

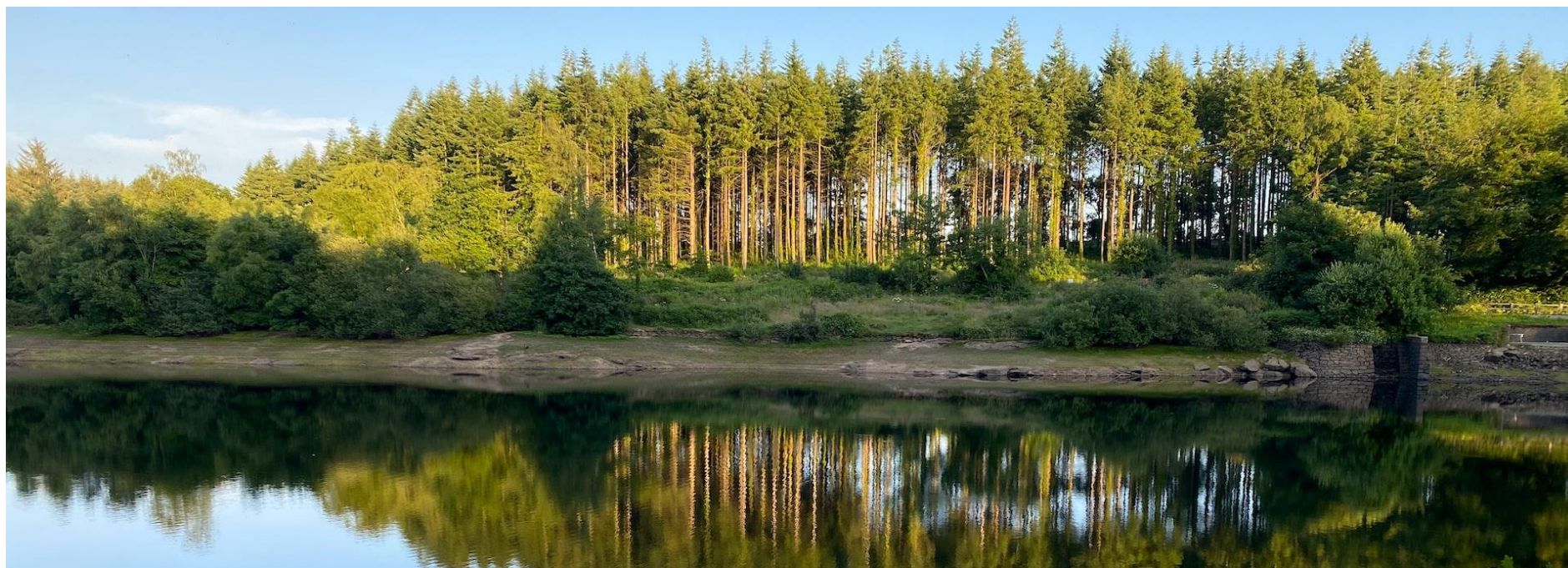
An aerial photograph of a large, calm reservoir or lake. The water is a deep greenish-blue color. The shoreline is lined with dense, lush green trees and vegetation. In the foreground, a grassy bank slopes down to a rocky shoreline where a person in a red shirt is visible. The background shows rolling green hills under a clear blue sky.

Appendix D

West Country Water Resources webinar presentation

Managing the West Country's Water Resources: Draft Regional Plan Webinar

West Country
Water Resources 



Managing the West Country's Water Resources: **Draft Regional Plan Webinar**



Welcome...

This region-wide webinar will introduce the West Country Water Resource Group Draft Water Resource Management Plan, including the challenges we face for water resources management and how we can work together to design and deliver solutions.

House Keeping

- Cameras off and muted
- If you have questions, please post them in the chat or ask during the Q&A sections
- We will record the session (hence cameras off). **Any objections, please let us know.**
- *Please introduce yourselves in the chat*

Managing the West Country's Water Resources: **Draft Regional Plan Webinar**

Agenda

- Introduction to **WCWRG**
 - Who are we and what are our goals?
 - What are we trying to achieve and why?
- What is '**Water Resources Management**'?
- Water Resource Management **challenges**
- Possible **solutions**
- **The Draft Regional Plan**
- How **customers & stakeholders** can **influence** the plan
- **Q&A**

Introduction: West Country Water Resources Group



The West Country Water Resources Group was established in 2017 to allow improved collaboration in water resources management in South-West England and produce a regional Water Resource Management Plan.

Core group



Associate members

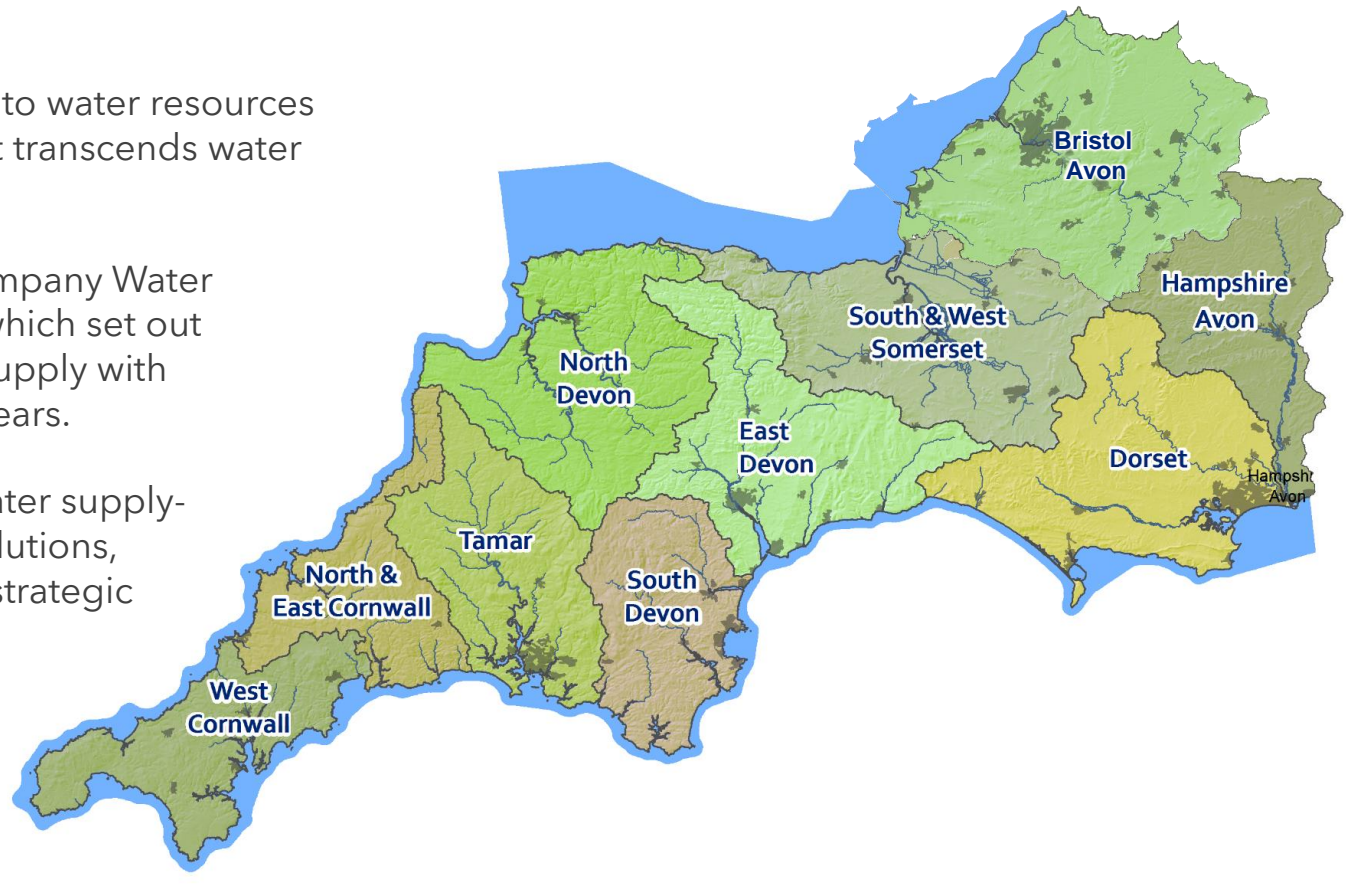


Introduction:

West Country Water Resources Group

Aims of WCWRG:

- Support a **coordinated approach** to water resources planning in the West Country that transcends water company boundaries.
- **Integrate** the individual water company Water Resources Management Plans - which set out how they plan to balance water supply with demand for at least the next 25 years.
- **Explore options** for improving water supply-demand balance (cross-sector solutions, collaboration, holistic approach, strategic options at a regional-scale).



Introduction:

West Country Water Resources Group

Aims of WCWRG...*continued*:

- To build a common regional understanding of:
 - The **current and future availability of water** resources in the region
 - The **needs of all water users** (including public and non-public supply users)
 - The **factors likely to affect water supply and demand** in the future

Develop a **shared understanding of the challenges** we face, explore potential **solutions**, and build **consensus** around the plan.

We want to listen and understand the points-of-view of as many people as possible and develop a plan that delivers the **best possible value** for everyone.

Introduction:

Stakeholder and customer participation

Water Resources Planning Guidelines set out what water companies and regional groups should do...

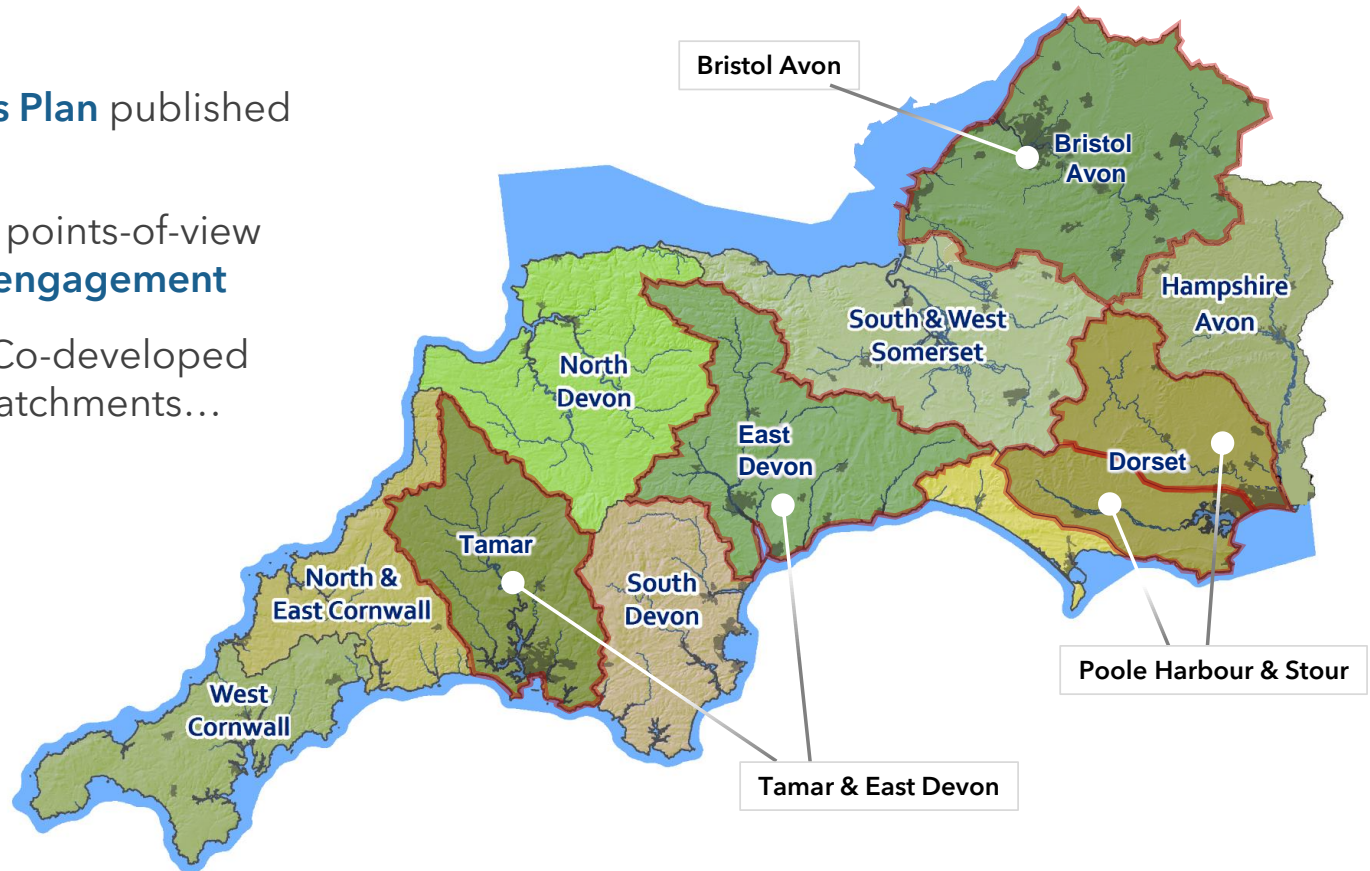
- Demonstrate **effective engagement** with stakeholders throughout the process.
- Be **transparent** in methods, data, assumptions and decisions.
- **Early engagement** with internal and external stakeholders to reduce the risk of issues being identified later and resolve concerns early.
- Actively engage with customers and stakeholders at a local or catchment level - **“use a catchment approach”**
- Demonstrate that **stakeholders’ views have been considered** (acted on...?).
- Include **evidence of customer and stakeholder support** for your environmental destination and plan to meet the ambitions of the 25 Year Environment Plan
- Provide confidence to regulators, stakeholders and customers that plan represents **best value**

Introduction:

Stakeholder and customer participation

The WCWRG approach:

- **Draft Regional Water Resources Plan** published in February 2022
- We wanted to listen to as many points-of-view as we could - **pre-consultation engagement**
- **Focus Catchments Approach** - Co-developed catchment action plans for 5x catchments...
→ **3x workshops in July 2023**



Introduction:

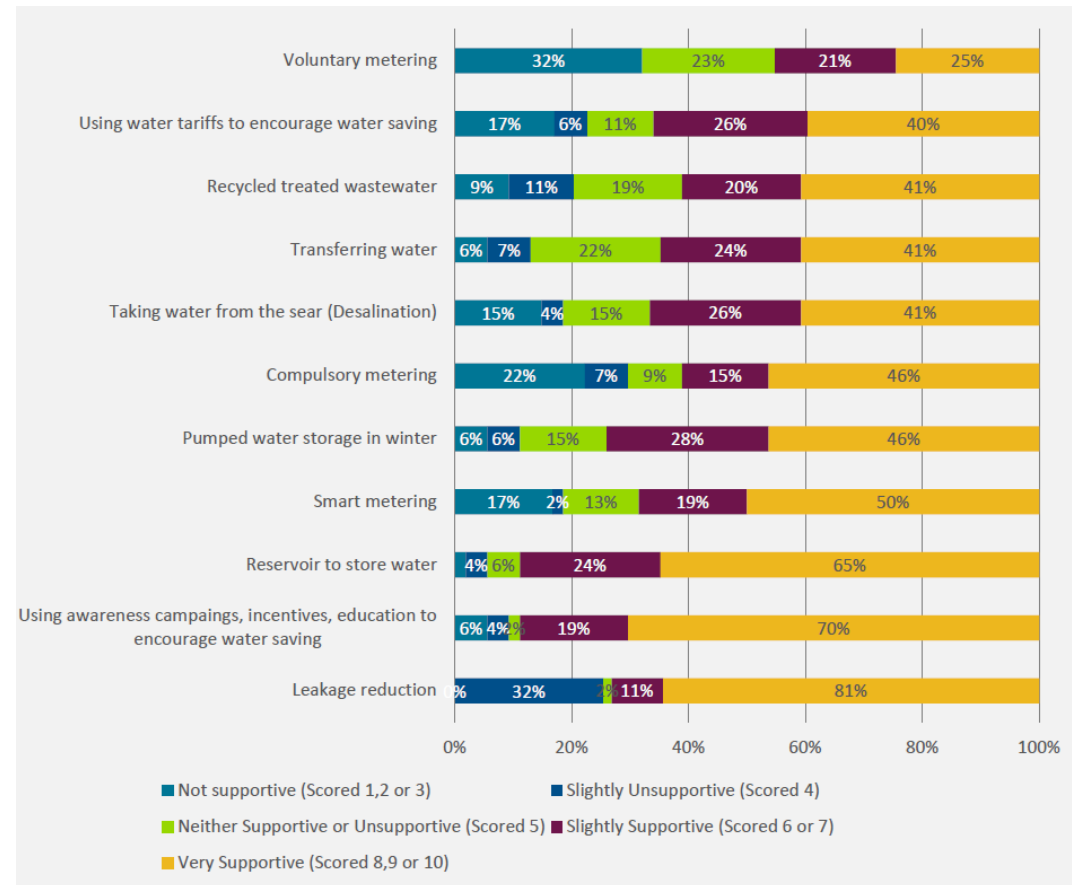
Stakeholder and customer participation

Major customer research study undertaken to inform Regional Plan

At a modest bill impact level (£5/hh/yr), HH support for plan was above 60%.

Significant weight, placed on environmental outcomes - strong preference for going beyond the minimum requirements

Appetite for actions to reduce demand, but this does not extend to measures that would significantly affect day-to-day use of water by customers (i.e., <110 l/p/d).



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Overview: Roles & responsibilities in WRM

Water companies have been challenged by the Government to provide -

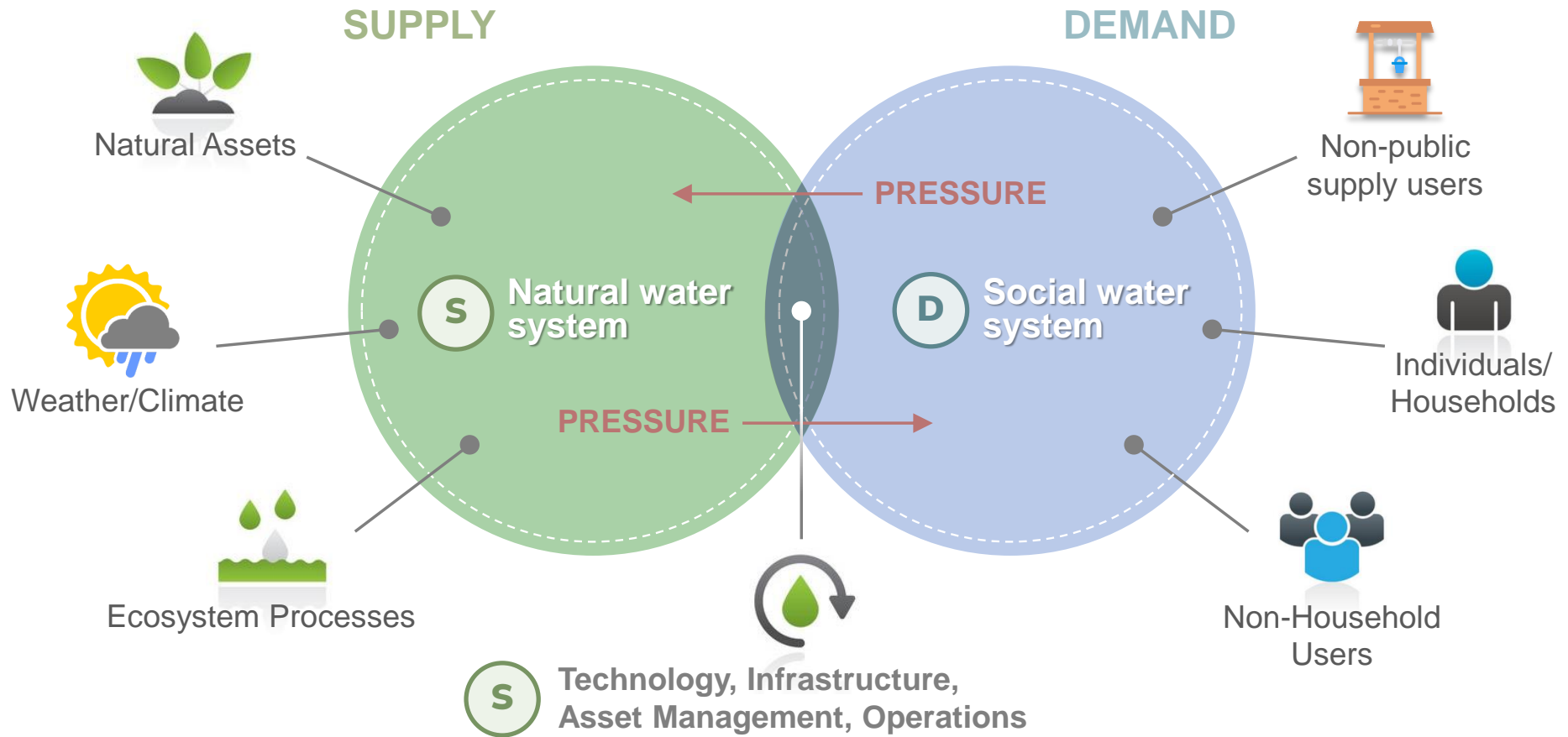
- A **resilient, safe**, and **affordable water supply** and **wastewater services**
- for today's users and future generations
- A **thriving natural environment** with increased value, clean rivers and a sustainable ecosystem
- Provide **excellent service, support for vulnerable consumers** and **act in the long-term interests of society and the environment**

Water Resource Management Plans (WRMPs) must ensure that...

- Water resources **meet the present and future demands** of customers.
- There is a **reliable water supply** for people and businesses, and to **protect the environment**.
- **Systems are resilient** to a 0.2% annual chance of implementing an emergency drought order -
- this '1-in-500 year' level of resilience should be achieved by 2039.

Overview:

What is 'water resources management'...?

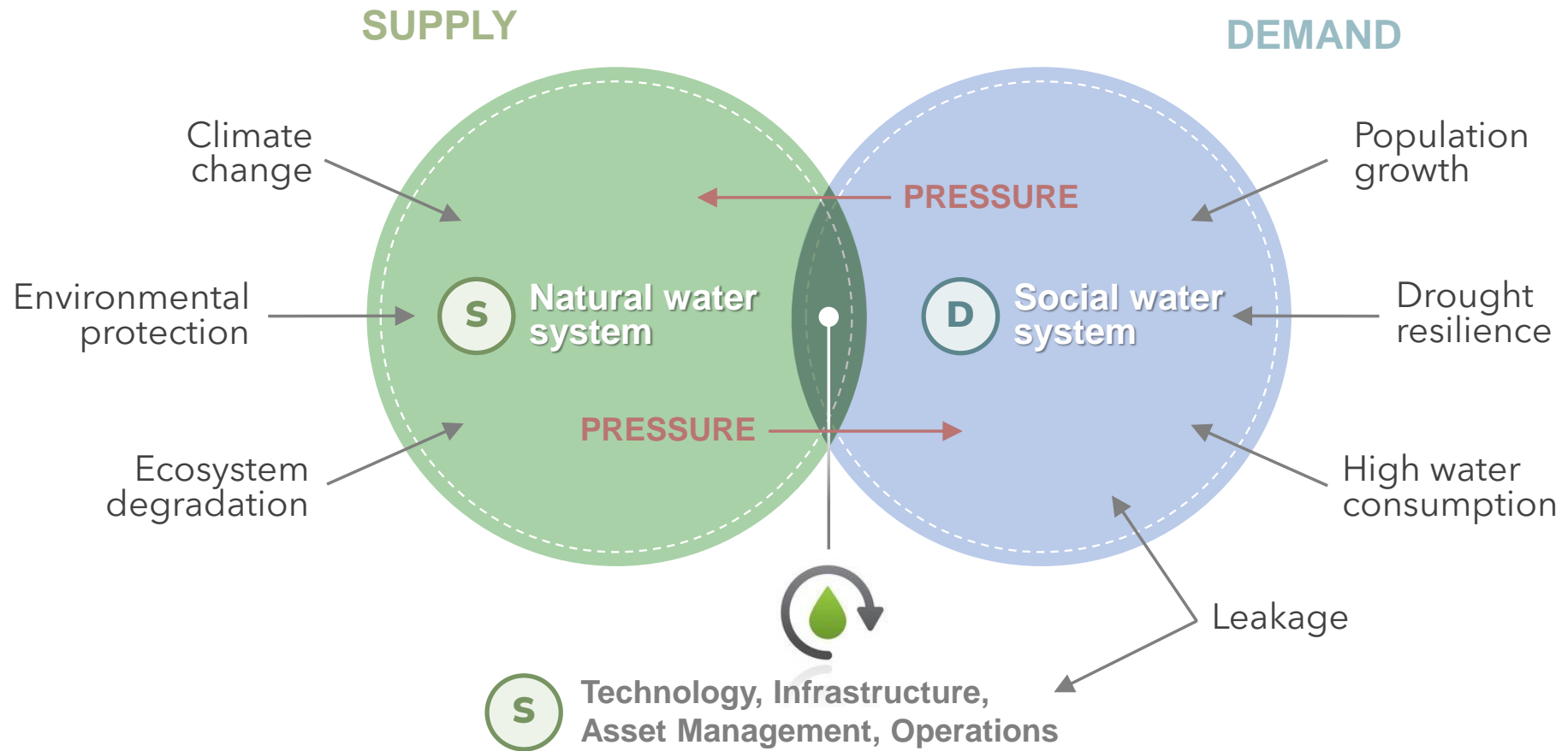


Overview:

Challenges of water resources management

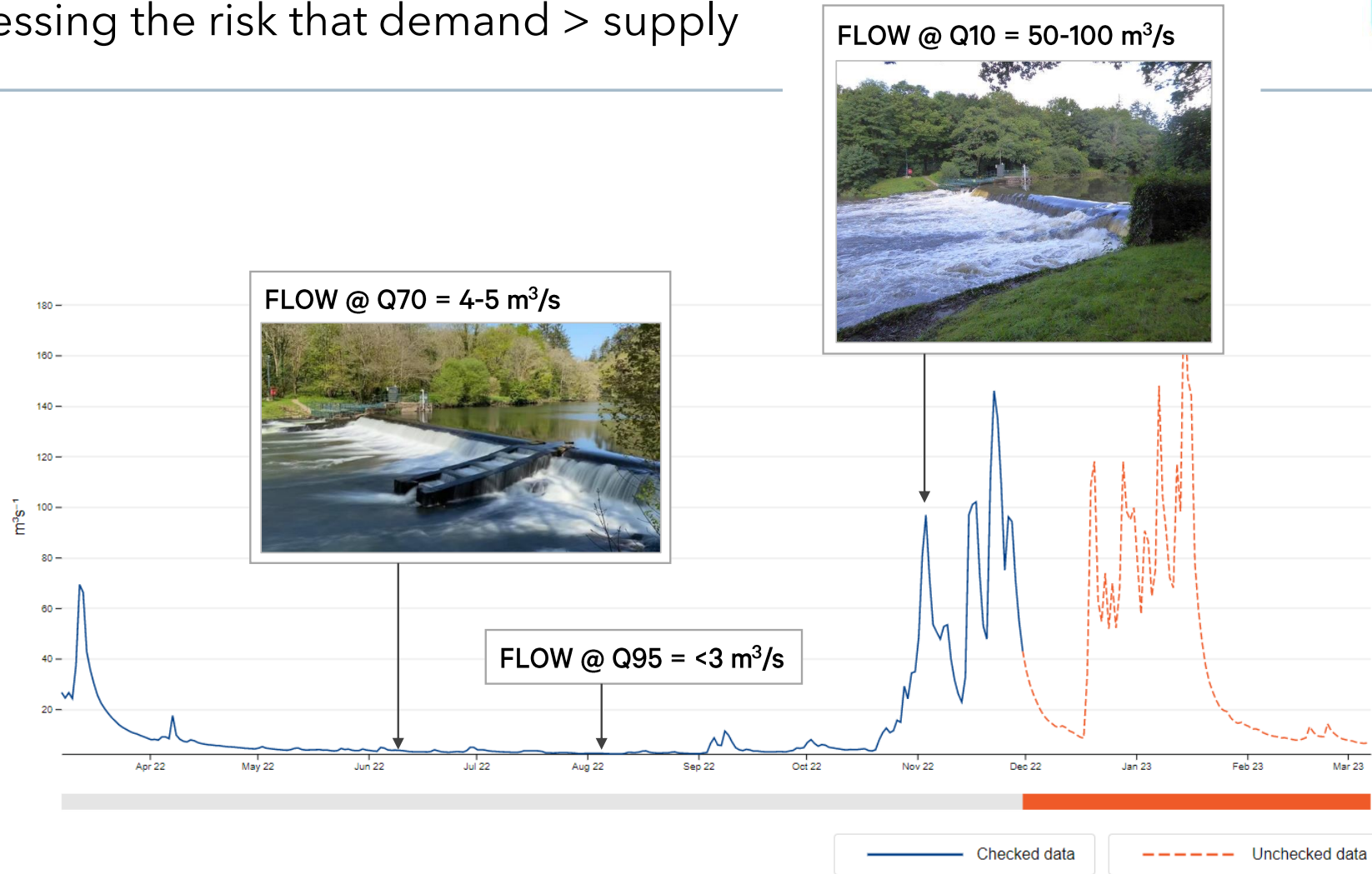
Overview:

Challenges of water resources management



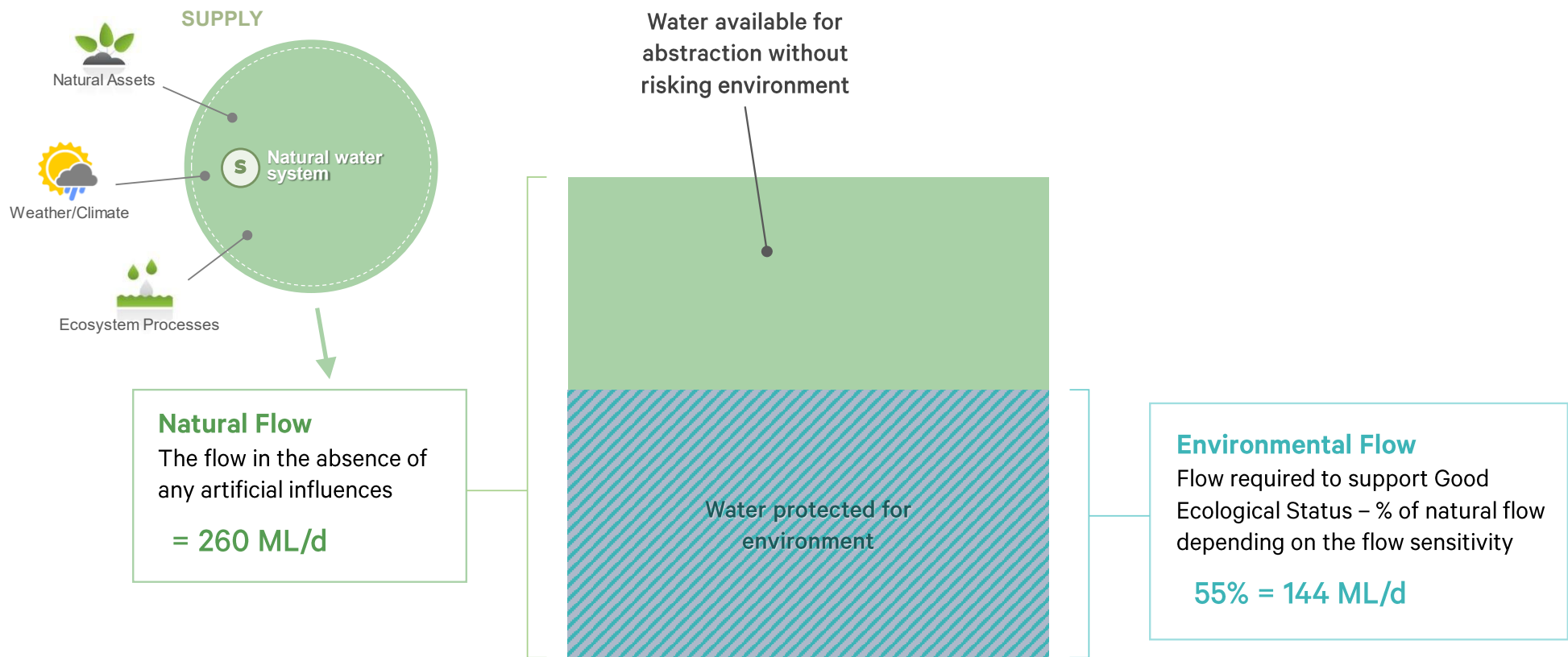
Challenges

Assessing the risk that demand > supply



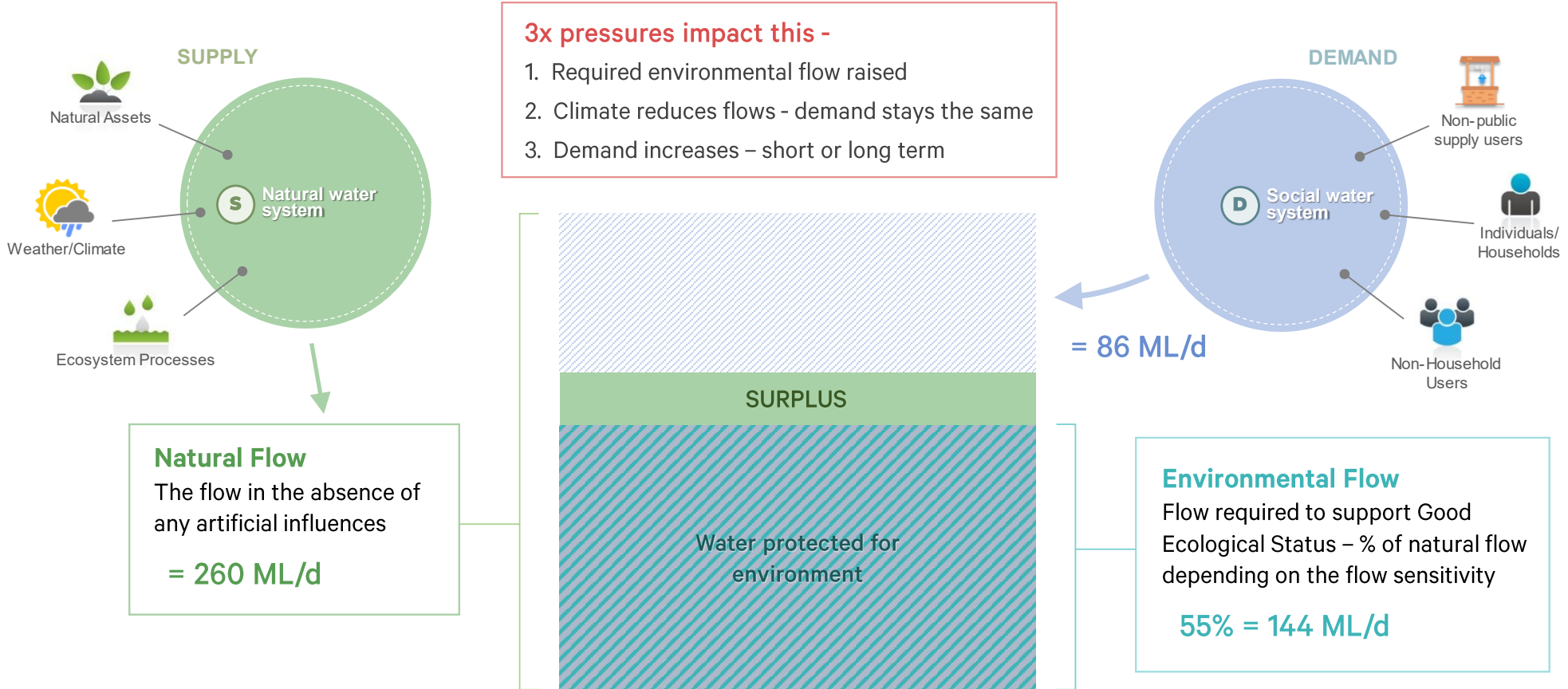
Challenges

Assessing the risk that demand > supply



Challenges

Assessing the risk that demand > supply



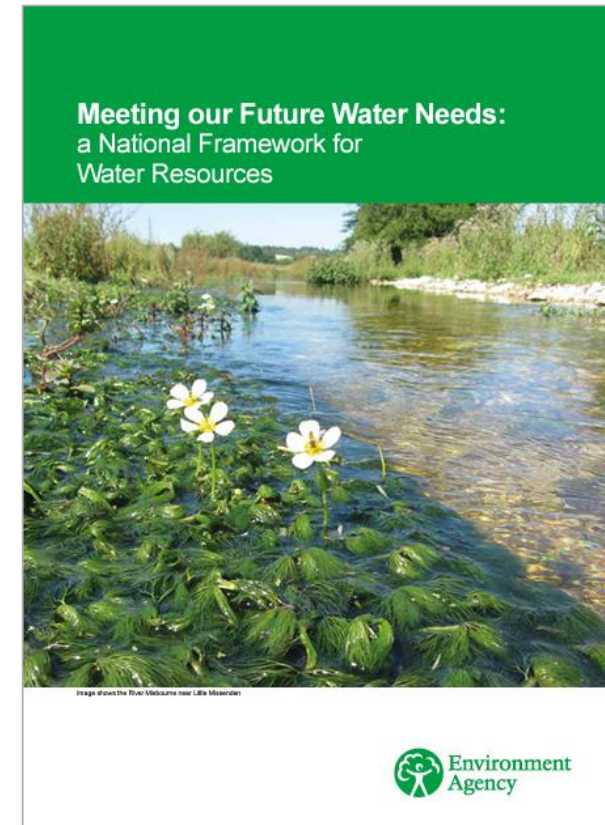
Challenges – supply

Impact on supply: protecting the environment

Sustainable abstraction is essential to support healthy ecology and the natural resilience of rivers, wetlands and aquifers.

Water resources plans must now –

- Demonstrate that abstraction is **sustainable now and long-term**
- **Protect/improve the environment** against current/future challenges
- Reflect the ambitions of the Government’s 25-YEP, including:
 - Setting out the ‘destination’ for **environmental sustainability** and **resilience**
 - Supporting **nature recovery**
 - Using **natural capital** in decision making
 - Taking a **catchment approach**
 - Delivering **net gain** for the environment



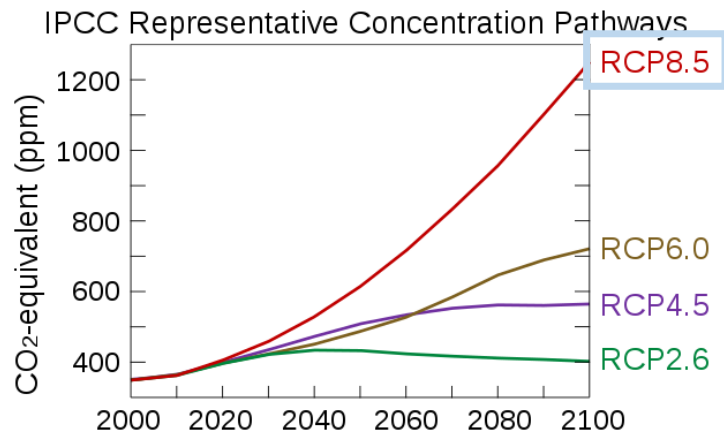
Challenges - supply

Impact on supply: climate change

Trying to predict the impact that climate change will have on the water cycle is difficult

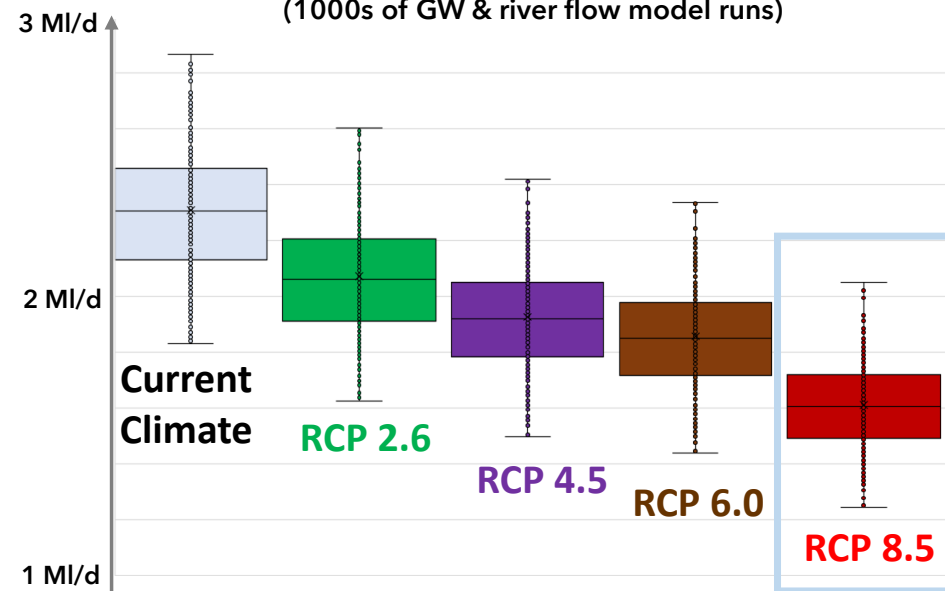
The rate of change depends on which emissions scenario you look at...

Carbon emissions models



The 'eFlaG' UKCP18 river flow projections presented in the WCWRG Pilot catchment Environmental Destination plans are based on RCP8.5 emissions

Low river flow Q95* statistic in 2070 example
(1000s of GW & river flow model runs)



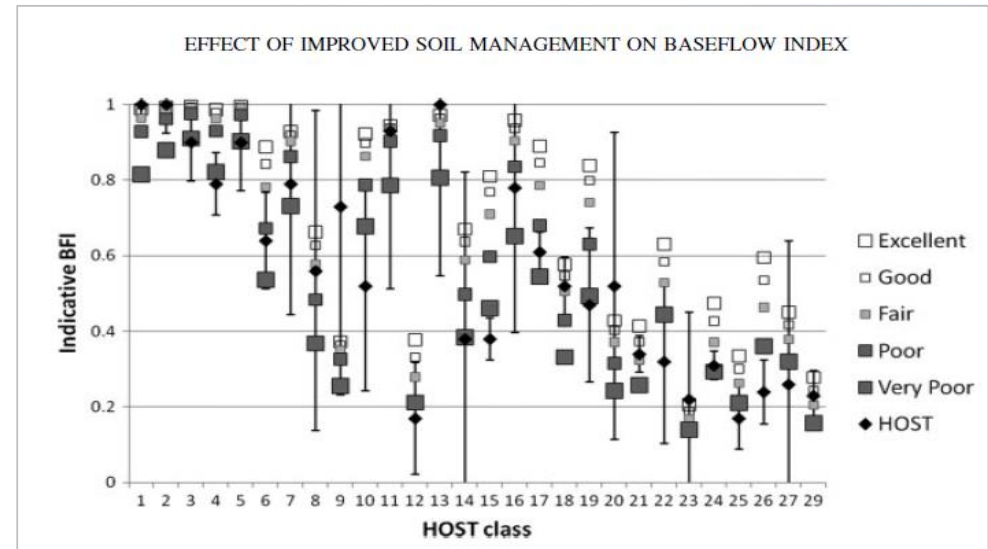
* Flow exceeded 95% of time: common low flow statistic

Challenges – supply Ecosystem degradation & disfunction

Optimal regulation of the natural water cycle depends on a healthy and functional ecosystem...

- Compacted/unhealthy soils
- Loss of habitats (esp. wetlands)
- Creation of impermeable surfaces
- Pollution
- Invasive non-native species

...all perturb the natural water cycle, reduce resilience and can have a significant impact on the amount of water in the environment at certain times...

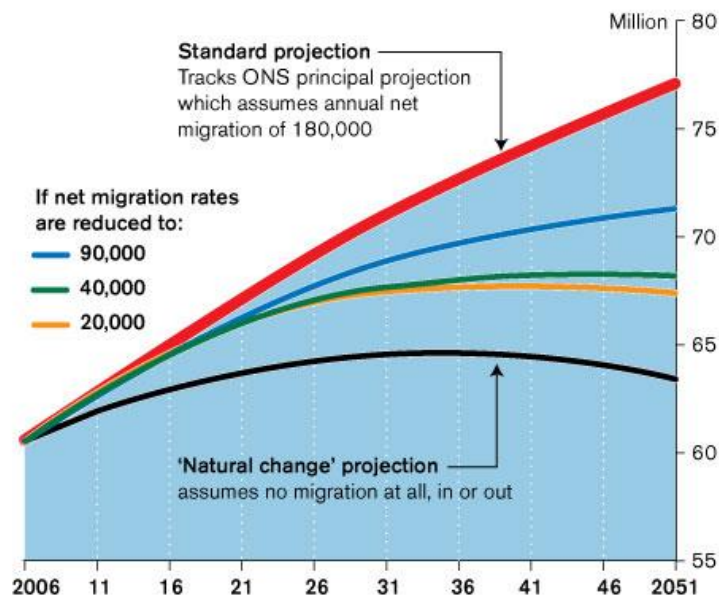


Challenges - demand

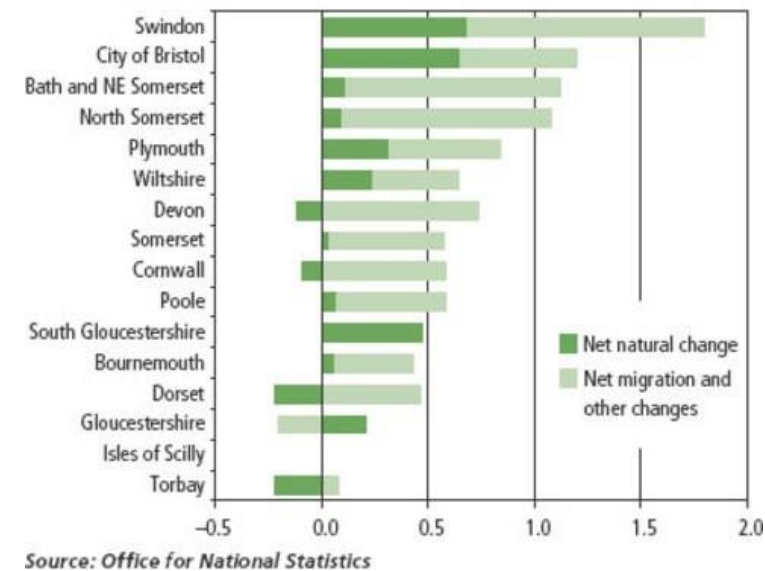
Population growth (residential + transient)

Water resources planners use local government data to estimate population growth...

UK population projections compared, 2006 to 2051



Components of population change: by county and unitary authority South West, mid-2007 to mid-2008



Also need to consider short-term changes in population... e.g., due to tourism

Challenges – demand Loss or waste of water – leakage

Reducing leakage (in properties and the network) represents a significant challenge –

~346,455 km of water pipes in the UK (8.5x )

- Undertaken detailed studies to determine baseline leakage levels
- Approach includes using latest technology and innovative approaches to find leaks
- Significant work still required to meet industry-wide targets of **16% reduction by 2025**, and **50% reduction by 2050**.
- **Very different approaches required to locate different types of leak** – from a burst water main right down to a leaky cistern kit – everyone can play a role in finding them.



Challenges – demand High water consumption

Some water users (either individually or collectively) use large amounts of water

- Per capita consumption is currently estimated to be **140-150 litres per person per day**
- Many businesses use large volumes of potable water or water taken from the environment
- Building Regs require **125/110** litres pppd
- New targets – **110** litres pppd by 2050



Challenges – demand

Ensuring drought resilience

This means that they have to keep supplying all the water that people and businesses need (want?) right up to a 1-in-500 year drought...

- this '1-in-500 year' level of drought resilience has to be achieved by 2039



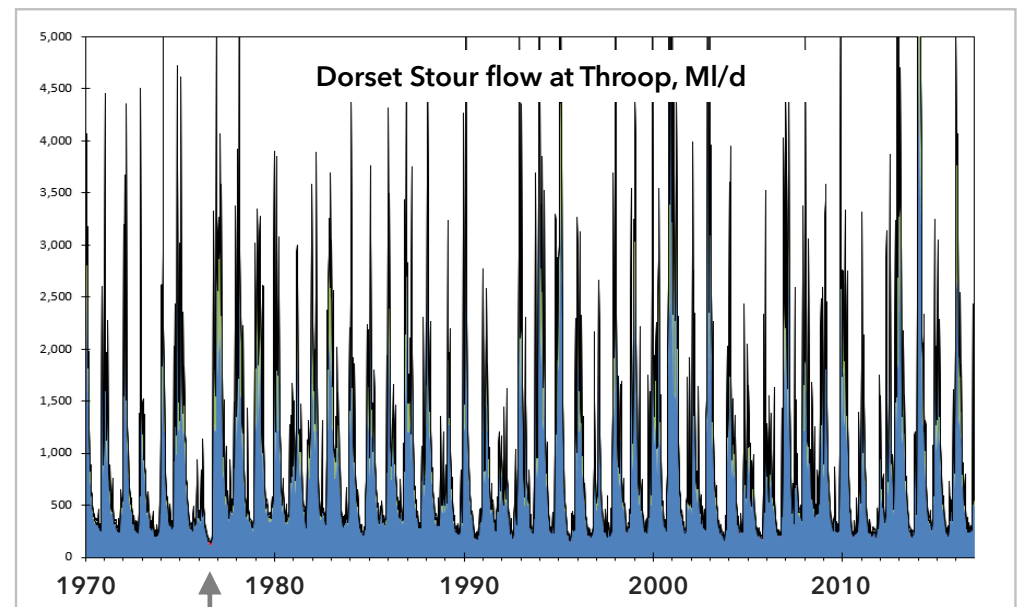
Residents of Peryn Road, Tavistock, having the reality of the 1976 drought crisis brought home to them as they fill buckets from a water standpipe in the street. (Image: PA Wire)



Farmer John Ward ploughing at Personage Farm in Iddlesleigh, Devon, in 1976. Crops were badly affected by the drought, sending the price of food skyrocketing



Things were seriously warm at Fernworthy Reservoir in Devon in August, 1976. (Image: John Plushard)

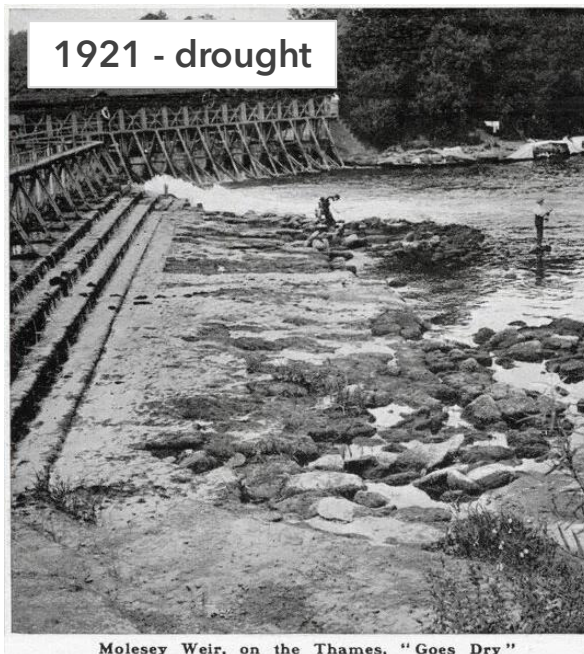


1976 was a ~1:50-year drought

Challenges – demand Ensuring drought resilience

This means that they have to keep supplying all the water that people and businesses need (want?) right up to a 1-in-500 year drought...

- this '1-in-500 year' level of drought resilience has to be achieved by 2039

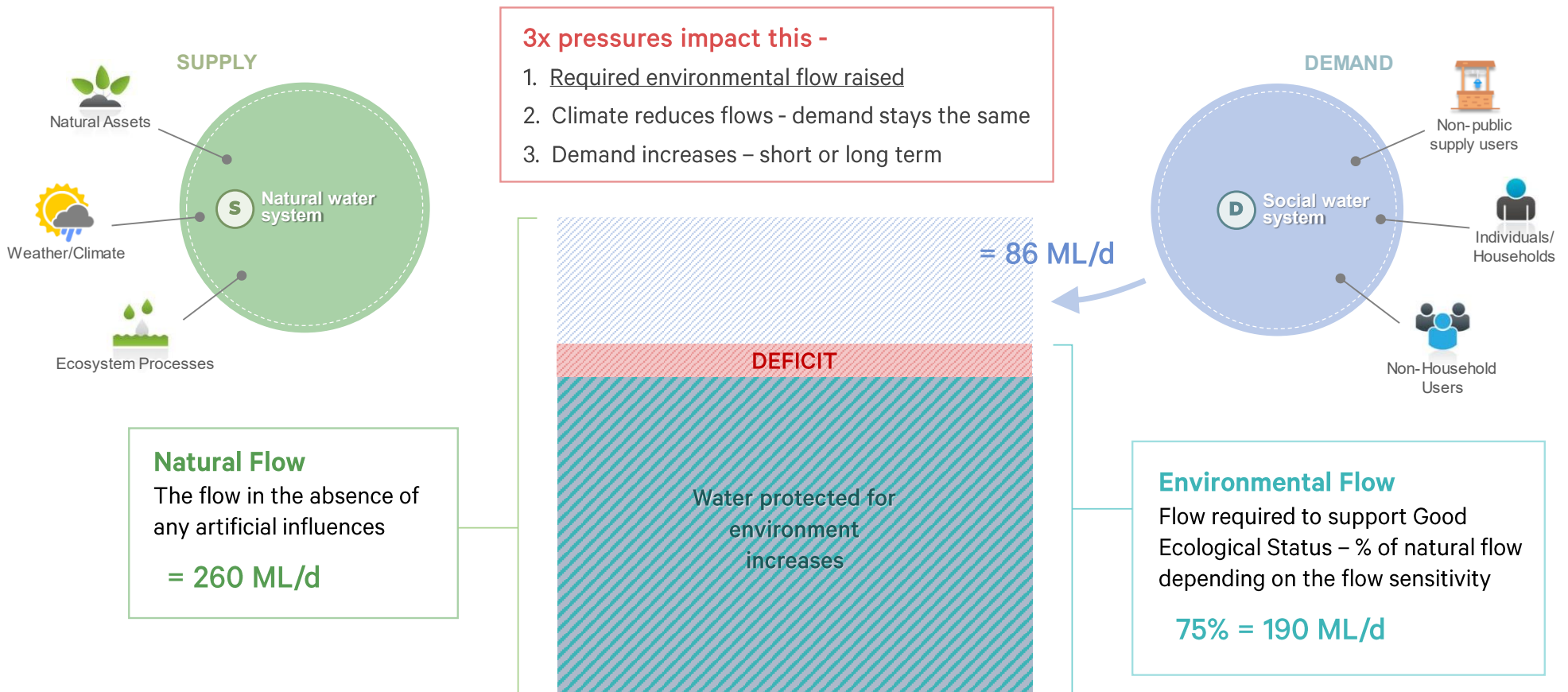


1921 drought was thought to be more severe than 1976 and is used for planning...

River Thames flows at Molesey Weir

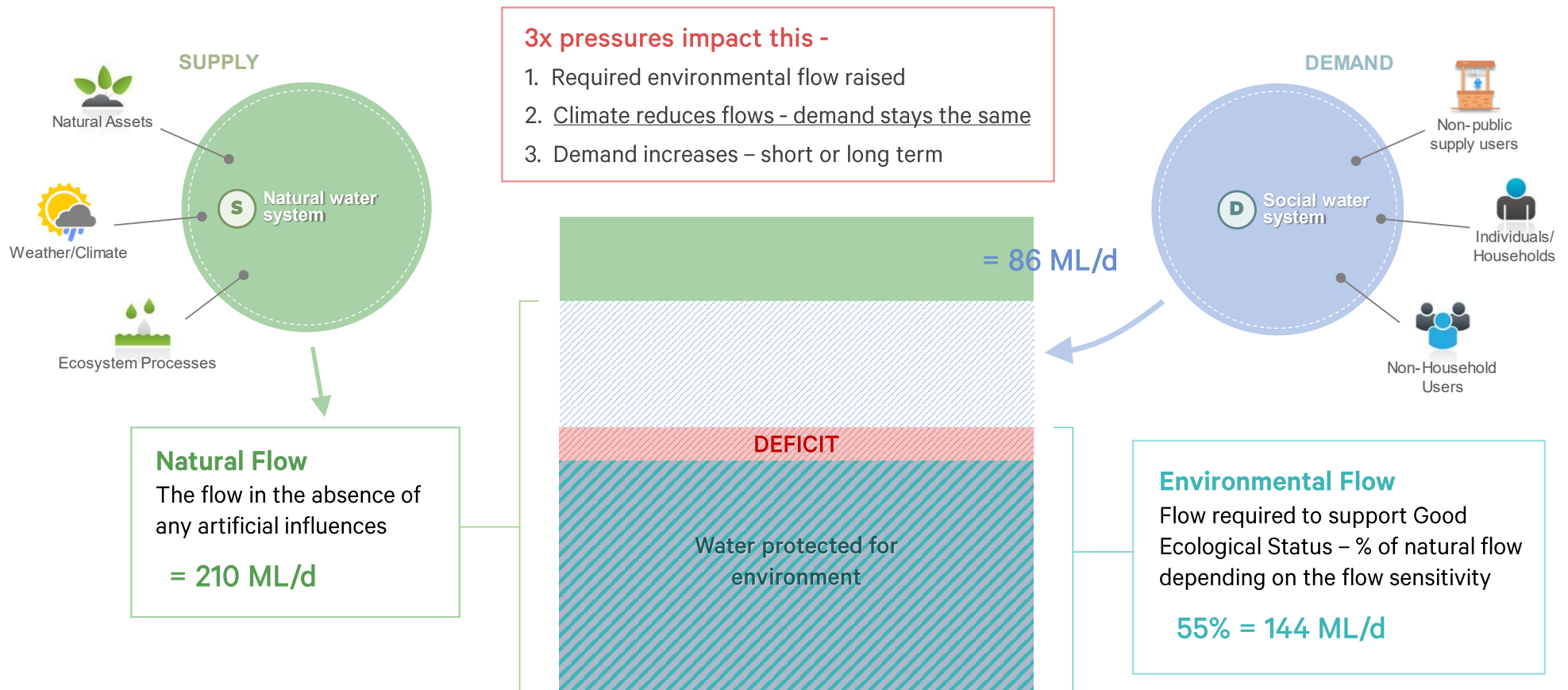
Challenges

Assessing the risk that demand > supply (2050)



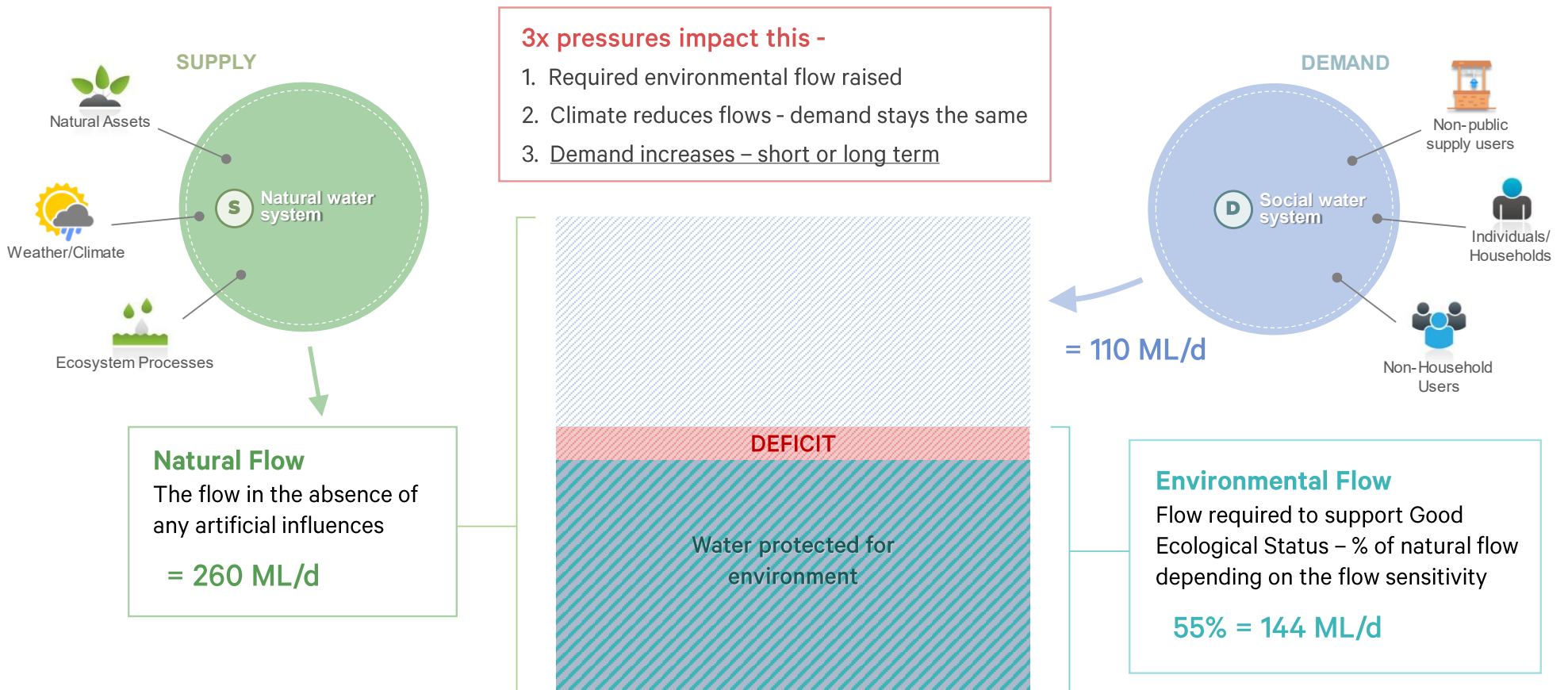
Water Resources Management

Assessing the risk that demand > supply in 2050



Challenges

Assessing the risk that demand > supply (2050)



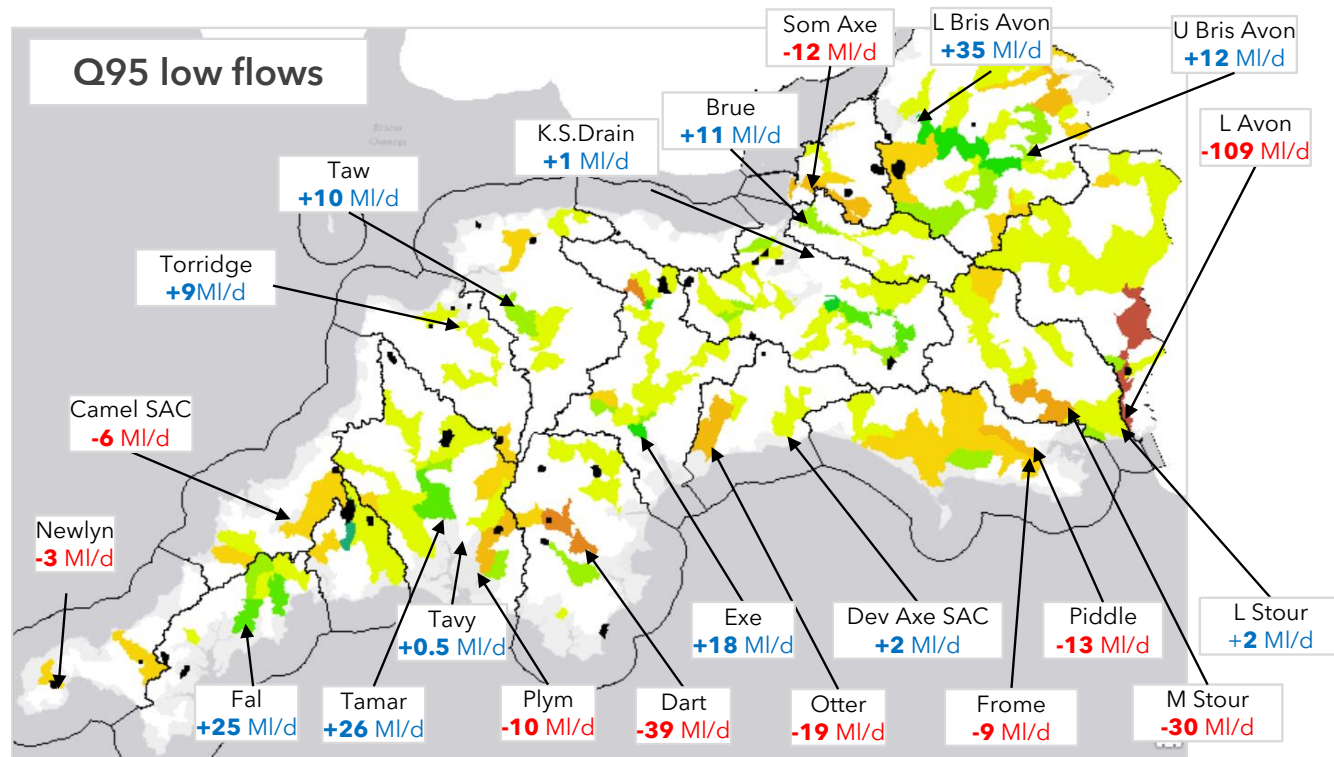
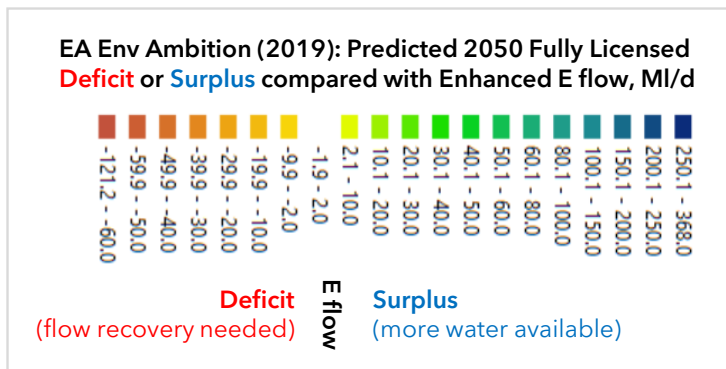
Challenges - supply

Projected surpluses and deficits in 2050: low flows

Environment Agency projected surplus or deficits - Local assessment (WBs) of possible impact

Assumptions:

- Fully licensed abstraction
- Enhanced ambition for environmental flows
- RCP8.5 climate change projections



Catchment boundaries and **reservoirs** also mapped in black

Challenges

What do these challenges mean for the West Country?

- The draft regional plan set out a range of possible regional future water needs by 2050.
- All possible futures show that the West Country is likely to face a deficit in water availability without intervention from current abstractors and water users.

If no action is taken to improve the resilience of the region, the West Country is likely to face a shortfall in water availability by 2050

- We **anticipate a deficit of 180 Megalitres per day by 2050**

It is **vitaly important** that we **work together** to **mitigate this overall risk** for the whole region.

- To meet this challenge, we have identified a range of possible **strategic water resource** schemes and the actions that could be used to reduce demand and increase water availability within the region.

Overview:

Solutions to the WRM challenges

Managing the West Country's Water Resources: **Draft Regional Plan Webinar**

Agenda

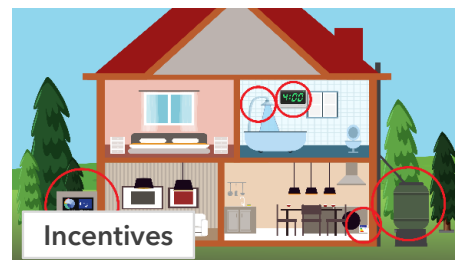
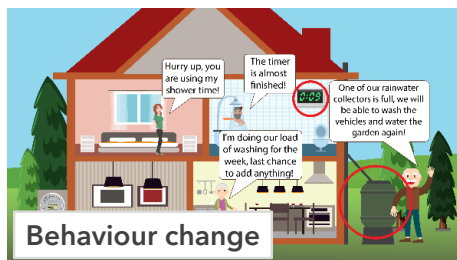
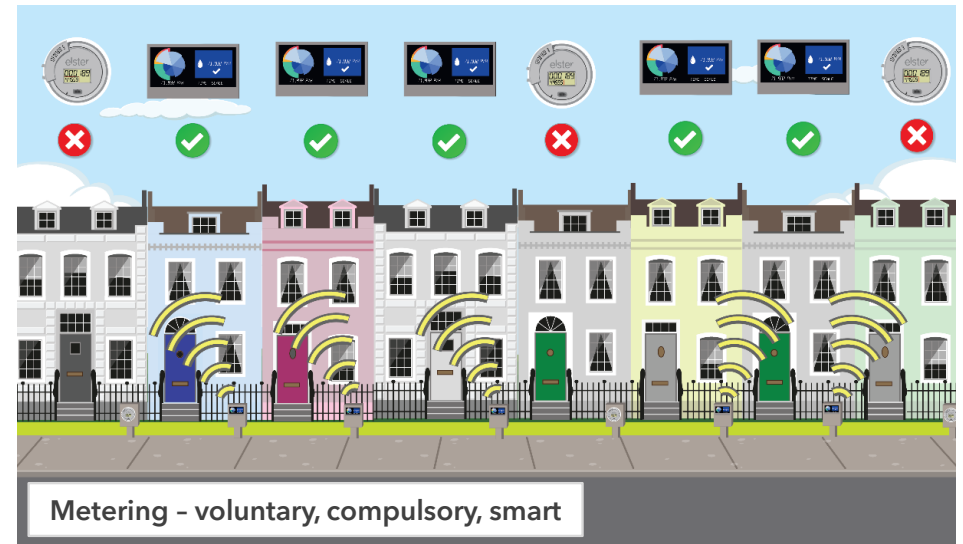
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Solutions – demand

Water efficiency & reducing consumption

Research into how to achieve the reductions required is ongoing, but approaches include...

- **Metering** – voluntary, compulsory, smart
- **Water efficiency** campaigns/initiatives – influencing behaviour or using incentives
- Changes to **building regulations** and **design standards**.
- **Mandatory restrictions** – last resort

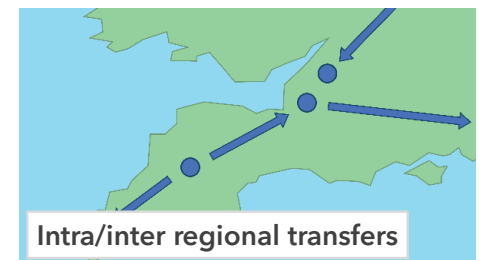
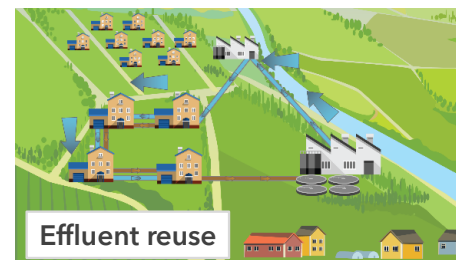
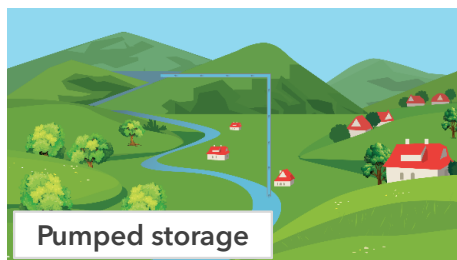
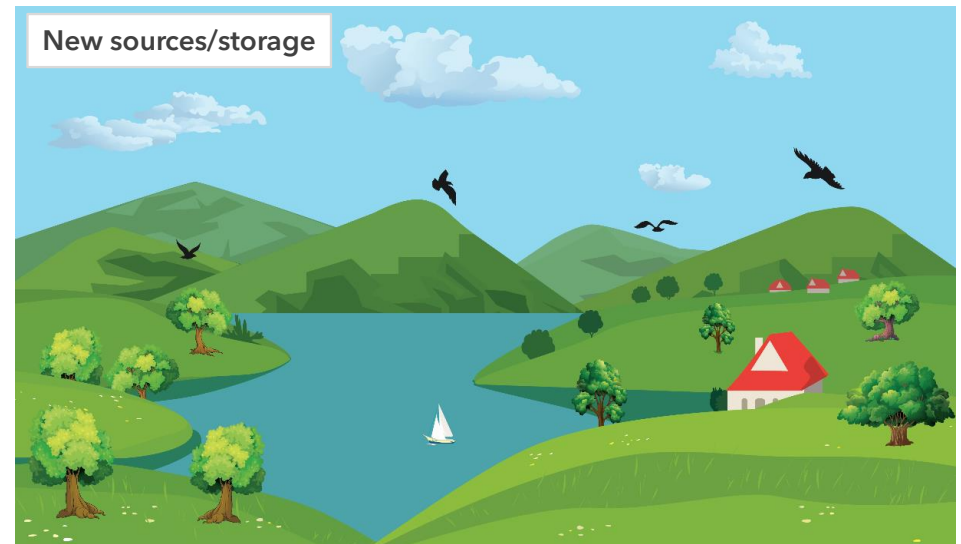


Solutions – supply

Operational & asset management options

Options involve changing where water is abstracted, where it is returned, how it's moved around or where/when it's stored

- Unused sources (rivers, ground water, 'reservoirs')
- New reservoirs
- Pumped storage
- Intra/inter regional transfers
- Effluent re-cycling or reuse
- Desalination

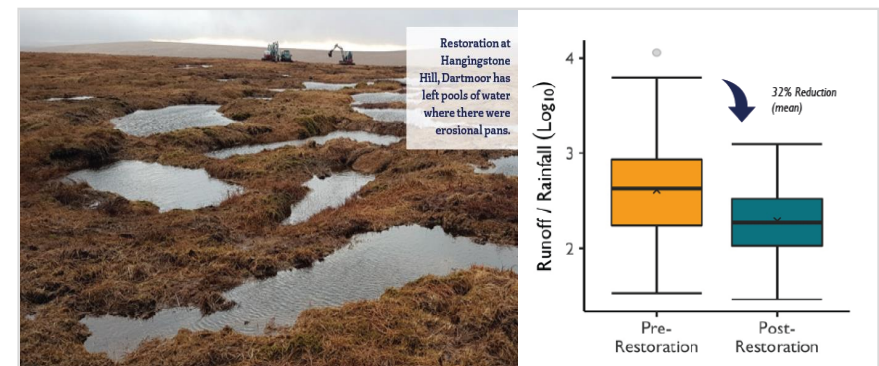
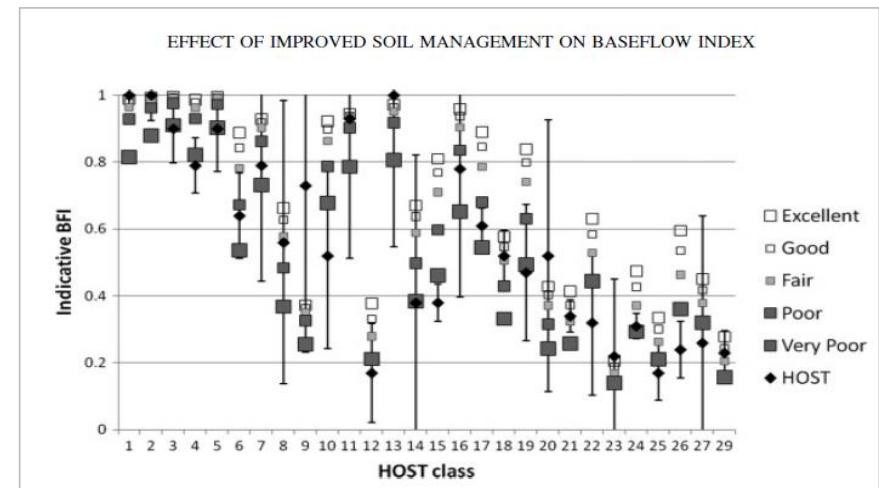


Solutions – supply

Ecosystem restoration & Nature-Based Solutions

Many projects are trying to determine the contribution that ecosystem restoration, and catchment/nature-based solutions can make...

- **Soil hydraulics/hydrology** studies
- **'Mires on the Moors'** Evidence Report 2020
 - Storm event runoff ↓ **32%**
 - Q95 benefits still being evaluated
- **Working Wetlands** and **Beaver** trial studies
- **PROWATER Project** – benefits of NBS for resilience against droughts (and water scarcity)
- **River Otter studies** – assessing how land use change and NBS impact groundwater recharge and river baseflow resilience
- *A lot more research is still required...*



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Draft Regional Plan

Fundamental goals of the WC Regional Plan

The Draft Regional Water Resource Management Plan has been designed to:

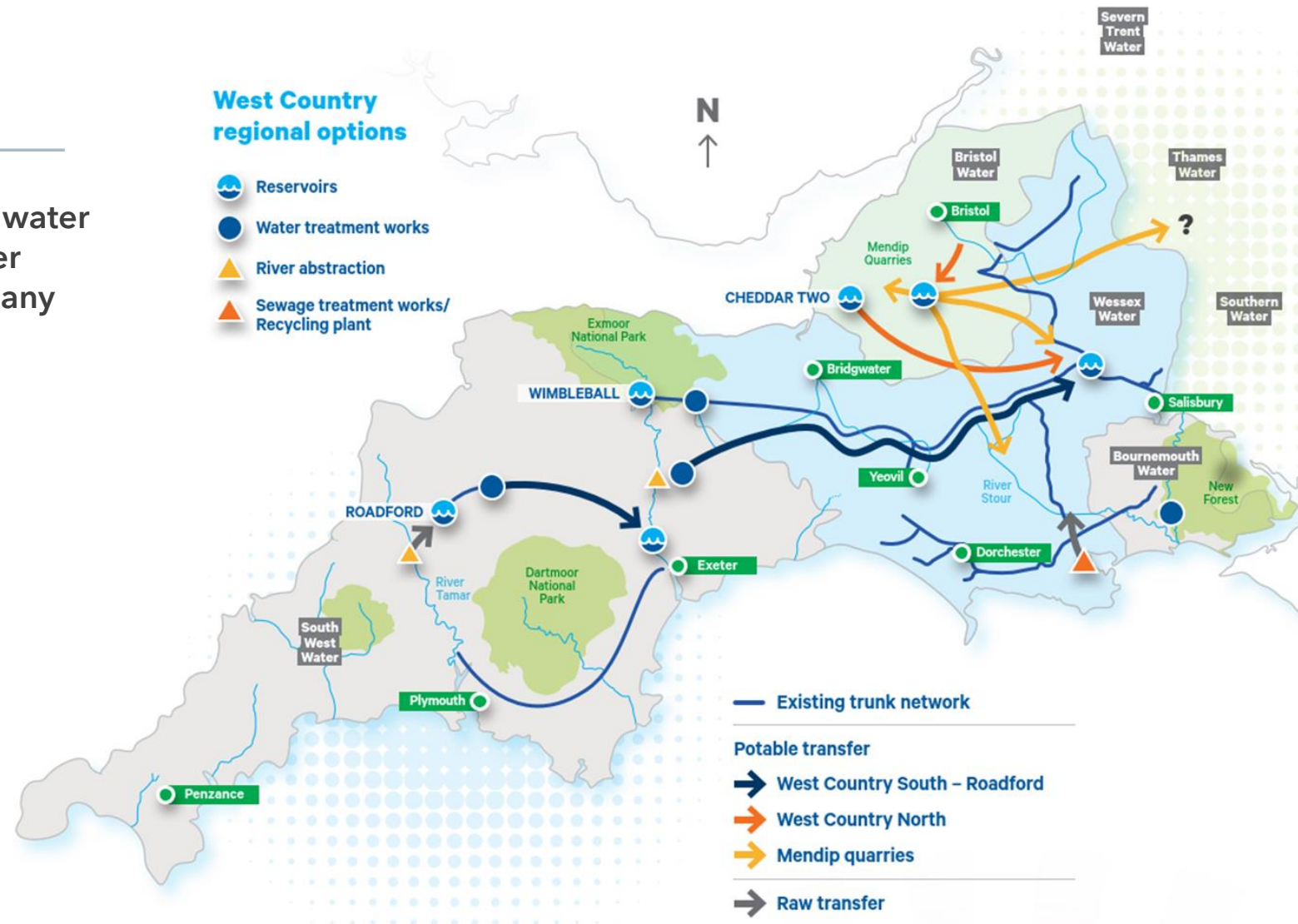
- **Secure water supplies** to a 1-in-500-year drought by 2039 and maintain secure supplies in the context of climate change
- Ensure a 50% **leakage reduction** by 2050 (against 2017 levels)
- **Manage customer demand:** Empowering HH customers to **reduce their daily use** by up to 110L per person per day by 2050...plus non-household efficiency
- **Environmental protection:** Introduce a programme of work to better understand the **needs of the environment** and what we can do to **improve the environment** for future generations
- Engage more widely with **non-public water supply users**

Regional Plan

Strategic Options

Need for regional strategic water resource options that deliver benefits across water company boundaries

- Poole Effluent Re-use
- Cheddar 2 Reservoir
- Mendip Quarries

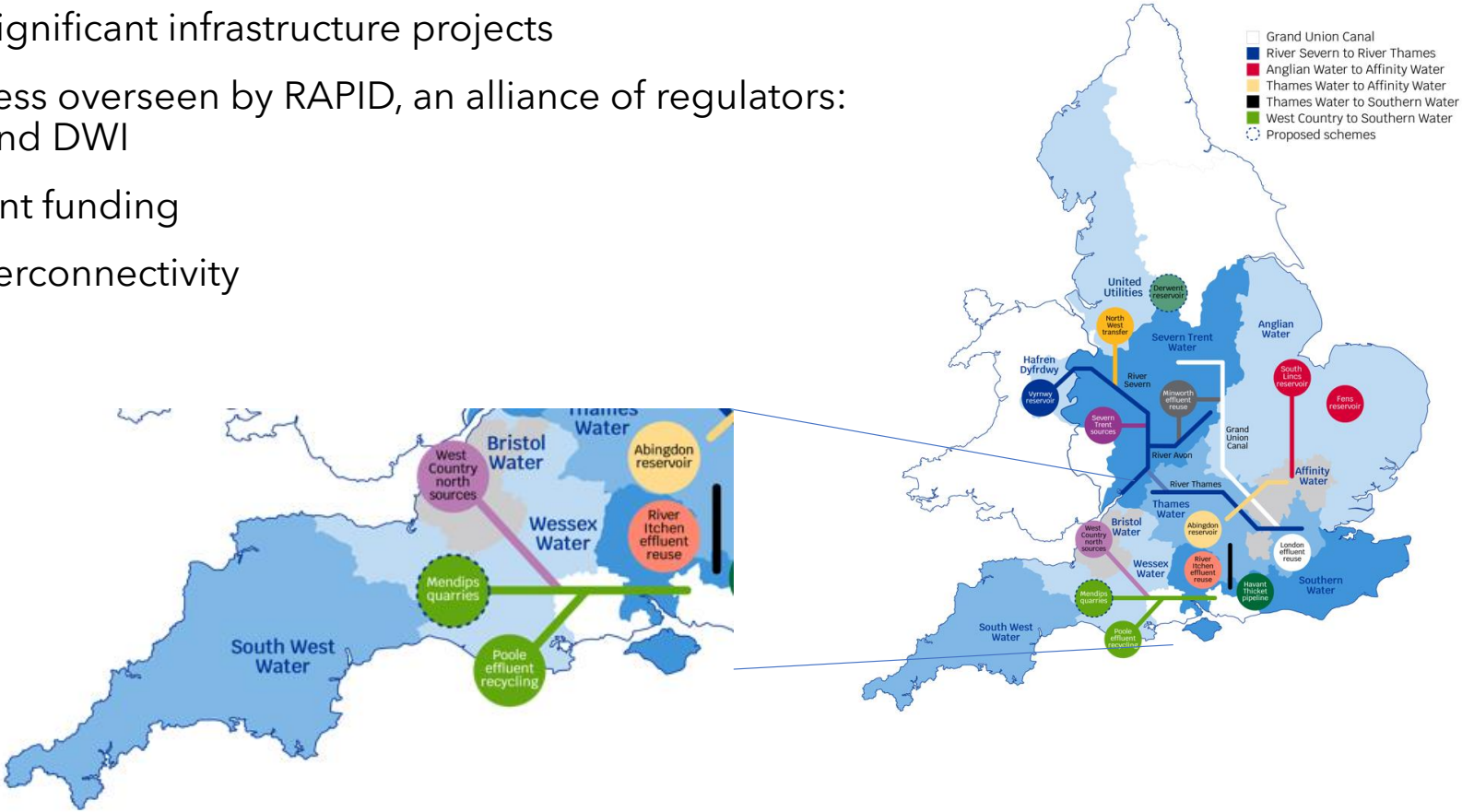


Draft Regional Plan

Strategic resource options



- Nationally significant infrastructure projects
- Gated process overseen by RAPID, an alliance of regulators: Ofwat, EA and DWI
- Development funding
- Improve interconnectivity



West Country Strategic resource options

Cheddar two reservoir & transfer
Poolle water recycling & transfer
Mendip quarries



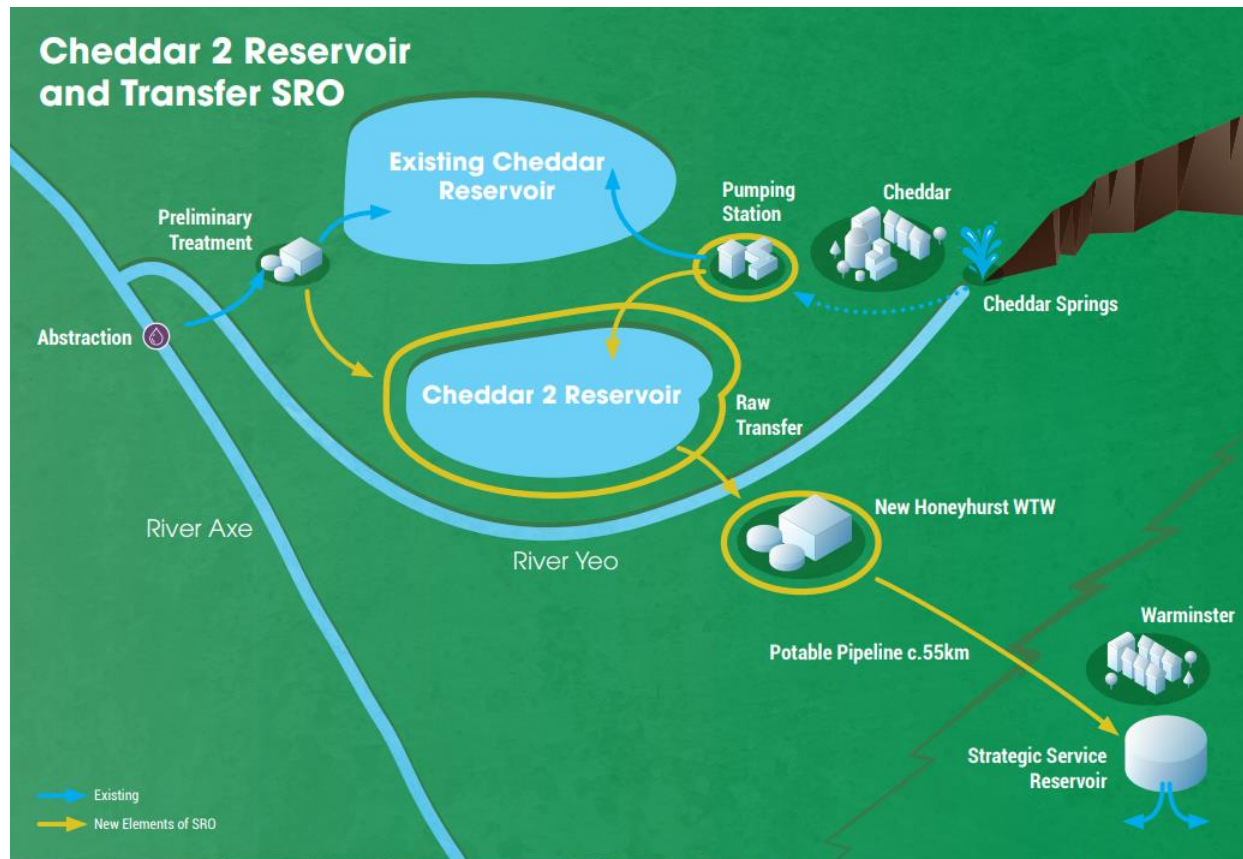
Draft Regional Plan

Poole water recycling



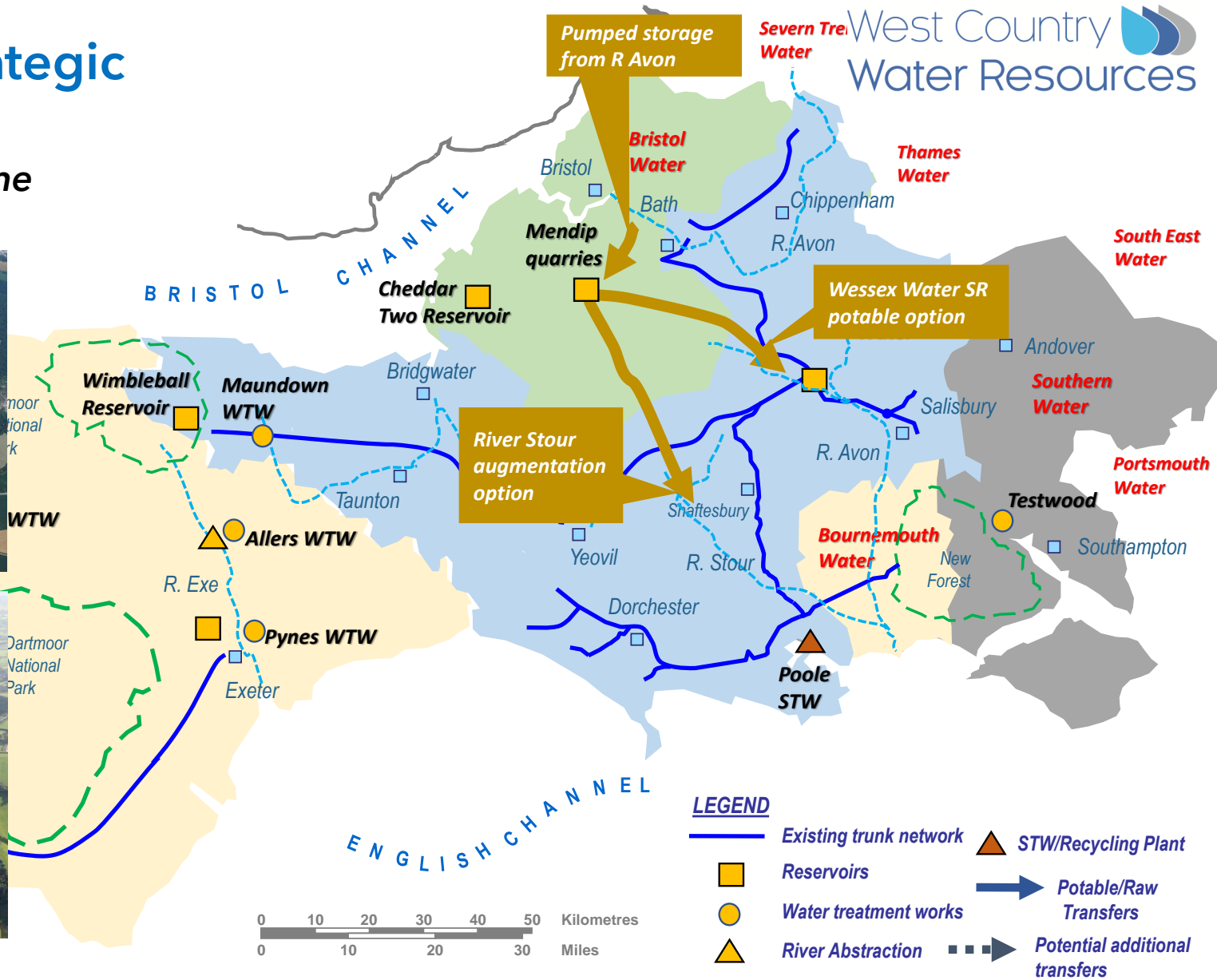
Draft Regional Plan

Cheddar 2 reservoir & transfer



Mendip Quarries Strategic Resource Option

Scheme Overview Core scheme



Source: Torr Quarry deepening, Planning application

Draft Regional Plan

Strategic resource options – **Further Info**

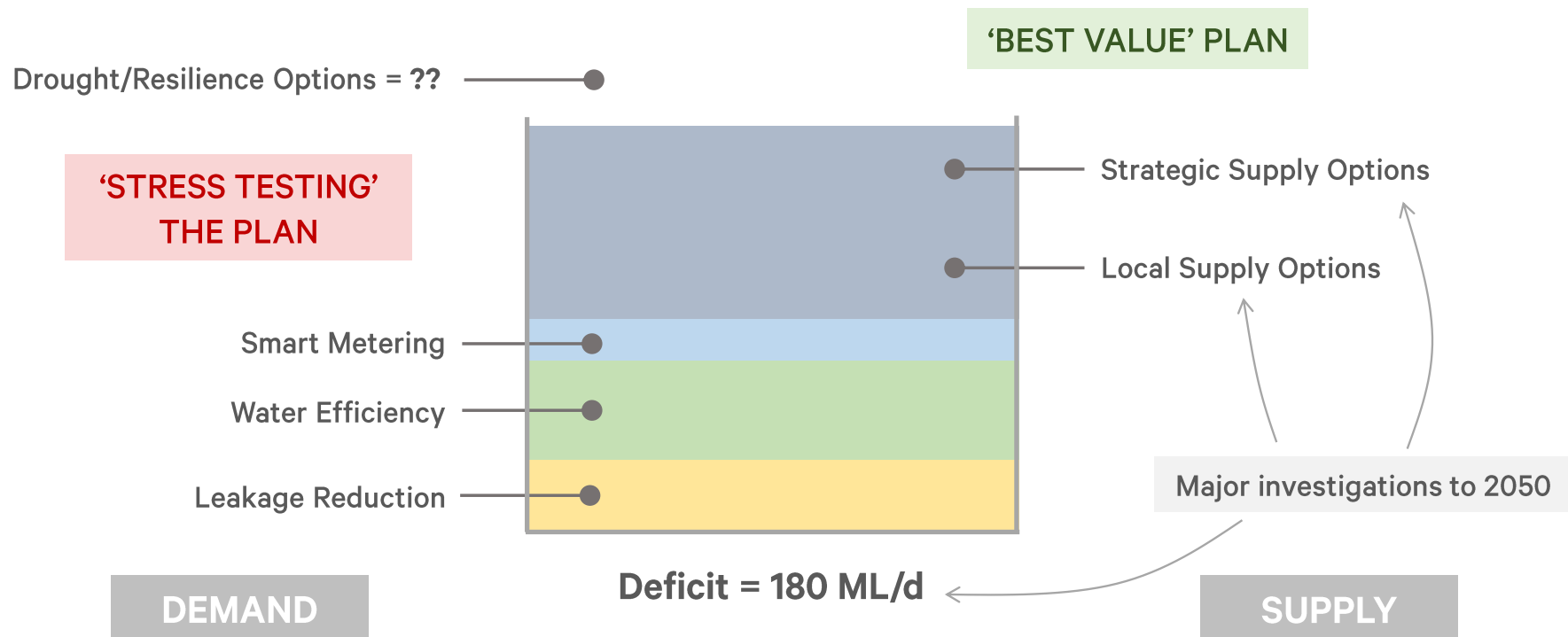
-
- Poole Water Recycling
[poole-sro-gate-2-report-nov-2022-v1.pdf](#)
 - Cheddar 2 Reservoir
[cheddar-sro-gate-2-report-nov-2022-v2.pdf](#)
 - Mendip Quarries
[mendip-quarries-sro-gate-one-report-december-2021.pdf](#)

Regional Plan

A holistic, 'best value' & adaptive plan

Our analysis shows that we may have a water deficit across the region of 180 ML/d by 2050...

PLUS - we also need to be resilient to a 1:500-year drought



Note of caution...

It is vital that the environment is resilient

Even if all possible solutions are implemented, there is still a risk that we will experience prolonged periods of low flow at certain times in the future...

It is therefore vital that actions are taken now to ensure that our water environments (rivers, streams, lakes, ponds, wetlands) and the wildlife they support are as healthy and resilient as they can be...



Regional Plan

Take home messages from the plan

- **Understanding the future water needs** of the environment is critical to decision making
- The **impact of climate change** is material to water availability
- The region still only has a limited understanding of **non-public water supply future needs**
- **Demand-side reductions** will form a key part of the solution but there is large uncertainty
- Lead-times for **strategic schemes** are too great to adapt demand-side **delivery uncertainty**

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Consultation

We would love to hear your feedback on our plan

Regional Plan published on the WCWRG web site for public consultation on 1st February 2023 *

<https://www.wcwr.org/our-work/draft-regional-plan/>

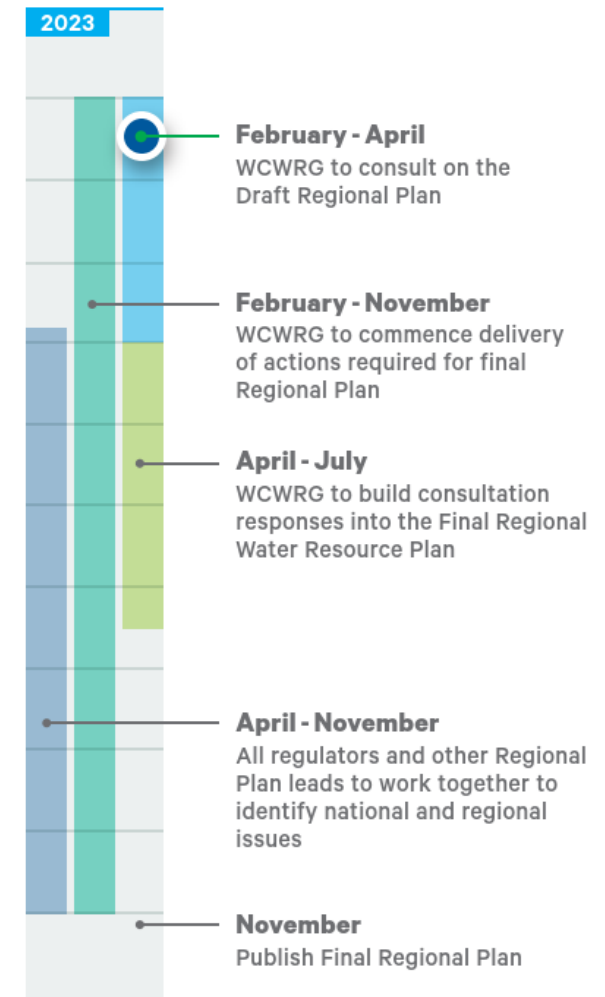
The public consultation period will be open for 12 weeks

Respond to our consultation:

- Complete our online survey ([HERE](#))
- Submit written feedback and send it to our dedicated mailbox - contact@wcwr.org
- Word version of questionnaire also available [DOWNLOAD ON WEBSITE](#)

West Country
Water Resources

Regional Plan timeline



Managing the West Country's Water Resources: Draft Regional Plan Webinar

West Country
Water Resources 

