



The Cam Valley Forum is an
unincorporated association, registered
with HMRC as a charity.
info@camvalleyforum.uk
<https://camvalleyforum.uk>

Chairman: Stephen Tomkins
Secretary: Alan Woods
Treasurer: Bruce Huett

22 July 2021

RESPONSE TO THE OFWAT CONSULTATION PAPER 'PR24: CREATING TOMORROW TOGETHER'

1. The Cam Valley Forum welcomes the opportunity to comment on [PR24: Creating tomorrow together](#). This paper builds on our response on 23 February 2021 to the previous OFWAT paper 'PR24 and beyond: future challenges and opportunities for the water sector'.
2. The Forum is an association of local individuals with diverse environmental, recreational, academic and business interests, concerned directly or indirectly with the River Cam. Our mission is to defend the health and wellbeing of the Cam for its wildlife and environment and for people; safeguard its historical and cultural importance; and seek, through a reasoned and evidence-based approach, changes in policy and practice to enhance the water environment of the entire catchment.

The environment in the Price Review

3. Among other statements in the consultation paper, we welcome:
 - The recognition that *'customers' interests are evolving and their expectations are growing. Customers are increasingly concerned about damage to the environment from taking water from rivers and chalk streams, discharging waste through storm overflows, and carbon emissions.'*
 - The call for *'... fresh thinking and real change ... We expect companies to adopt more nature-based solutions and to unleash game-changing innovations ...'*
 - The expectation that companies will *'continue to place an appropriate emphasis on social and environmental factors to show that their business plans represent overall 'best value', rather than just least cost.'*
4. However, we are still not fully convinced that OFWAT recognises that the price reviews need to place much greater emphasis on protecting and restoring the environment. The **long-term focus** discussed in Chapter 4 needs to cover not only achieving net zero, and tackling the threats posed by climate change, but also rectifying the long-standing and continuing impacts of over-abstraction and inadequate wastewater treatment on biodiversity and recreational use of water. The use of *'potential'* in *'There's increasing public concern about the potential harm to the environment from some of the water sector's activities'* suggests some institutional blindness to these impacts but they are proven and increasingly recognised by public bodies (see **Annex 1** for Cam examples).
5. Nowhere is the need for corrective action clearer than in relation to Chalk streams, now the focus of a draft National Restoration Strategy. While we welcome the two passing mentions of Chalk streams in the consultation paper, OFWAT's final PR24 guidance will need to do much more. For a start, Chapter 4, alongside the references to net zero, should reflect the conclusions of the final version of the National Chalk Stream Restoration Strategy, and recent Government policy steers:
 - Key statements in Ministerial correspondence (Rebecca Pow MP, 30/07/20):
 - *'helping abstractors move to more sustainable sources'*;
 - requiring the regional water resources planning groups to consider *'significantly reducing all abstraction from the chalk'*; and
 - ensuring that options in regional water resources plans *'provide the best value to customers, society and the environment, rather than simply the lowest financial impact'*.

- The 'Achieving a Green Future' letter of 21/08/20 from DEFRA, the Environment Agency (and OFWAT) to the water companies: *'Restoring England's internationally important chalk stream habitats is a government priority. Many suffer from low flows, poor water quality and habitat loss and we need your help to tackle these pressures. Positive work is already improving these catchments and it is important that you continue to work through regional water resource planning groups and with regulators to agree a clear long term environmental destination. We want to look at what further action you can take to improve the condition of chalk streams, including by tackling groundwater infiltration and storm overflows.'*
6. These steers should also be reflected in OFWAT's developing thinking on Outcomes (Chapter 9). This states *'Our outcomes framework aims to focus companies on delivering the things that really matter to customers and the environment. It specifies: how we will measure progress towards outcomes (...performance commitments); the standards they should reach (performance commitment levels); and the incentives associated with out- or under- performing ...'*.
7. Much more demanding commitments and commitment levels should be set for relevant water companies. The **environmental** commitments that OFWAT requires from all water companies whose activities affect Chalk streams, whether by abstraction and/or discharges, should include:
- **Demonstrating** their *global* responsibility to care for the 225 Chalk streams in the UK - 85% of the world total.
 - **Prioritising** Chalk streams over other lowland watercourses for action to protect and restore flows, improve water quality, and, using nature-based solutions, to enhance habitats.
 - **Reducing** abstraction from Chalk aquifers *at source*, so that springs and headwaters run freely throughout the year, every year, whatever the weather, pollutants are diluted, silt is removed, and wildlife flourishes.
 - **Reconfiguring** water supply systems, through the water resources planning process - for the Cam Valley, for example, through a 'Chalk-streams first' solution, supported by water transfers.
 - **Capping** Chalk aquifer abstraction at current levels, regardless of licence entitlements, and meeting all immediate increases in public demand (new development is adding particular pressures in our local supply zones) via surface water transfers from other companies.
 - **Reducing** water wastage through investment in leakage control, compulsory metering, and demand management in all its forms.
 - **Upgrading** all wastewater treatment facilities that discharge to Chalk streams to end discharges of raw sewage and reduce phosphate emissions to 0.5 mg/l.
8. These obligations should be viewed as essential elements in relevant water company plans, not as bolt-ons. The consultation paper has only one passing reference (page 28) to 'natural capital' but water companies will have no businesses to operate if they fail to care for the natural capital assets - the rivers and aquifers - on which their corporate survival depends. OFWAT needs to recognise and promote aquifers and rivers as economic assets in their own right. Monies spent on substantial and needed improvements in their ecological health would then be reflected in an increase in asset value. OFWAT needs to shift its thinking and its econometric models accordingly for PR24.
9. The **water supply** performance commitments applying to water companies that abstract from and/or discharge into Chalk streams should similarly reflect local environmental imperatives. Customers in areas of 'serious water stress - now about half the total area of England - should not

expect to have unlimited supplies of water all year-round, for all purposes, without limitation. Yet our local water companies are still expected to meet standards for the use of Temporary Use Bans (TUBs) and Non-Essential use Bans (NEUBs) that would be more appropriate for Scotland. PR24 needs to signal to customers that water is scarce in these 'stressed' areas, to encourage wise use, to accelerate metering and leakage control, and to provide for tiered controls on use related to the actual and predicted status of groundwater and surface water supplies in aquifer-fed catchments.

10. **Annex 2** is a paper prepared jointly by Water Resources East and the Cam Valley Forum and forwarded by Anthony Browne MP to Rebecca Pow MP in June 2020. Key proposals in relation to performance commitments and commitment levels for *Chalk stream catchments* include:
 - **Promoting water efficiency:** Here the relevant requirement is to set much more demanding personal water use targets and to establish targets for reducing distribution input (the total amount of water used for public water supply) with the objective for both of leaving more water in the natural environment.
 - **Going further and faster on metering:** The requirement here is to set much more demanding targets for metering supplies and installing smart meters. This aim should be helped by recognition that all our local water supply zones are now 'areas of serious water stress'.
 - **Going further and faster to reduce leakage:** Again more demanding targets need to be set and met. Cambridge Water sought to do more in PR19 but OFWAT cut back their aspirations, which suggests that OFWAT then gave more weight to costs than to the environment. That balance needs to shift in favour of safeguarding and restoring natural capital.
 - **Rebasing water company service levels:** These need to take account of the environment. For example, water companies in areas of serious water stress, especially those that utilise Chalk aquifers, should be actively encouraged to impose TUBs *every year* from 1 May to 31 August, to signal to the public that water is scarce and needs to be used wisely, rather than, as at present, being penalised if they impose a TUB more than once in every 20 years.
 - **Rebasing water company drought trigger levels:** These too need to reflect environmental *impacts*, not simply the availability of licensed quantities. Service standards (see above) will also need to change. More robust action to restrict usage could then be taken earlier than is possible now, with a better chance of avoiding repeated drying up of Chalk watercourses.
 - **Rebasing water company drought plans:** Here our call is for the full integration of the Environment Agency's approach to drought management with that of the water companies.
11. Action in all these areas should be part of the continuing discussion about framing PR24 so that water companies, especially those that abstract from Chalk aquifers or discharge to Chalk streams, fully integrate environmental concerns into their plans and deliver step changes in environmental performance that will not only protect but also restore these globally important habitats.

Learning from overseas experience

12. Water tends to be taken for granted in the UK. People do not appreciate that there is a sharp difference between the amount of rainfall received in the north and west, and that received in the south and east. Many people will be surprised that no less than 15 water supply zones in the south east and midlands have been designated as 'areas of serious water stress' as of 1 July 2021.
13. Other countries are much more aware of the scarcity and fragility of the water supplies on which they depend. They have developed innovative approaches to water management of which there appears to be little awareness here, but they are no less applicable to the challenges we face.

Annex 3 sets out examples from South Africa, where restrictions on water use that are in place at all times can be progressively ratcheted up when dam water levels fall below key thresholds.

14. OFWAT should be examining all such options, and considering what role they could play in promoting environmentally-sustainable water use in the UK. The South African measures include many more practical and fiscal tools, incentives and penalties to control discretionary use than are available in the UK. Importantly the measures safeguard access to affordable water for the poor for all essential needs, so that no-one's health suffers, and that should be the case here too.

Investing in better water quality

15. The Forum has recently analysed wastewater infrastructure in the Cam catchment, with a focus on the Anglian Water installations that discharge to Chalk streams and/or to the Cam in Cambridge, which is heavily used for water recreation. We are currently seeking to engage Anglian Water in dialogue about our data set (which needs some validation and updating) and about our aspirations for their investment in sewage treatment works, pumping stations, and other overflows.
16. Our overall finding is that Anglian Water appears to be giving no particular priority to Chalk streams in monitoring spills, increasing stormwater storage, or reducing phosphate levels in discharges. Our recommendations are set out in Table 1 below. The scale of the investment needed to upgrade wastewater treatment systems in this one Chalk catchment is clear and similar needs will arise elsewhere. OFWAT should recognise and support these imperatives through the PR24 process.

Table 1: Draft recommendations to Anglian Water for local investment in wastewater infrastructure

Event Duration Monitors	Increased stormwater storage	Phosphate reduction
1. Bring forward (from 2024) plans to install an EDM at one Sewage Treatment Works (STW).	4. Bring forward (from 2024/27) current plans to increase stormwater storage at eight STWs.	9. Bring forward (from 2024/25) plans to reduce phosphate at 11 STWs.
2. Install EDMs as soon as possible at the 17 STWs currently without them, prioritising those that are operating at or near capacity.	5. Install increased stormwater storage, and as soon as possible, at the 11 STWs where spills have been recorded.	10. Reduce phosphate levels as soon as possible at the 18 STWs where no reductions are being made.
3. Prioritise non-STW installations that discharge to Chalk streams for investment in EDMs.	6. Increase stormwater storage as soon as possible at the 17 STWs where spills are not monitored.	11. Review current phosphate limits at the other eight STWs where phosphate is reduced by chemical dosing or a reedbed system, and drive these down to 0.5 mg/l.
	7. Increase stormwater storage as soon as possible at the four non-STW installations where spills have been recorded.	
	8. Prioritise non-STW installations that discharge to Chalk streams for investment in extra stormwater storage.	

Conclusion

17. This paper and the Annexes seek to underline the need for far more attention to be given to meeting environmental needs, and those of Chalk streams in particular, in the PR24 process. We enjoin OFWAT to back up the fine aspirations expressed in its consultation papers with specific proposals; these need to engender greater urgency and commitment from the water companies to protecting and restoring the water environment for wildlife and people, into the future.

ANNEX 1: CHALK STREAM CONCERNS IN THE CAM CATCHMENT AND THE NEED TO ACT

Environmental concerns

- 27 of the 29 water bodies in the Cam catchment depend exclusively on water from the Chalk aquifer.
- Three water companies together abstract some 105 Ml of water per day from the aquifer (42 Olympic swimming pools' worth): Cambridge Water (64%), Affinity Water (22%) and Anglian Water (14%).
- The devastating effects of over-abstraction on the extent and health of our watercourses and wetlands are set out in our 2020 report [Let it Flow!](#). For example:
 - The complete loss or frequent drying of watercourses (e.g. the Wilbraham Rivers, Wardington Brook, Fowlmere, Granta).
 - Loss and degradation of wetlands (e.g. Teversham/Fulbourn SSSIs reduced from 400 to 90 hectares since 1951).
 - Countless local extinctions of wetland plant species, invertebrates, and fish species.
- The problem was recognised in some areas in the 1980s:
 - Some 14 augmentation schemes now support some 30 headwater streams.
 - These schemes abstracted a further 15 Ml/day from the aquifer in 2019.
 - The augmentation schemes 'rob Peter to pay Paul' and are not always effective.
- Climate change is not the cause of these long-standing problems (total annual rainfall has been more or less constant over the last century) but may well intensify them in the coming years.
- The ecological impacts of over-abstraction have been exacerbated by:
 - Point source pollution from the 37 Anglian Water sewage works and 69 other overflows, and the 39 private discharges (septic tanks, etc) that discharge into our streams.
 - Adding to the burden of treated wastewater, overflows in 2020 discharged raw sewage to Chalk streams at 19 locations, on 273 occasions, for 1,405 hours, in total.
 - Rural diffuse pollution (sediment, nitrate, phosphate, agrochemicals, etc).
 - Urban diffuse pollution (hydrocarbons, sediment, microplastics, etc).
 - Channel modifications, over many decades, and ongoing management.
 - Invasive non-native species (e.g. Floating Pennywort, Himalayan Balsam, Signal Crayfish).

Endorsement of the problem and the need for action

- Environment Agency (in correspondence): *'Our groundwater model suggests reductions in overall abstraction in the Cam catchment of 60-70% would be necessary to meet environmental flow targets, and hence contribute towards achieving good ecological status under the Water Framework Directive.'*
- Stantec [Integrated Water Management Study - Strategic Spatial Options Review](#) for the Greater Cambridge Shared Planning Authority: *'There is no capacity to increase groundwater abstraction from the Chalk aquifer. Future water demand and supply will need to be balanced in other ways', including 'major new regional water supply reservoirs, transfer schemes and land use change.'*
- Cambridgeshire & Peterborough Commission on Climate: [Initial recommendation](#): *'To provide for the investment to allow intercompany trading and water infrastructure improvements by 2025 to enhance water supply, including eliminating Cambridge's dependence on the groundwater aquifer.'*

ANNEX 2 PROPOSALS TO PROTECT CHALK STREAMS

Cam Valley Forum and Water Resources East, June 2020

1. Actively promoting water efficiency

Issue: Demanding targets need to be set for reducing the consumption of water by households, businesses and other public water supply users and for reducing 'Distribution Input'. These should be used to promote changes in attitudes, drive innovation in the development of water-efficient (not just energy efficient) appliances, and drive investment in rainwater harvesting and greywater recycling schemes.

Example: The most recent targets set by local water companies to reduce average daily water use per person are:

- [Cambridge Water](#): From 145 litres/person/day to 137 litres by 2025 and 129 litres by 2045.
- [Affinity Water](#): From 152 litres/person/day to 129 litres by 2025 and 110-120 litres by 2045.
- [Anglian Water](#): From 137 litres/person/day to 130 litres by 2025 and 120 litres by 2045.

The National Framework for Water Resources sets a planning target for regional groups such as Water Resources East of 110 litres/person/day. We recognise that achieving this target is not completely in the gift of the water companies, and it only covers household consumption, which accounts for just over half of the public water supply (the other half split roughly equal between leakage and non-household consumption). We therefore propose setting additional targets for reducing 'Distribution Input', which is the total amount of treated water used for the public water supply. This target is much more relevant to the objective of leaving more water in the environment for nature.

We look forward to the Government's response to the [Consultation on measures to reduce personal water use](#) (July 2019). This provides an opportunity to set new policies that can bring about a step change in water efficiency through, for example, tighter building regulations for new houses of 100 litres/person/day or lower, mandatory water efficiency labelling, and minimum product standards for taps, showers, toilets and white goods.

The tighter building regulations should apply nationally but we would also like to see Local Authorities in 'water-stressed' areas being able to mandate even tighter standards for new developments. South Cambridgeshire District Council is an exemplar by already setting a target of 110 litres/person/day for new developments (building on experience from the Eddington development in Cambridge). Evidence gathered by Anglian Water in their 'Innovation Shop Window' in nearby Newmarket shows that it is entirely possible to move to 80 litres/person/day, and we would like to see our Local Authorities being given the power to mandate targets such as this, without fear that the Planning Inspectorate will overturn the decision. We have a 'golden opportunity' to set new, world-leading water efficiency standards for new homes built as part of the Oxford to Cambridge Growth Arc, and would welcome the Government's support for this.

Another approach would be to set a 'water neutral' objective for all development in the OxCam Arc, whereby the additional demand for water from growth is first minimised then offset by water efficiency programmes in local social housing, schools, hospitals and other public buildings.

Recommendation: The Government should set new, demanding targets on personal water consumption and Distribution Input in announcing its conclusions on last year's consultation on measures to reduce personal water use. It should also develop a mechanism to enable Local Authorities to set even more ambitious reduction targets in areas of water stress. The Oxford to Cambridge Growth Arc could be used as a national pilot to assess the impact of this approach and to test the concept of 'water neutrality'.

Action: The necessary step-change can be initiated by making an announcement on the outcome of the consultation and any additional steps; this should then be followed through in guidance to Local Authorities, new demanding technical standards for water-using appliances, and communication campaigns.

2. Promoting shifts in land use and management to safeguard the water environment

Issue: The Cam Valley's Chalk streams – internationally rare habitats – have suffered long term declines in flow and quality due to over-abstraction from the Chalk aquifer, inadequate wastewater treatment, intensive land use, and habitat modifications. Alongside action to reduce current levels of abstraction, action is also needed to tackle pollution and restore natural channels and river processes.

Example: The impacts of low flows are exacerbated by pollution. Sources of pollutants include farmland (e.g. nutrients, pesticides, sediment and animal waste), urban highways and drains (e.g. hydrocarbons and silt), and sewage treatment works (especially nutrients). Inputs from sewage works are constant year-round but their impact, especially in the upper river stretches, is magnified when there is less flow available to dilute them. Habitat modifications further disrupt natural processes. Over-deepening, straightening and field drainage have disconnected rivers from their floodplains, and reduced habitat quality. River bed gravels, essential for spawning fish, have been removed by dredging or buried by sediment. Weirs interfere with flows and obstruct fish. Watercourses are often overgrown and over-shaded.

Water Resources East, in collaboration with Cambridgeshire County Council, Cambridge Water, the Cam Valley Forum and local landowners, is developing a project in the headwaters of the River Granta and River Bourn to understand the impact of various changes in land use and management on the Chalk landscape on water availability, water quality and the opportunity for natural flood management. A key part of this work is to understand the additional aquifer recharge benefits which could be gained from land use change, increasing the resilience of the Chalk system to pressures such as growth and climate change.

Recommendation: Given the strong partnerships already developed, and the significant outcomes that this project seeks to deliver, the Government should follow the progress of this important project with interest and consider funding opportunities to further support its progress, with a view to it becoming one of the national Environmental Land Management Scheme pilots later in 2021.

Action: The Task Force should support the project team through funding and advice, with a view to making it an exemplar of good practice in protecting and restoring Chalk streams through changes in land use and management.

3. Supporting collaborative integrated water management planning through regional groups

Issue: Water Resources East is one of five regional planning groups now operating in England under the umbrella of the National Framework for Water Resources. Its overarching strategy for the region is to:

- Work with all water users in Eastern England to identify ways in which they can become as water efficient as they can be.
- Promote the need for additional storage of water within the landscape, increasing resilience for all water users and seeking to identify multi-sector opportunities to link water scarcity with flood risk management solutions. This could include the development of new strategic water supply reservoirs, including one, for example, to the north of Cambridge.
- Transfer water from areas of surplus to areas of deficit, increasing connectivity using both open water channels as well as pipelines.
- Link land and water management more effectively, increasing resilience and restoring and enhancing the natural systems and resources on which all abstractors depend.
- Understand where abstraction is having a detrimental impact on the environment, and develop options which restore and enhance it whilst ensuring sustainable economic development, for example around agriculture and food production.

- Actively explore other potential sources of water for our region, for example desalination and water re-use.
- Contribute to low carbon strategies and plans, helping the region to meet a net zero ambition.

Example: Water Resources East is widely regarded as the exemplar for multi-sector collaborative planning and, uniquely among the other regional groups, is now an independent not-for-profit organisation. This independence from any particular sector or regulator brings a unique opportunity in the world of water to develop partnerships and projects which will go further and faster to deliver environmental improvements, increasing levels of resilience and ensuring that water is not a barrier to economic development. Water Resources East operates as a membership organisation and currently has almost 90 members from NGOs, local interest groups, water companies, power companies, Local Authorities, Local Enterprise Partnerships, the agricultural sector, universities and businesses.

Recommendation: The Government should closely follow the work of Water Resources East, and actively seek opportunities to support its work through advice and funding for project work, particularly in areas of water-related environmental stress such as Cambridgeshire.

Action: The Task Force should liaise closely with Water Resources East and support it in tackling diverse challenges and opportunities in a region that is the driest in England.

4. Going further and faster on metering

Issue: Water companies are unable to promote compulsory metering unless they operate in an area designated as being in ‘serious water stress’. The criteria for defining these areas do not take sufficient account of the needs of the water environment, particularly in areas dependent on Chalk aquifers.

Example: The Environment Agency advises the Secretary of State on the designation of ‘Areas of serious water stress’ under the Water Industry (Prescribed Condition) Regulations 1999. The Agency assesses whether the environment can cope with current levels of abstraction given rainfall levels and aquifer recharge. In water-stressed areas, water companies may pursue compulsory metering if it is cost effective.

A recent assessment ([Water-stressed areas](#) 2013) shows that the Cambridge Water supply area is under only ‘Moderate’ stress, so the option of compulsory metering is not available. This appears to be perverse, given that the option is available to Affinity Water (who supply the southern part of the Cam Valley) and in light of the Environment Agency’s own assessment of the reductions in abstraction from the Chalk aquifer needed to restore natural flows and achieve good ecological status under the Water Framework Directive.

The Environment Agency’s methodology applies more stringent thresholds for defining water-stressed areas to rivers designated under the Habitats Directive as Special Areas of Conservation. One way to strengthen the protection of Chalk streams in the Cam Valley, and to enable Cambridge Water to initiate compulsory metering, would be to apply the same thresholds to *all* Chalk stream catchments in the UK.

The *Let it Flow!* report suggests aiming to meter at least 90% of supplies by 2025 and to equip 100% of households with smart meters by 2030. This level of ambition is far ahead of the current target for Cambridge Water of 90% by 2045 and of targets expressed in volume terms by the other companies.

Recommendation: The Environment Agency should be required to review and adjust the criteria that it uses to define ‘Areas of serious water stress’ (e.g. by applying the criteria applied to Habitats Directive (Special Area of Conservation) catchments, to all Chalk stream catchments).

Action: It may be possible to implement the recommendation through a Ministerial Direction to the Environment Agency and/or an adjustment to the relevant Regulations. Alternatively, the Minister may be

able to act immediately to designate all Chalk stream catchments as 'water-stressed areas'. Relevant water companies could then plan for action on compulsory metering in the PR24 Price Review.

5. Going further and faster to reduce leakage

Issue: The econometric models used by OFWAT currently take inadequate account of environmental impacts and as a result act to rein back the ambitions of water companies to tackle leakage.

Example: The Table below, from the recent National Audit Office report on [Water supply and demand management](#), shows that Cambridge Water, Essex & Suffolk Water, and Anglian Water all proposed to do more to reduce leakage than was eventually permitted by OFWAT. This suggests that OFWAT's process wrongly places more weight on cost considerations than on environmental needs. In [Resilience in the round](#) (2017), OFWAT encourages water companies to consider the broader environmental impact of their business plans and incorporate the Natural Capital approach into their work on resilience. Yet, at least on leakage, OFWAT does not appear to have adopted this approach itself in making its final determinations.

OFWAT should be encouraging greater ambition from the water companies in tackling leakage, not less. The *Let it Flow!* report suggests aiming to reduce leakage by 50% on 2020 levels by 2025. This level of ambition is far ahead of the current target of 15% for both Cambridge Water and Affinity Water.

Recommendation: OFWAT should be required to review and adjust the models that it uses to assess 'best value' so that they take greater account of environmental needs. The outcome should be that water companies can set far more demanding targets to reduce leakage in the next few years.

Action: It may be possible to implement the recommendation through a Ministerial Direction to OFWAT. The Government should start on this now, so that a new approach is in place for the PR24 Price Review.

6. Amending Water Company Service Levels

Issue: Water company levels of service, set without reference to environmental impacts, risk causing environmental damage if religiously adhered to during dry periods.

Example: The [Cambridge Water Final Drought Plan](#) (2018) sets the following levels of service:

- The need for a major publicity campaign requesting voluntary savings of water not more than once in 10 years.
- A temporary use ban (TUB), previously known as a hosepipe ban, on average not more than once in every 20 years.
- A non-essential use ban (NEUB) not more than once in every 50 years.
- The risk of rota cuts or use of standpipes on average less than once in 100 years.

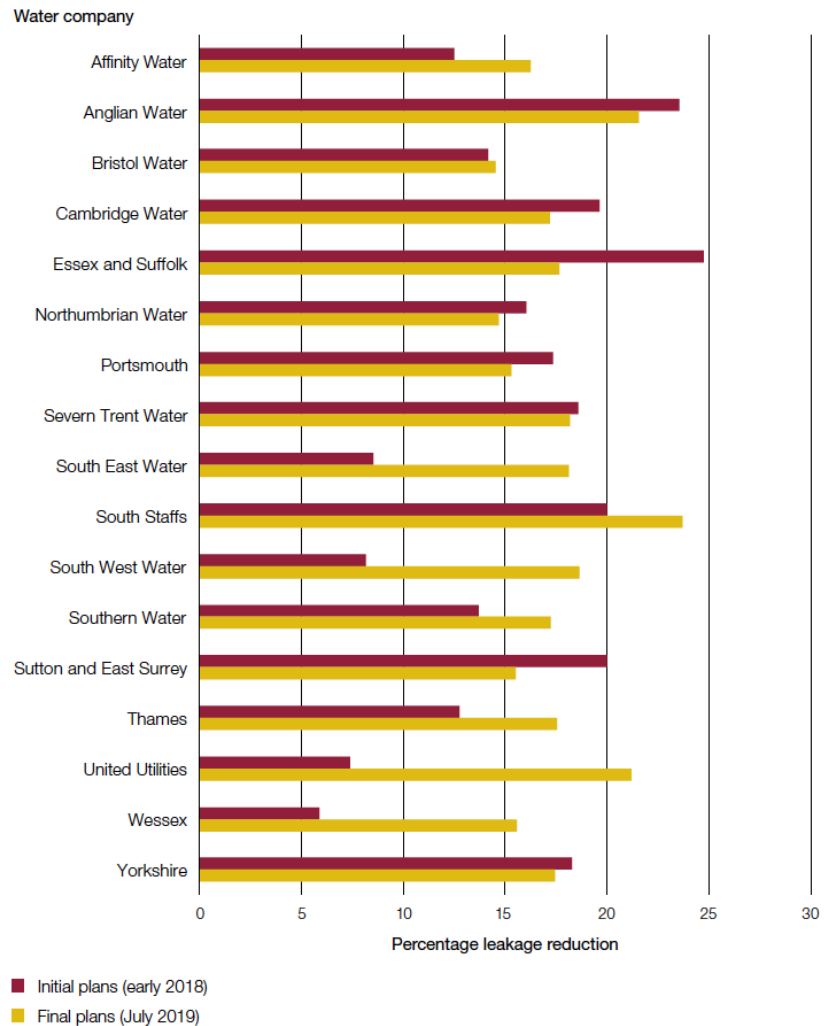
Recommendation: The need for all such restrictions on use in any specific public water supply area should take full account of environmental considerations.

Action: The Government should use the Cambridge Water area to study how to amend service levels to ensure that they are environment-led and fully incorporate environmental impact. The Task Force should oversee this work and deliver outcomes for inclusion in the PR24 Price Review process (see also 7 and 8 below).

Figure 10

Initial and final water resource management plan projections for leakage reduction between 2020 to 2025 by company

Four water companies more than doubled their proposed leakage reduction between their initial and final water resource management plans



Note

1 Leakage reduction is measured from a 2020 baseline on a litres per property per day basis.

Source: Department for Environment, Food & Rural Affairs' analysis of initial and final water resource management plans

Source: Figure 10, [Water supply and demand management](#) (NAO 2020)

7. Amending Water Company Drought Trigger Levels

Issue: The triggers that lead to water companies introducing publicity campaigns, TUBs and NEUBs in dry periods do not reflect the risk of environmental damage by continuing to abstract. Too little action may be taken too late to restrict water use and thereby avoid watercourses drying out through lack of flow.

Example: The [Cambridge Water Final Drought Plan](#) (2018) explains that data on the recharge deficits and borehole levels determine when different restrictions should be implemented during a drought. The Table below shows what actions should be triggered when. 'Rest Water Levels' 1-5 reflect increasing divergence from the water level in a borehole that has not been recently pumped or affected by nearby pumping.

Drought Option Ref.	Trigger Level or preceding actions		Demand Control	Resulting Action
	Recharge Deficit	Groundwater		
Action Initiation	Initiation – rest level at any 3 of 6 indicator sites falls below average RWL. At this point recharge deficit calculation initiated			
D1	>55mm deficit			Extra promotion of water efficiency
D2	>55mm deficit			Enhanced leakage reduction
D3	>120mm deficit			Appeals for restraint. Review environmental monitoring and prepare for additional needs
D4	>180mm deficit	3 or more indicator sites reach RWL1		Prepare to implement temporary ban on water use. Implement additional environmental monitoring
S1		3 or more indicator sites reach RWL2	Hosepipe ban in place	Initiate Supply side options: recommissioning of Fleam Dyke 12, Croydon, Kingston. Prepare monitoring plans for supply options
S2		3 or more indicator sites reach RWL3		Commission Fleam Dyke 12 PS
S3		3 or more indicator sites reach RWL4		Commission Croydon & Kingston PS
S4		3 or more indicator sites reach RWL5		Initiate St Ives PS recommissioning
D5	>260mm deficit	3 or more indicator sites reach RWL5		

Source: Table 4, [Cambridge Water Final Drought Plan](#) (Cambridge Water 2018)

For example, the relationship between Recharge deficits, Rest Water Levels *and the flow levels needed to support healthy Chalk streams* should be assessed and used to inform replacement schemes. The practical effect, purely to illustrate the point, might be to produce a new scheme where, for example:

- ‘D1’ is applied when there is a 20 mm deficit, not 55 mm.
- ‘D4’ is applied when there is a 90 mm deficit, not 180 mm.
- ‘S1’ is applied when only 1 indicator site reaches RWL1, not 3 sites meeting RWL2.
- ‘D5’ is applied when only 1 indicator site reaches RWL3, not 3 sites meeting RWL5.

Recommendation: The triggers that lead to water companies introducing publicity campaigns, TUBs and NEUBs should be adjusted, to reflect the risk of environmental impacts. Action to restrict borehole abstraction should then be taken sooner, more often, than it is now.

Action: The Government should use the Cambridge Water area to assess how to amend water company drought trigger levels to reflect the risk of environmental impacts. The Task Force should oversee this work and deliver outcomes for inclusion in the PR24 Price Review process (see also 6 above and 8 below).

8. Integrating the Drought Response Framework into Water Company Drought Plans

Issue: Water Company Drought Management Plans are not aligned with the Drought Response Framework of the Environment Agency.

Example: The Environment Agency's document [Drought response: our framework for England](#) (2017) sets out the following 'Stages of drought management', with actions for the Agency and water companies. Examples of the actions specified for water companies at each stage are set out below:

Prolonged dry weather stage (yellow)

- *using enhanced water efficiency messages*

Drought stage (amber)

- *impose restrictions on non-essential domestic and commercial water use*
- *apply for and use drought permits and orders to protect public water supply*

Severe drought stage (red)

- *impose emergency restrictions on domestic and commercial water uses*
- *continuing to apply for and use of drought permits and orders to protect public water supply*

The [Cambridge Water Final Drought Plan](#), despite being published in 2018, after the publication of the Environment Agency's Framework, makes no reference to this Framework at all.

Recommendation: Water Company Drought Management Plans should be aligned with the Drought Response Framework of the Environment Agency. This will facilitate a coordinated, joined-up approach.

Action: The Government should use the Cambridge Water area to assess how to align Water Company Drought Management Plans with the Drought Response Framework of the Environment Agency. The Task Force should oversee this work and deliver outcomes for inclusion in the PR24 Price Review process (see also 6 and 7 above).

ANNEX 3: MANAGING DEMAND IN AREAS OF WATER STRESS - SOUTH AFRICAN EXPERIENCE

The following extracts come from section 4 of the Cam Valley Forum Report [Let it Flow!](#) of May 2020.

- 4.5.15 A more resolute approach is needed: demanding baseline savings at all times and further reductions as groundwater levels fall below key 'trigger' points. Experience from another water-stressed city, Cape Town, is relevant here. At one point towards the end of its 2015-18 drought, the city was expected to run out of water and sought to limit water use to 50 litres per person per day.
- 4.5.16 Under a new Water Strategy (Cape Town Government 2019), demand is now managed through baseline regulations (Cape Town Government 2020a). These restrictions are progressively tightened as necessary (Table 3). Level 1, which currently applies, has a target of 120 litres per person per day. For much of 2019 the target was 105 litres (Level 3). The restrictions target the use of hosepipes, sprinklers in gardens and sports fields, swimming pools, car washes, and water features. Water pressure is halved at level 3 and reduced still further under emergency measures.
- 4.5.17 The restrictions are widely promoted and highly visible. Water levels in the six key supply reservoirs are published weekly (Cape Town Government 2020b). There are also progressive tariffs linked to the targets for water use at each Level; increasingly higher charges apply as consumption rises. In the UK, any suggestion that the price of water should rise appears to be anathema to politicians. This is short-sighted; the UK could usefully learn from other countries that see tariffs as an important tool to encourage wise use of water and discourage profligacy.
- 4.5.18 Other actions taken during the drought to save water (Parks *et al* 2019) included:
- (a) **Installing water management devices in supply pipes to enforce daily limits** on water use; once the limit has been reached, the water is reduced to a trickle until the following day.
 - (b) **Reducing water pressure in municipal pipes**, not only saving water but also decreasing losses through existing leaks and the frequency of further leaks.
 - (c) **Publishing maps of water use** showing which households in affluent areas were achieving reduced daily water consumption targets
 - (d) **Equipping over 350 schools with smart water meters** to encourage and monitor water savings.
 - (e) **Introducing mobile applications**, for example to 'gamify' the experience of water saving.
 - (f) **Establishing business forums to encourage voluntary water savings** and sharing of good practice, and imposing strict limits on agricultural quotas for water.

Recommendation 12: For the Cam Valley, a comprehensive demand management plan should include:

- (a) Defining a minimum baseline of mandatory restrictions on household and business use of water to be applied at all times.
- (b) Defining further restrictions to be imposed as a matter of course at least in the four months from May to August every year (e.g. a ban on household use of sprinklers and hosepipes, including high-pressure hoses used to clean driveways and patios).
- (c) Agreeing groundwater level 'trigger' points at which progressively more demanding restrictions on household and business use of water will apply.
- (d) Rolling out smart water meters in homes, schools, businesses, hospitals and public buildings to enable continuous tracking of water use and encourage savings supported by effective training and incentives for building managers to reduce consumption.
- (e) Actively reducing water pressure as groundwater 'trigger' points are reached.
- (f) Installing water management devices in pipes supplying those customers whose use of water regularly exceeds guideline targets.
- (g) Working with voluntary groups and the media to communicate the importance of water and water-saving messages to households and businesses.
- (h) Learning from other countries about the costs and benefits of introducing progressive tariffs, linked to water supply 'trigger' points, to discourage profligate use of water.

Restriction measures	Restriction Level				
	Water wise	Level 1	Level 2	Level 3	Emergency response
Watering: hosepipe / sprinklers	Allowed (before 0900 or after 1800)	1 hour (Tuesdays and Saturdays)	1 hour (Saturdays)	Not allowed	Not allowed
Watering: drippers/drip line/soaker hose or bucket / watering can	Allowed	Allowed	Allowed	1 hour (Tuesdays and Saturdays)	Not allowed
Sports fields / parks (sprinklers)	Allowed	1 hour (Tuesdays and Fridays)	1 hour (Tuesdays)	1 hour (Tuesdays)	By exemption only
Swimming pools	Allowed subject to conditions (e.g. must have a cover)	Allowed subject to conditions	- Topping up allowed subject to conditions - No filling / refilling	- Topping up allowed subject to conditions - No filling / refilling	No topping up No filling
Car washing (privately)	Allowed	Bucket or high pressure/ low volume cleaner	Bucket only	Not allowed	Not allowed
Informal car washes	Allowed	Bucket or high pressure/ low volume cleaner	Bucket only	Bucket only	Not allowed
Commercial car washes	Allowed	Allowed	Allowed	Allowed	Not allowed
Water features	Allowed	Allowed	Not allowed	Not allowed	Not allowed
Other	(e.g. no hosing down of paved areas with potable water)	-	-	-	Additional emergency restrictions may be determined
Targeted water pressure (bar)	>2.4	>2.4	>2.4	>1.2	>0.5
Dam level trigger points	>80%	70%-80%	60%-70%	45%-60%	<45%
Water use target per person per day		120		105	100-70-50

Table 3: Cape Town restrictions on use of municipal drinking water. Source: [Cape Town Government \(2020b\)](#)

References:

- Cape Town Government 2019. [Our Shared Water Future: Cape Town's Water Strategy](#).
- Cape Town Government 2020a. [Think water](#).
- Cape Town Government 2020b. [Dam levels](#).
- Parks R, McLaren M, Toumi R & Rivett U 2019. Experiences and lessons in managing water from Cape Town. *Grantham Institute Briefing paper No. 29*.
