterwise**

### **A water efficiency strategy for the UK**

#### **Background to CIWEM**

CIWEM is the leading independent Chartered professional body for water and environmental professionals, promoting excellence within the sector. The Institution provides independent comment on a wide range of issues related to water and environmental management, environmental resilience and sustainable development.

CIWEM welcomes the opportunity to respond to the Waterwise consultation on a water efficiency strategy for the UK. This response has been formulated with the assistance of our Water Resources Panel of technical members who have a wealth of experience in the sector.

Water professionals have a responsibility to encourage water efficiency to ensure an appropriate balance between society's demand for water and environmental requirements to support valuable habitats and species. In 2016 CIWEM published the report 'Water efficiency: helping customers to use less water in their homes'. This is available from: <http://www.ciwem.org/processed-water>

#### **Summary**

Despite being regarded as a country of fairly inclement weather, the UK has less water available per person than most European nations. Many different organisations and individuals have a role in water efficiency, from government departments such as Defra, DCLG and DECC to water companies, local government, building control, manufacturers, retailers, plumbers, builders, and universities, to individual businesses and households. This diverse range of stakeholders needs to have a common understanding and shared responsibility if water efficiency is to be delivered effectively and successfully.

We believe that achieving reductions in water use through behaviour change (i.e. via a water saving culture) is likely to be difficult without at least one of the following:

- Political will;
- Significant changes to our approach to charging for water services or
- A prolonged, severe nationwide drought, (e.g. California)

CIWEM considers that Waterwise can play a valuable role by taking action to change political will, through lobbying, promotion of good research, awareness raising and encouraging collaboration and that this should feature as a key part of the water efficiency strategy.

#### **Response to consultation questions**

1. Do you think that water scarcity is a serious threat to the UK?

It is a moderate threat. As a nation we have the ability to prepare for, cope with, respond to and learn from the impacts and consequences of threats. It requires an assessment of current and future pressures, their impacts on the current state of supply systems and customer expectations alongside our ability and capacity to react and bounce back, by being resilient.

The uncertainty involved in assessments, for example from climate change, is one of the greatest risks as it could result in a lack concerted action. Water efficiency and demand management offers an area where incremental changes can be made towards more resilient systems (e.g. increased metering offering tariff responses to water scarcity, reduced demand through improved customer behaviour etc.). A big challenge in this area is communicating the risks around water scarcity when it is not seen more widely as a big societal risk. Raising customer awareness of the water they use can only help serve this and will improve the willingness to pay for improved resilience.

2. [Do you think that there needs to be greater consideration given to the impacts of water scarcity and if so by whom?](#)

Yes: UK Government (notably Defra and DCLG), the devolved administrations, Water UK, Environment Agency, Natural Resources Wales, SEPA, Ofwat, water companies in England and Wales and water undertakers in Scotland and Northern Ireland, household and non-household customers, new entrants to the retail water market, academics, agricultural sector, manufacturers suppliers and installers or water using devices, water efficiency products and other related products including gardening sector, all associated retailers.

Currently the regulatory environment is placing responsibility to companies, but the issue is wider. The 2016 Water UK study<sup>ii</sup> Water resources long-term planning framework was a welcome step in the right direction. More collaborative projects such as these that are in tune with the water resource management plan cycles, and can help maintain momentum and take a higher level view based on those outputs.

Action to improve our capacity to deal with scarcity events needs to follow.

3. [Do you think that increased water efficiency is a legitimate response to the threat of water scarcity?](#)

Yes it should be part of the response, alongside supply side solutions, including new sources and water transfers. Even if it cannot provide a solution to the whole of the threat in isolation, it must be included as one of the necessary responses for examination and development. However:

- not at the expense of health and sanitation.
- water efficiency effectively provides additional headroom in the supply demand balance through reducing demand, which makes the industry more resilient to drought. The potential risk is that water efficiency is used as a tool to reduce investment in supply and delivery assets, and at the same time used as a tool to reduce abstraction; thereby reducing the overall headroom and reducing resilience to future pressures and strains such as drought.
- water efficiency is used in the run up to a drought to reduce demand as a direct response to it (e.g. the 'Beat the drought' campaign in 2006); there is a risk that this water efficiency 'headroom' is reduced for future droughts, and this risk needs to be quantified and managed when drawing up drought plans.

4. [How can we better integrate water and energy efficiency programmes?](#)

Initiatives such as the Green Deal had the potential to integrate water and energy efficiency and a 2012 UKWIR project demonstrated the quantitative and qualitative benefits of such programmes. However national programmes seem unlikely without a significant change in government policy and local programmes have more potential in the short term. In the meantime, Waterwise should continue to lobby government and work with other stakeholders on the links between water and energy efficiency.

We also consider that any kind of natural resource use efficiency programme should be nexus-focused. To include food, and not just water and energy. Funding sources for water, energy and food programmes, irrespective of which government department or body they sit within should be unified.

5. How can we better measure and monitor best practice water efficiency in the UK? Is per capita consumption the best indicator?

The first recommendation could probably better phrased and perhaps contain the phrase "...and include baseline values against which water efficiency and resilience can be measured/compared".

The strategy should clearly define what it is aiming to measure. Consumption data may not actually show best practice.

Per capita consumption (PCC) is one outcome or 'key performance indicator' for household consumption, but presents difficulties as it is not measured in any way. Per household consumption (PHC) can be measured and the effect of occupancy can be accounted for. However at present PHC is only measured at around 50% of properties (i.e. those that are charged for on a metered basis). This cohort of households is large but not necessarily representative of the whole population and consumption has to be estimated using notoriously imprecise methods (requiring extensive reconciliation) in the remaining properties. Water company data can only go so far, especially in relation to unmeasured consumption, which may mask extremes of PCC. Compulsory metering would help with unmeasured consumption and smart metering would go some way to helping with data.

The problem with either PCC or PHC is that they can be influenced by externalities such as the weather, so they should be normalised for this, or they cannot be used effectively. The impact of any demand restrictions would also need to be accounted for. PCC or PHC may be suitable measures for household consumption, but does this strategy cover consumption elsewhere, for example in non-households and non-public water supplies? Does it also include leakage?

Regional targets might be more realistic for the UK as why should someone in Scotland, where there is unlikely to be water scarcity have to achieve a PCC of 100L, compared to someone in London where there is likely to be water scarcity but a greater ability to pay to use more (via whatever route).

Appliance and building-level indicators are also problematic as devices and infrastructure can be changed irrespective of building regulations.

It may be more desirable to have a basket of measures, acknowledging the limitations of any single measure. Per household consumption has the potential to offer a more stable year by year comparator as part of this. For the general public one measure is more appropriate, but for decision-makers it is probably unwise to focus on a single metric.

6. Could the UK match international best practice and achieve a per capita consumption of 100 litres? And if so how?

We do not support the use of consumption targets to represent best practice as this is likely to vary across the UK to reflect different levels of water scarcity and the most appropriate way to address these challenges.

It is difficult to compare the water supply systems, charging methods, plumbing systems and water using behaviours of the UK with those internationally and to state what is 'best practice'. Other measures are essential or important in achieving water efficiency such as maintaining public health, providing consumer choice and freedoms.

Given the volume of water imported in 'water footprints' of products, should these be included in a PCC in order for greater recognition amongst people of these issues? Perhaps PCC should only be potable and there could be a non-potable PCC as well, which could be made up from water from other sources such as rainwater harvesting and greywater reuse – although is there any real need to drive down water consumption to the bear minimum? There can be impacts on health and wellbeing and on mental health. Vulnerable groups, particularly the elderly can become too focused on water saving and neglect their personal care as a result.

We do believe consumption reduction should be targeted, progressively, and delivered through a mix of behavioural, technological and tariffing approaches, including the use of household and community level incentives to encourage consumption reduction in periods of need (as well as through the use of penalty tariffs to reduce discretionary use in dry spells). This should be driven by stronger government, to promote full meter coverage, from which further water efficiency drivers can be realised.

7. [What other indicators or approaches could be used to help monitor progress or set targets towards greater levels of water efficiency?](#)

An alternative would be to use UK-based evidence from recent years to estimate the effect that various activities have had in reducing household consumption, including the effect of water fittings regulations, retrofit programmes, metering and education programmes. This evidence exists, for example in the Water Efficiency Evidence Base. Such evidence could then be used to set water efficiency targets, based on an understanding of what has actually occurred and what might be possible under a range of future scenarios, with uncertainties.

We also recommend creating improved awareness of the full economic, social and environmental costs of wasting water, in general and especially when water resources are under pressure.

There could be an indicator for non-potable water use – water that does not need to be abstracted, treated and transported vast distances i.e. saving water and energy.

Please also refer to our response to question 9.

8. [Do you agree with our definition and vision for water efficiency in the UK?](#)

The definition of water efficiency (first bullet point) is vague. Does this apply just to the definition of consumption in homes and businesses? Or does it apply to water abstraction, treatment, and delivery to consumers?

Care is required when using the term 'wasted', as a lot of work has shown this is counter-productive. If people do not perceive they waste water then they will not be inclined to follow water efficient practices or install water efficient devices.

There is a confusing mention of water reuse and rainwater harvesting here – they do not fit any of the three bullet points of the definition and are in fact in contradiction of the first two and there is debate as to whether they are demand-side or supply-side, as they reduce potable demand, but are an 'alternative supply'. Clarity on the position of these alternatives would be sensible.

The section is not really clear, for example the term 'water saving' is introduced; is water saving 'water efficiency' or 'water conservation'?

An alternative definition might be:

**Water resource efficiency:** minimising the waste of water from the point of abstraction to the final end-use of water.

This fits well with the ethos behind water resource planning. The term could be subdivided; for example:

- Water efficiency in raw water transportation (raw water mains leakage)
- Water efficiency in treatment works (treatment works losses)
- Water efficiency in distribution networks ("trunk mains service reservoir, distribution and supply pipe leakage leakage")

- Water efficiency in homes (domestic per capita consumption)
- Water efficiency in businesses (non-domestic consumption), etc.

The vision needs to be clear and not necessarily state how it will be achieved, for example: *"A UK in which all people, homes and businesses are water efficient"*.

It is not clear whether leakage and metering are part of water efficiency in the strategy. Within the vision 'all people, homes and businesses are water efficient' would imply that leakage is part of water efficiency - as water companies are businesses. Metering is a means of helping to deliver water efficiency to homes and businesses through quantifying how much is used and how much is saved; so metering is also part of water efficiency.

One thing that requires addressing is that technology, albeit smart, takes the front seat in the vision and behaviour change or human factors are not mentioned at all. Relying on technology, regulation and legislation is limiting and not the approach expected, especially as the following section is all about people and behaviours.

Our response to question 9, below, provides further recommendations.

#### 9. Do you agree with the recommendations for building a water saving culture?

Achieving reductions in water use through behaviour change (i.e. via a water saving culture) is likely to be difficult without at least one of the following:

- Political will;
- Significant changes to our approach to charging for water services, or
- A prolonged, severe nationwide drought

Therefore we consider that specific actions are required focusing on:

- Lobbying government and related agencies on the clear need for a water efficiency strategy to address the findings of the Water UK Long Term Water Resources Project report.
- Implementing industry standard methods for estimating and reporting unmeasured household consumption and reporting measured household consumption.
- Continued funding and general support of research into water efficiency, including the effectiveness of different water efficiency technologies and the effect of metering, tariffs and behaviour change programmes on consumption and water conservation.
- Clearer, evidence-based guidance on the estimation, measurement and reporting of leakage. Leakage reduction is a fundamental part of water conservation and the credibility of any water efficiency strategy depends critically on water companies 'doing their bit' (and being able to demonstrate that they are doing so against easily understood targets).
- Co-ordination of a water use forum including manufacturers, retailers (from large national organisations to smaller local businesses), social landlords, local authorities, consultants/contractors, community groups, charities and academics. This forum should have a clear mission, set of objectives and programme of actions to achieve stated aims. It could be held to account by Ofwat. It should use existing activities such as the Water UK Demand Forum, Water Efficiency in Buildings group, the Water Efficiency Awards, and relevant publications, conferences and 'social media' to maximise its impact.

The report 'Making Water Conservation a California Way of Life' provides a good example of a detailed strategy that we believe has the potential to deliver its stated intention. It is driven by a prolonged, severe drought which has resulted in political will to implement fundamental change in the approach to water use via changes in:

- Institutional roles and responsibilities.
- Policy and legislation (i.e. Executive Order B-37-16).
- Standard setting, based on local drivers, taking account of water use in households, non-households, agriculture and leakage.
- Measurement and evaluation of performance against standards, with rewards and penalties based on this for water undertakers.

In our view, it will not be possible to deliver a water saving culture without the political will and resulting institutional and policy drivers.

The general view outlined of a large scale combined communication campaign can only go so far. More thought is needed on this to develop a strategy specific to drive culture change relating to the value of water, not just water saving. The six recommendations in this section do not particularly relate to building a water saving culture, with the exception of the first one perhaps. They are more about a communication and information platform/system, which is about knowledge dissemination, not public engagement i.e. two-way activities.

The Communication Platform is a good idea – should the ‘Water Information System’ include floods as well as drought or is Waterwise’s view that it is already dealt with sufficiently in other communication/information systems?

The Water UK LTWRP report should provide a catalyst for this and we believe Waterwise should lobby government to implement something like the Californian example, amended to meet UK-specific requirements.

#### 10. How can we bring together partnerships to deliver this wider level of awareness?

We believe Waterwise should play a central role in bringing stakeholders together into a ‘Water Saving Forum’. The following is taken from the CIWEM policy position statement on water efficiency:

- CIWEM fully supports the extensive work done by water companies to meet their statutory obligations to promote the efficient use of water by their customers, through activities such as school education programmes, water audits, retrofits of water saving devices, online and paper-based advice, water use calculators and engagement in the community. This work needs to continue in the context of (smart) metering and new tariffs, and be guided by better insights into water-using behaviour. We also recognise the significant effort by a wide range of other organisations to promote and progress water efficiency in the UK.
- CIWEM believes water companies could promote water efficiency more imaginatively via the principal activities outlined in Water Efficiency policy position statement, and by engaging with a wider range of stakeholders, from manufacturers and retailers to community groups and credible third-sector organisations or well-known brand owners who have more exposure and market-moving ability than they do.
- The Westminster government, devolved administrations, local authorities and other government agencies have a role in promoting water efficiency. The public sector should provide the lead in promoting the use of water efficient products when publicly owned buildings are upgraded or refurbished. More support should be provided to ensure water efficiency is included in programmes focused on alleviating fuel poverty and maintaining housing standards (such as RENEW in London and ‘arbed’ in Wales).
- There are many different groups who have an important role to play in delivering water efficiency, including manufacturers, retailers (from large national organisations to smaller local businesses), social landlords, local authorities, consultants/contractors, community groups, charities and academics. Partnership between these kinds of organisations will be critical to enable a real change in how we use water. We recommend that government, regulators and the

water industry work collaboratively with all stakeholders to deliver meaningful, measurable and impactful change. CIWEM recommends that a water saving forum be established, with a clear mission, set of objectives and programme of actions to achieve stated aims.

- The new water saving forum should not be a talking shop. It could be held to account by Ofwat. It should use existing activities such as the Water UK Demand Forum, Water Efficiency in Buildings group, the Water Efficiency Awards, and relevant publications, conferences and 'social media' to maximise its impact.

Waterwise should also think beyond the water sector. The third sector is already mentioned, which is encouraging but there could also be better engagement with wider forums – the Transition Town movement for example. Existing networks can be used by undertaking a network information gathering exercise and then approaching each one with a list of practical actions so that water efficiency can be embedded across them with ease.

11. Do you agree with the opportunities and challenges outlined for water efficiency from greater retail competition for water?

There are real dangers that water efficiency is lost in retailers as a focus due to economic factors as they compete to survive in an environment that offers small margins. The main challenge is that for retailers to deliver effective water efficiency to customers, there needs to be a real business advantage for them (maintaining customers, gaining new customers or developing a new revenue stream).

New retailers do have the capacity to be innovative in the products and services they offer, and the way they finance them. Although at present we do not really know how the new retailers and third party intermediaries will behave.

CIWEM consider the wholesaler (who manages the supply system), should retain the responsibility to control triggering of this across an area as part of Drought Planning, and during a drought response a process needs to be implemented that focusses on the drought response (is not overly onerous with regards interactions with numerous retailers).

12. Do you agree with the recommendations for developing a framework for water efficiency in competition?

There is a wealth of evidence and experience that the current water sector has built up on water efficiency - but retailers need to be creative in how they deliver their water efficiency services; building on what has been learnt to date, but not being constrained by a framework.

The (water efficiency) strategy needs to:

- be flexible and agile to deliver information and advice to new retailers, third party intermediaries, and businesses,
- establish exchange of ideas, issues and challenges with the new retailers, and understand what they require from the strategy,
- provide benchmarking between different approaches and outcomes,
- helping to produce codes of practice, etc,
- promoting and communicating success stories, etc.

There might be the need for a range of services that need to be developed, but we are not sure that there is a clear enough need for a framework at the present time.

13. How can we ensure that non-regulated members (e.g. TPIs) of the water sector help to deliver water efficiency?

Third party intermediaries (TPIs) will promote water efficiency if there is benefit to them, there is no way of ensuring that they deliver water efficiency unless a statutory requirement is created that new retailers support TPIs and vet their programmes to ensure water efficiency is included. The strategy needs to engage with TPIs to determine their level of interest and what is needed to encourage them to deliver water efficiency.

#### 14. How can we improve water efficiency in social housing across the UK?

We recommend continuing with partnership programmes for the retrofit of social housing to meet required housing standards, address fuel poverty and generally upgrade the existing housing stock.

We also recommend that new-build social housing should be used to exemplify the integrated benefits of water efficiency, energy efficiency and urban drainage management, wherever possible, and that Waterwise should work with national and local governments, developers and other to deliver this objective.

Waterwise could encourage all community groups to participate and respond to their local Neighbourhood Plan. Often responses are done by particular community groups who may not represent all of the interests of a neighbourhood – ‘hard to reach’ groups and non-represented parts of the community could be something to focus on in Waterwise’ future activities. Enhancing community engagement between Councils and communities, through recognised public engagement approaches, not just behaviour change programmes. Please refer to website of National Coordinating Centre on Public Engagement.

Any water efficiency training programmes should include human factors i.e. behaviour/culture change and public engagement, so that practices of a range of organisations are supported to change to be more engagement rather than dissemination-focused.

#### 15. What further incentives and standards are required to increase water efficiency in new homes?

We recommend placing obligations on developers to install water efficient devices in areas where water availability is low and usage of the available resource is high, via planning conditions. This could be combined with financial incentives to occupiers to achieve (low) target consumption rates in those homes.

We are aware of other water companies (in addition to Southern) who are evaluating whether variable infrastructure charges for developers, to encourage the installation of more water efficient fixtures and fittings in new homes. The effectiveness of these initiatives should be evaluated, taking account of the specification of the water using devices installed and the actual consumption after new homes are occupied, compared to a suitable baseline.

Incentives for participation in responding to local Neighbourhood Plans would be useful, as this is one direct thing local authorities pay attention to. This could be something to focus on in Waterwise’s future activities.

#### 16. How can we increase the number of water efficiency retrofits being undertaken?

There are a wide range of options that would need to be related to the types of communities and customers being addressed (across socio-economic groups for households, but also across the diverse range of non-households) and also based on who is doing the retrofits. This could include water companies, local authorities/RSLs, charities, water retailers (for non-households).

Retrofits can be maximised by providing the most appropriate incentives to all parties. For example, ‘points’ towards a community investment could increase uptake in wealthy areas, whereas financial issues may be more successful in more hard-pressed areas. There are a myriad of challenges and opportunities and water companies are already doing excellent work in this area.

We recommend engaging with water efficiency practitioners to develop a compendium of approaches which can be used as a reference and to identify best practice. This should also be linked to the water efficiency evidence base (see question 23 response).

Please refer to our response to question 9

17. What further incentives and standards are required to increase water efficiency in new non-domestic buildings?

There is already quite a range, but more towards supporting non-potable/alternative water supply systems might be warranted. Please refer to our response to question 9.

18. Should water companies incentivise the uptake of water efficient devices and fittings through rebates and other financial levers?

This is commonly included in the option appraisal process as part of water resources planning, but to our knowledge has not been implemented in the UK. Such an option is likely to require the implementation of some consumption standard (e.g. a labelling scheme) as a pre-requisite (in order to reliably identify qualifying devices) and is also likely to need national co-ordination, or at least be more successful than schemes undertaken by individual water companies.

19. Should the UK Government give water efficient devices a zero VAT rating?

Yes, and please also refer to our response to question 9 and 20.

Waterwise should also liaise with the UK Rainwater Management Association regarding rainwater harvesting. There are a vast range of installations in non-domestic properties, but no one has taken it upon themselves to develop an inventory of data and analysis, despite interest across a range of parties at the Waterwise RWH event in Woking (<http://www.waterwise.org.uk/pages/rainwater-greywater-event.html>), this was a missed opportunity and it would be useful if Waterwise could identify/generate a funding structure to support further work.

20. How can we strengthen the Water Label to transform the market towards more efficient products?

We recommend Waterwise should work with the labelling organisations and lobby for the mandatory marking of all water using devices with the label – i.e. move from a voluntary to mandatory scheme.

Failing this, efficiency ratings could be linked to progressive reductions in VAT from full to zero, by efficiency bands. This would save costs for the buyer, encourages manufacturers to design and build products that are likely to sell more, by cost attractiveness and also promote their 'green credentials'.

21. What other options are there for product innovation in water efficiency for the UK and how can we incentivise these?

Product innovation requires a market in which new inventions can make money. This is a challenge when water charges are so low, and when water is not regarded 'as an issue' by most stakeholders. Looking beyond water such as products that assess other characteristics, for example [here](#) soil structure and topography are the focus and the software then decides how much water to irrigate with.

Please refer to our response to question 9 for suggestions to address this issue.

22. Do you agree with the recommendations on metering and tariffs?

We agree that water companies should be free to meter customers regardless of their water stress status, to encourage the efficient use of water by all, whilst meeting the needs of the vulnerable and disadvantaged.

Getting full metering (or as close as technically practical) is critical. Whilst offering companies the mechanism to compulsorily meter is useful, the customer base is often suspicious of why this would be done, especially where the area is not perceived to have water resources 'problems'. Regulators and government put the emphasis on the water companies to promote metering, however, this should be driven by strong policy if the benefits are recognised.

The key issue is pace - we do not think it is possible to meter all properties by 2020, given the water industry's current Water Resources Management Plan and Business Plan timetable, without immediate government intervention. It also does not allow for a full assessment of the costs involved. It could be possible by 2025, with the provisos the strategy identifies. Instead we may need to be less aspirational, but promote a more realistic phasing. For one, decisions would need to be made on what meters are to be installed, and rushing through could result in opportunities with linking to other utilities.

We support a move to smart metering which has extensive benefits beyond 'dumb' metering and intermediate options such as automatic meter reading (AMR). However, further work is required to understand the pros and cons of different smart meter technology, customer communications, data transmission methods and data storage and analysis systems. The roll-out of electricity smart meters should be a clear warning to the water industry, to learn the lessons and not underestimate the challenges involved.

Smart metering is a pre-requisite for most tariffs however much more research is required to determine the costs, benefits and technical/practical challenges associated with smart meter tariffs. A longer timescale will not sound as good in a document, but if there is a focus on the outcome then it is more likely to yield success.

Our current understanding is that retail separation for non-households is likely in the early 2020s, should non-household retail separation prove successful. If this were to happen it is much more unlikely that a co-ordinated programme of household metering will take place.

23. [From your experience in delivering or receiving home visit linked to retrofit programmes, how can the industry support improvements and knowledge sharing?](#)

There is strong evidence on the effectiveness of water efficiency retrofit programmes in the Water Efficiency Evidence Base, which was extensively updated in 2015. We therefore disagree that "there is a need to collate up to date figures". However we do recommend this evidence base is maintained and updated annually. Awareness of the evidence base within the industry is good, but could be better and could be promoted by Waterwise.

The savings estimated for various water efficiency retrofits do vary, either as a result of the programme itself or the quality of the data collected. This variation could be better understood by requiring those organisations involved in retrofit programmes to meet a minimum standard of data collection. This need not be onerous, for example analysis can be based on routine meter reads at metered properties. Organisations could then provide data to Waterwise or other bodies (e.g. UKWIR for inclusion in the annual update.

Despite the reported variations in savings from water efficiency retrofits, there is some convergence in results for well-organised, plumber-led household retrofits, which for example include dual flush toilet retrofits, shower head replacement and tap aerators. This evidence should be used to specify future retrofit programmes.

24. [How can we improve the evidence base for water efficiency to better share learning on the latest large scale water efficiency programmes?](#)

We recommend maintaining the existing water efficiency evidence base through regular updates. This can be done very cost effectively (e.g. a few thousand pounds a year) and is not a major challenge. By using other cross-resource networks Waterwise will be able to influence across networks and sectors.

25. Do you agree with the recommendations for improving water efficiency in cities and urban developments?

Yes, although we would recommend that Waterwise focus primarily on its core objective, and that broader integration of water efficiency into 'sustainable cities' is delivered primarily by achieving this core objective.

26. What are your views on data collection and accessibility?

Good data are essential to understand current rates of consumption, to forecast consumption and to evaluate the cost-effectiveness of water efficiency, water balance, consumption, leakage and conservation interventions. We recommend greater consistency in measuring and estimating consumption and leakage and greater sharing of data, particularly between water companies, where there are clear financial and statistical benefits from working at scale.

Data generated by any publically-funded research must now be made open access. It would be useful if a similar principle applied to data that can be utilised for the common good i.e. to determine how water efficiency targets are being met and measures enforced.

The appeals of big/smart data are also clear (as outlined in our response to Q22) but this question has huge implications in terms of costs, benefits, technological, social and indeed ethical challenges for the water industry.

In our view this is a topic to which Waterwise can contribute (and should be part of), in terms of the benefit of smart metering and greater use of data to reduce water consumption and leakage, but the issues highlighted are likely to go significantly beyond the development of a water efficiency strategy. Therefore we recommend Waterwise retain a focus on promoting the sharing of consumption data, water efficiency and related study results in whatever form of data.

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i California Department of Water Resources. 2016. Making Water Conservation a California Way of Life Implementing Executive Order B-37-16. <http://www.water.ca.gov/wateruseefficiency/conservation/>

ii Water UK. 2016. Water Resources Long Term Planning Framework <http://www.water.org.uk/water-resources-long-term-planning-framework>