A plea for better environmental understanding in water planning

from the Cam Valley Forum

https://camvalleyforum.uk/

We commonly find that those involved in thinking about our local 'water crisis' often have misconceptions or perhaps insufficient knowledge as to why we have this problem.
This brief paper aims to clarify some of the key points that we feel should be better considered.

What is a "Water Shortage?"

The Cambridge Water Crisis is not solely 'a shortage of water'.
This is the least fundamentally understood factor in this whole planning discussion.

- For historic reasons alone 97 % of the water supply here is from Chalk ground water sources. This is taken from a small Chalk area and distributed over a very much larger residential one. This is what is no longer sensible or indeed possible to anywhere near that degree of dependency.
- It could equally come from collected rainfall and the enormous winter river flows. We are not actually short of rain but it is just not stored for use in easily available storage or large reservoirs.
- Rainfall totals are actually equal to or greater than many past years. So it is not just 'climate change' that is to blame.
- During more than half of the annual cycle - from early April to early October - evapotranspiration commonly exceeds precipitation. This reality generates a very large soil moisture deficit. i.e. soil dries out to great depth. This soil moisture deficit is worsened by long hot summers.
- Until soil moisture deficit is made up by autumn and winter rain there will be no full recharge of the Chalk aquifers below the soil.
- In 40% of winters full aquifer recharge is certainly not occurring.
- This present abstraction of ground water is <u>already unsustainably practiced.</u> This is principally why our stream ecosystems are now failing as the ground water is the source of their base flow. In terms of use we are many decades past the point of any real 'ecological sustainability' in the sense that Herman Daly (1971) originally intended. The later term, Gro Brundtland's 'sustainable development' (1987), has been ill-understood or weakened and also frankly traduced.
- Since the 1980s extensive abstraction (20 % of the annual total) has gone into supporting summer flows in Chalk streams. This system is now <u>between failing and totally inadequate.</u>
- Our water supply system is therefore in greater need than ever of <u>an alternative source</u> other than the Chalk. It is an imperative to get that right.

"What is drought?"

There is no one easily agreed definition of drought!
- 'drought' may be due in part to failure of total rainfall (as in the 1970s)
- 'drought' may be due in part to higher than usual temperatures (as in 2022)
- 'drought' may be due in part to failure of companies to be able to physically pump enough water to meet the demand (Southern Water in 2023)
- 'drought' may be due in part to a failure of ground water recovery (as in 2019).This is the EA's principal concern. This depletion is not helped by having to pump additional ground water to support failing streams. We rob 'Peter to pay Paul'!
- 'drought' may become due to a water company driving down aquifers as they are compelled, by their contract to supply water, if provision from another source is not available.
- 'a drought' may be called by a Water Company (e.g. as a Temporary Use Ban) if fearful of being fined if they provenly harm the environment. All companies do have 'a drought plan'. These tend to kick in only when assuring human water supply is threatened.

It is a combination of <u>all these</u> that creates that entirely legitimate questioning by the Environment Agency as to where the water is to come from if we sanction more development.

Planning for Water Supply.

Water can always be found (as Water Resources East are planning), but it will be very expensive to achieve either quickly or to get it here fast enough without further harm being done to the environment. Where we have gone wrong was to make assumptions about the sustainability of our present evolved supply system. We never invested in the Brundtland thinking on a genuinely sustainable development. On a positive note the present plight of the Cambridgeshire Chalk streams could be reversed so it is important for us to emphasise (a) **why they really do matter** and (b) **why they have become imperilled by our failure to understand their needs.**

So, Why do Chalk Streams matter!

- Chalk streams are globally rare and - of course - most chalk streams are in England!
- Chalk streams and Chalk stream-fed wetlands (like the Wicken Fen NNR) are the most bio-diverse of any British freshwater system. So - *ipso facto* – they are potentially the most biodiverse of any of our County local landscapes.
- Although our Chalk streams have been degraded (by channel modification, dredging, pollution and over abstraction) they are the golden threads running though our countryside, with a huge legacy in our history, culture and local identity.
- Living and being on, in or besides such streams and rivers is special. They provide the highest environmental benefits to own human health and wellbeing. They are vital.

But unfortunately:-

- They are inherently vulnerable, as described in section 5 of English Nature's 1999 publication *Chalk Rivers Nature Conservation and Management*:
- They are not yet protected by any significant or effective conservation measures, though some stretches of some few have SSSI status.
- They feature flora and fauna communities adapted to stable low flow regimes that are too easily disrupted by abstraction, inappropriate development or pollution.
- They are low energy systems that are less able to self-cleanse or self-repair.
- They are located in this part of England, with its lower than average rainfall and its high population density, imposing intrinsically greater pressure on their ground water.
- Their historic management and some recent streams modifications have left a legacy of changes to them which can often be worsened by modern environmental pressures.

What would help Chalk Streams to recover?

- Abstraction reduction is the first imperative. Water Companies now acknowledge this and are planning for it, but there will be no possible improvement in less than several years and no full recovery in less than several decades if alternative supplies are not found very soon.
- Over decades, farm vehicles compacting soils have unquestionably led to faster run-off of rainfall to winter river flow and reduced aquifer recharge. We need any trend to minimum till.
- Lowered soil carbon is a huge loss to both soil health and soil water retention. We need incentives to better our soil management practices through a more regenerative agriculture.
- Lowered summer base-flows on chalk streams has meant less dilution of any discharged agricultural or industrial pollutants in run-off as well as from the many residual pollutants in treated sewage.
- Huge damage was done to natural chalk streams by dredging rivers in the 20th century to speed up drainage. If anything, this harm needs to be reversed, and water held back for longer.
- An increase in riparian wetlands will greatly increase biodiversity, store carbon and aid percolation of water into the aquifer.
- Not least, it is politically imperative to restore small single catchment chalk streams so as to demonstrate on a small scale what good could be done on the larger scale. If we can have nature reserves to show off biodiversity, or changed farm practices on a small scale to show biodiversity gain, why can we not have now specially protected catchments as a priority for chalk streams? Cambridge could even lead the way in this. Why not?

*Cam Valley Forum has been trying **to encourage water saving**. The one additional planning suggestion that we would like to contribute may not be welcomed. It is that the price of water is too low for its true worth. This is perhaps another "Inconvenient Truth".*

Why we feel water is too cheap

Ofwat was set up as a regulator in part to keep the price of water down - we question whether that price has now not been too low for too long. Ofwat has a new statutory duty (from 2022) towards 'the care of the environment'. The funding for this is to be delivered through the Water Industry National Environment Plan (WINEP) under the under the aegis of the EA. This was done in no small measure as a result of MPs and others working through the 2022 Environment Act but was evaded, in the discussion, by Ofwat at our recent water crisis meeting in September 2023.

It is a fact that a commodity so cheaply priced for so long is likely to be insufficiently valued. The Cambridge Water Company has itself demonstrated that just asking for economy and restraint does not of itself do anything very significant in volume terms to save water (In recent droughts and heat waves the public water usage invariably increases). The water saving message is really not yet out there yet! There is every reason to try and call for restraint, but there is sadly sparse evidence that such moral pressure alone will win much of that battle.

The Water Crisis Planning Group, that the GCP needs, must surely engage with or find the powers:-

- to request from Ofwat **raised water prices** so as to reinforce this message. This surely was the intention of giving them these additional powers. This should be done by an all-party agreement and **could go directly towards funding the saving**. (Will a financier with 'Green Financing' really make a loan to a Water Company in such trouble?) We could with **a raised price in our area** afford, thereby, to pay for a more expensive plan, including a graduated water payments systems and to secure both greater water savings and quite possibly some greater equity for poorer people who might actually then pay less, through themselves saving water and reducing their own consumption.
- to achieve this it would of course be absolutely essential to have in place both **universal metering and smart metering** of all domestic and public sector buildings, and industries. Water cannot be significantly saved without this mechanism. Too many users presently have an essentially unlimited supply. The cost of **total metering** could be paid for from such a price rise.

Cam Valley Forum would also want:

- to demand from all local developers the highest standards of **water saving technologies** in all new builds. What is a crisis if not an opportunity as well?
- to encourage more use of **grey water**, etc. and incentivise the saving of **roof collected rain water** for domestic and industrial use
- to incentivise appropriate **retrofitting** of **water saving technologies.** etc.

A new perspective - 'Water as a Commons'

Water is both essential to everything that is alive; it is involved in almost any working system that functions. For such a 'commons' as water 'selfish' use may likely deprive other users of their more rightful share of that resource. Economists already struggle with this reality for other complex 'resource commons', like rain forests and oceans. We absolutely need to do the same and better, locally and nationally for our own water. We simply need to define and hold to quotas and to rules that are always kept to. Farmers need their fair share of water. So too do residents and wildlife. To make it work we need regulators to make the rules and monitors to see that we all play fair. Where we allow rule breaking the weakest voiceless members will lose out. All too often in the past that has been the natural environment and now - with Chalk Streams - we reap the whirlwind. It is indeed as Lord Chris Smith described it on 11th September "a Perfect Storm" that we are in.

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