

# Catherine Grutsch

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# Flood Risk and Wetlands

River Crane Catchment Conference 2022

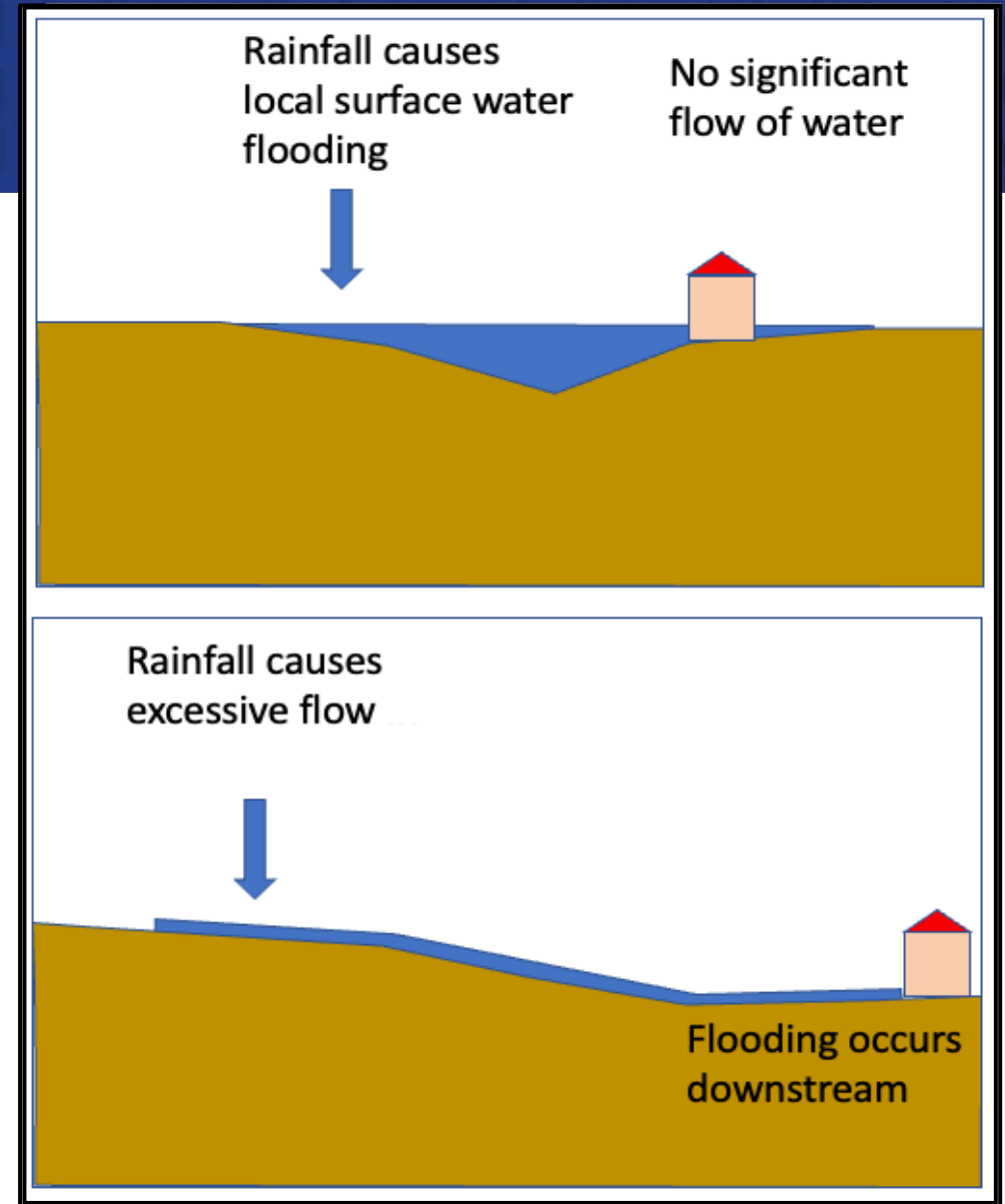
# What is flood risk?

A **fluvial**, or **river**, flood occurs when the water level in a river, lake or stream rises and overflows onto the surrounding banks, shores, and neighbouring land.

**Groundwater** flooding occurs because of the underground water table rising, which can result in water emerging through the ground and causing flooding in extreme circumstances.

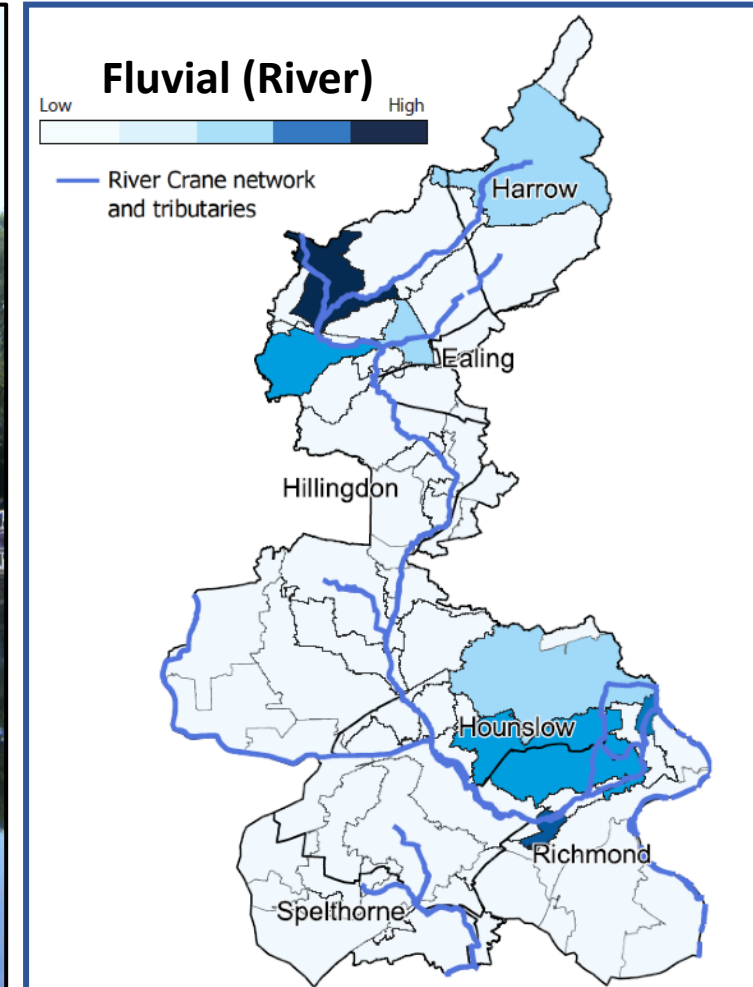
**Surface water** flooding is the result of high intensity rainfall which causes water ponding or flowing over the ground surface before entering an underground drainage network or watercourse.

**Sewer** flooding occurs when the amount of rainfall entering the sewer network is too large to be contained.



# River (Fluvial) Flood Risk

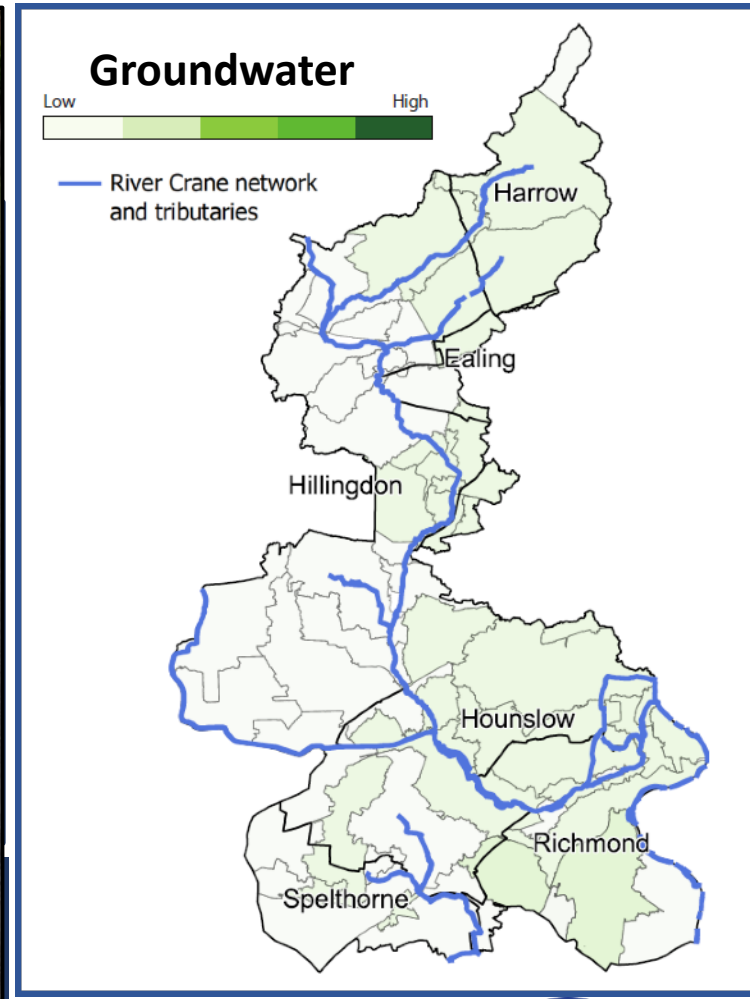
- Catchment is subject to river flooding from the River Crane and its tributaries
- Property flood risk is mitigated through the protection of green corridors along the Yeading Brook and River Crane
- There are flood defences located throughout the crane



# Groundwater Flood Risk

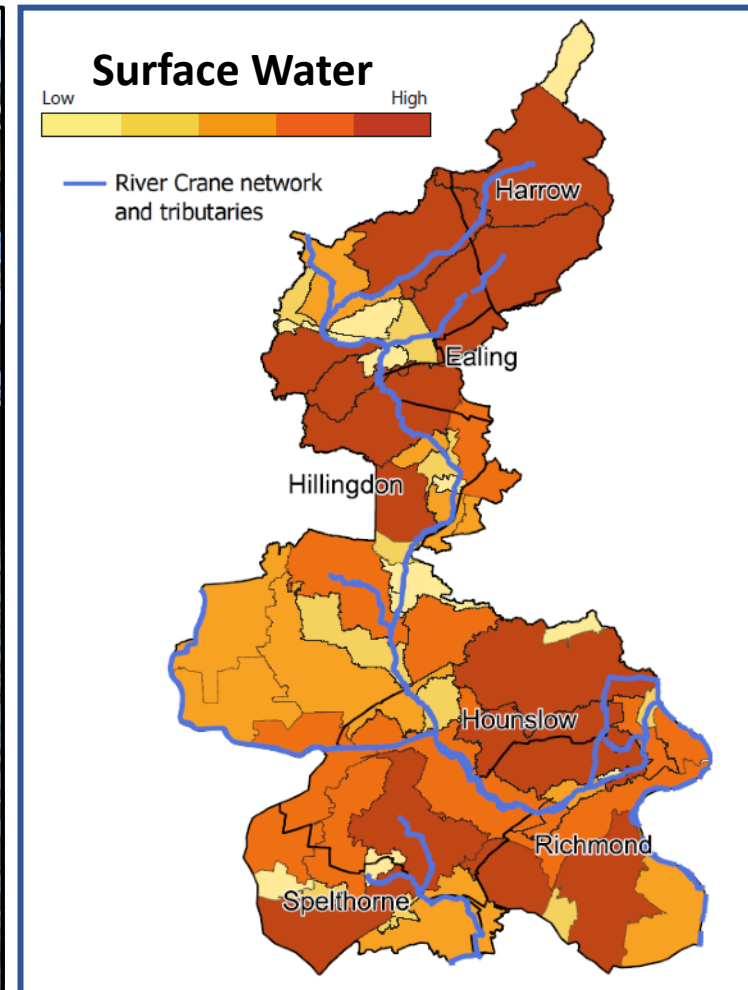
**Groundwater** flood risk not as severe within the catchment

It is most severe in the southern half of the catchment, due to the local geology



# Surface Water and Sewer Flood Risk

Surface water flood risk is the most severe risk to properties in the catchment.



# Flood Alleviation Success Story

Elephant Park Flood Alleviation Scheme, London Borough of Hillingdon



# Flood Alleviation Success Story

Headstone Manor  
Flood Alleviation  
Scheme, London  
Borough of Harrow





# Wetland and Flood Alleviation Opportunity Areas

The catchment was analysed for locations that would be ideal to implement wetlands or flood alleviation schemes.

The baseline criteria were established based on environmental data available and project themes.

The top 20 sub-catchments may be strategic locations for wetland and flood alleviation development.

Criteria
Baseline
Surface water Flooding
River Flooding
Sewer Flooding
Heat Risk
Opportunities and Constraints
Sewer Surcharge
Open Spaces
Social Deprivation
Surface Water Sewer Daylighting
River Network



# How to get in touch?

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# Questions to the panel



# Lunch Break Upstairs

Workshop 1 – see bottom LEFT colour on badge

- Blue River and Wetland Habitats (upstairs left)
- Red Communities and Access (upstairs right)
- Purple Innovative Finance (in here)



# Workshop 2 – see bottom RIGHT colour

- Black River and Wetland Habitats (upstairs left)
- Yellow Communities and Access (upstairs right)
- White Water Company funding (in here)



# Finance Earth

## Workshop Purple



**finance**  **earth**

**ZSL** | **LET'S WORK  
FOR WILDLIFE**

# Building a Blueprint for Scaling Conservation Finance for Urban River Restoration

River Crane Conference

18<sup>th</sup> October 2022

**Enabling investment  
into conservation, climate  
and communities.**



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# Session Agenda

1. Introductions
2. Overview of the NEIRF
3. River Crane NEIRF project
  1. Introduction
  2. Objectives
  3. Intervention opportunities
  4. Example financing mechanism
4. Next steps
5. Q&A

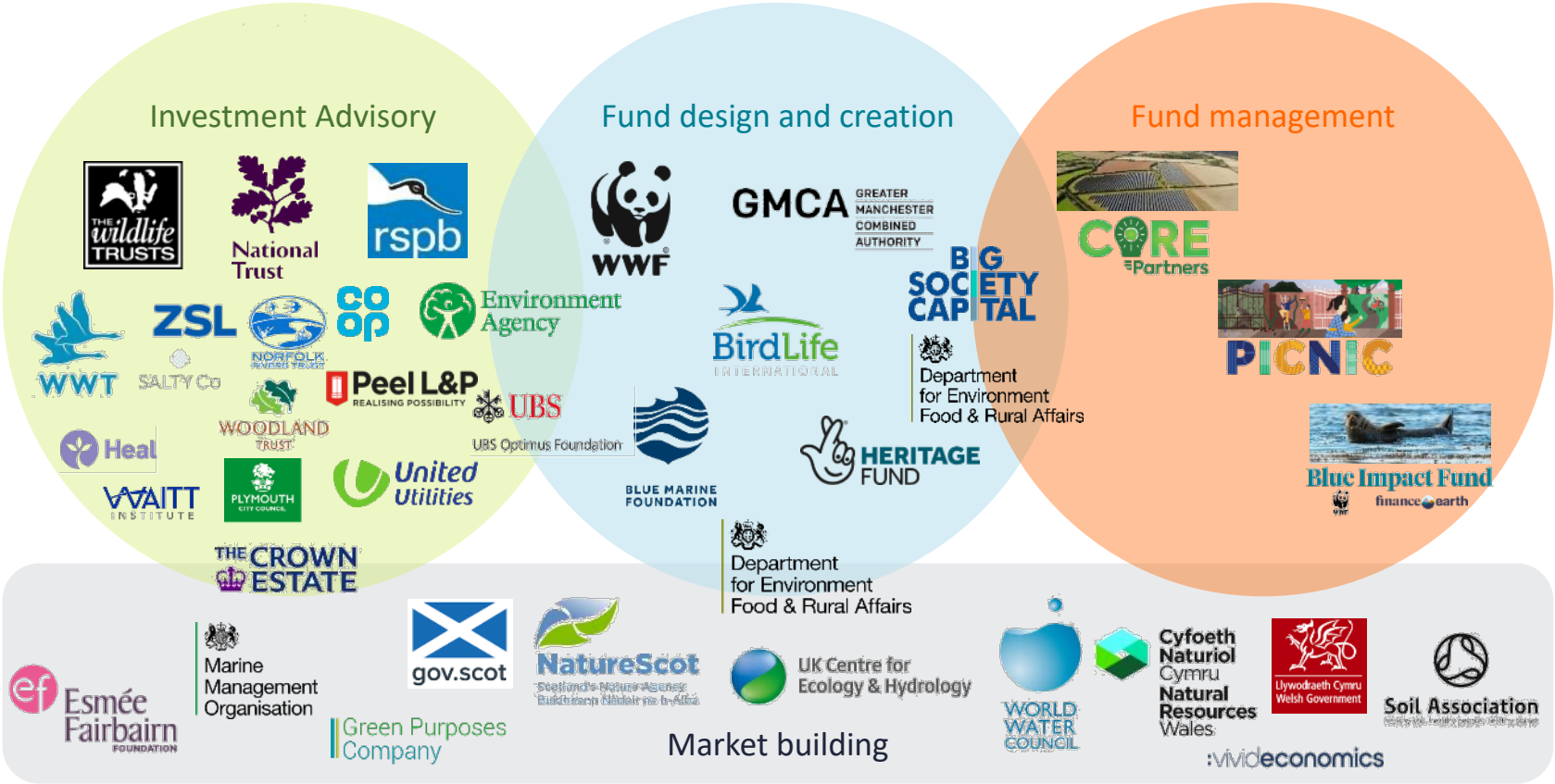


*Photo credit: Peter Elton*



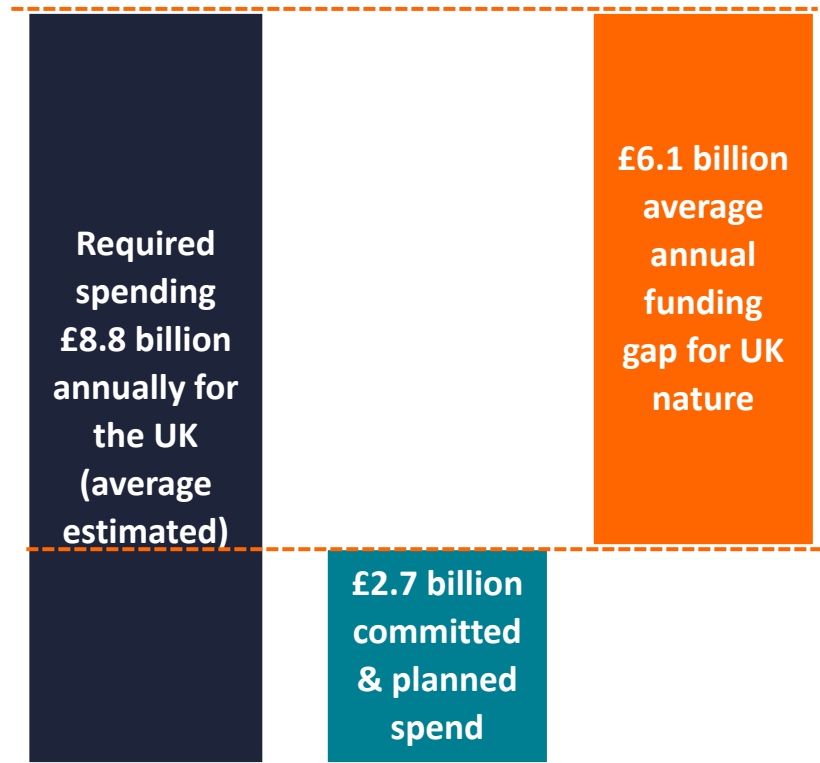
# Intro to Finance Earth

Finance Earth is a leading environmental impact investment boutique, offering corporate finance advisory and fund management services across natural and built environments.



# The Financing Gap for UK Nature

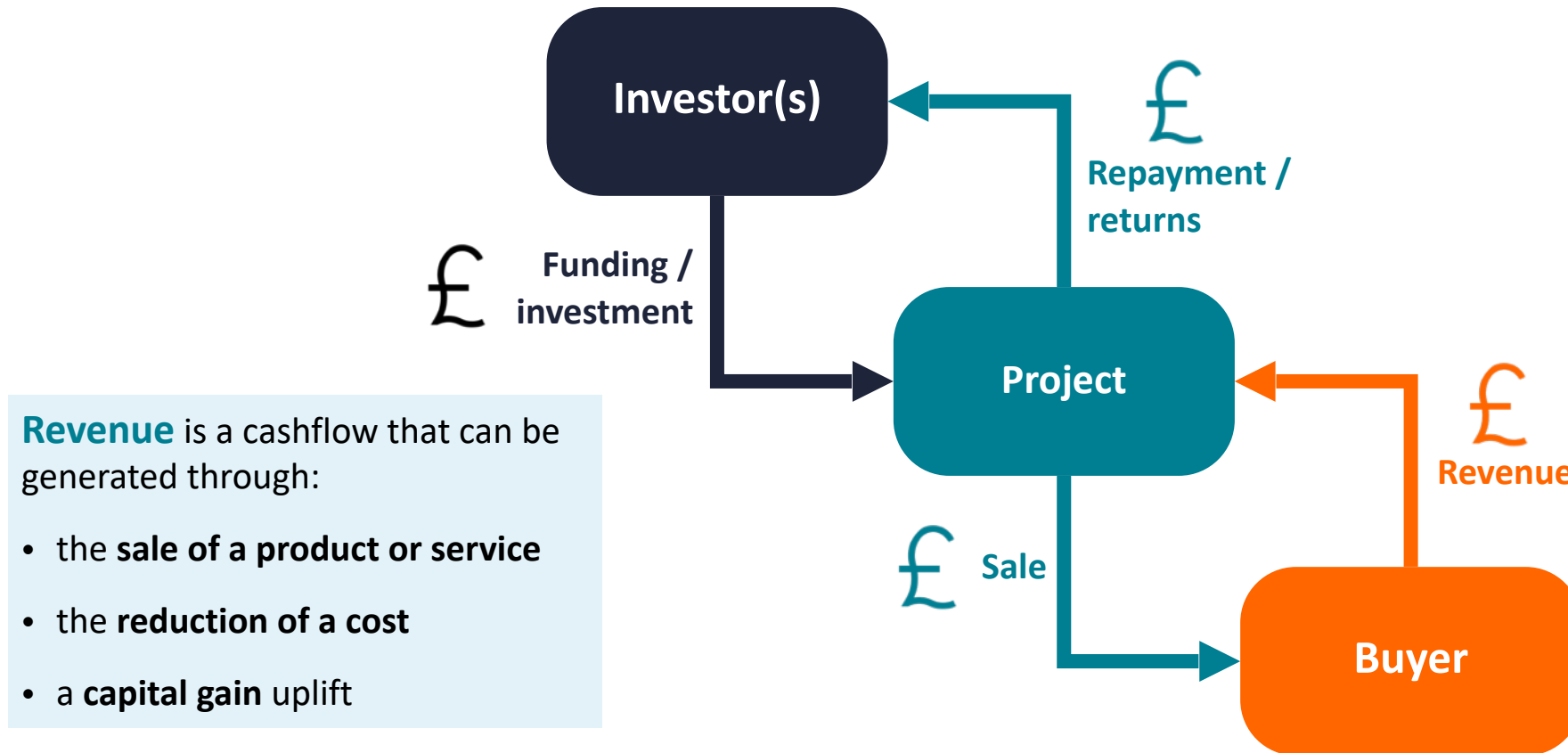
It is estimated that over £6 billion of annual investment is required over the next 10 years in order for the UK to deliver its nature-related commitments.<sup>[1]</sup>



Leveraging private investment is critical in addressing this funding gap.

The UK Government has set the target of stimulating at least **£500m of private investment per year** to into nature recovery projects.

# Revenue and Finance



**Revenue** is a cashflow that can be generated through:

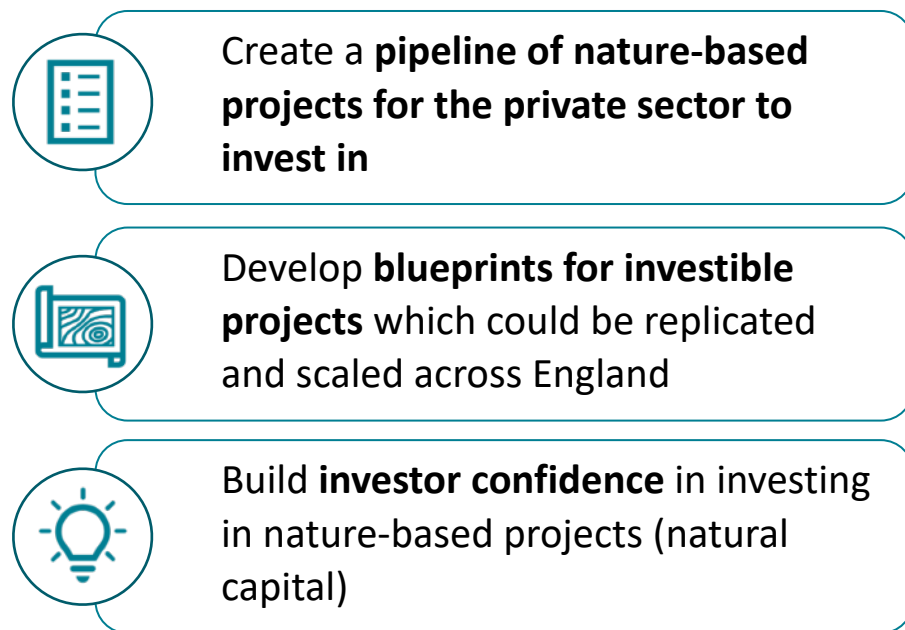
- the **sale of a product or service**
- the **reduction of a cost**
- a **capital gain uplift**

Only with revenue streams, financing becomes a viable funding source

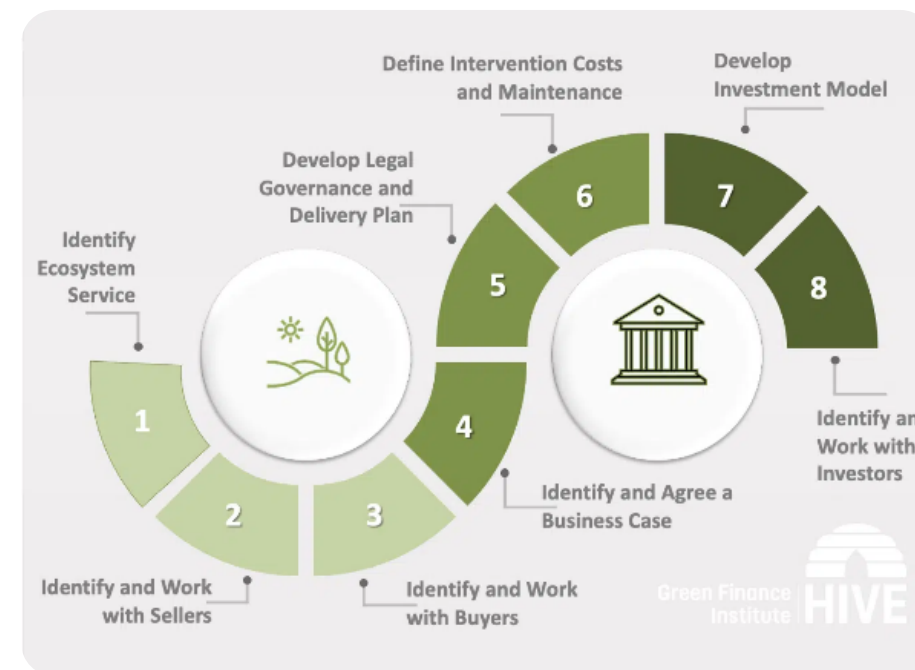
# Natural Environment Investment Readiness Fund

The Natural Environment Investment Readiness Fund (NEIRF) aims to increase the levels of private investment in the natural environment and reduce reliance on limited public and grant funding.

## Objectives of NEIRF



## The Steps to Investment Readiness<sup>[1]</sup>



[1] Green Finance Institute ([Link](#))

# Our NEIRF Project

## *Building a Blueprint for Scaling Conservation Finance for Urban River Restoration*

**Aim: Using the River Crane catchment as a case-study, develop a business case to demonstrate how private finance can be leveraged to support urban river restoration at catchment scale.**

*Photo credits: Steve Marshall*

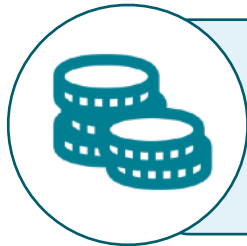


# Project Objectives

The project will seek to create a replicable model for scaling conservation finance for urban river restoration. This will be achieved through the following activities:



**Identify intervention opportunities, and develop income models for potential value generation** (September – December 22)



**Assess delivery and financing options** (December – March 23)



**Build investment case and learnings material** (April – July 23)

# Intervention Opportunities

The first phase of this project will focus on identifying and prioritising intervention opportunities which deliver monetisable ecosystem services. These may include:



Intervention	SuDS	Wetland creation	River restoration
<b>Ecosystem services delivered</b>	<ul style="list-style-type: none"> <li>- Flood risk reduction</li> <li>- Reduced flow to Mogden STW</li> <li>- Treatment of surface water runoff</li> </ul>	<ul style="list-style-type: none"> <li>- Biodiversity unit creation</li> <li>- Water quality benefits</li> <li>- Flood risk reduction</li> </ul>	<ul style="list-style-type: none"> <li>- Biodiversity unit creation</li> <li>- Fluvial flood risk reduction</li> <li>- Water quality benefits</li> </ul>
<b>Potential buyers of ecosystem services<sup>[1]</sup></b>	<ul style="list-style-type: none"> <li>- Thames Water</li> <li>- (Re)Insurers</li> <li>- Local authorities</li> <li>- Corporates</li> <li>- Highway Authorities</li> </ul>	<ul style="list-style-type: none"> <li>- Developers</li> <li>- Thames Water</li> <li>- (Re)Insurers</li> <li>- Corporates</li> </ul>	<ul style="list-style-type: none"> <li>- Developers</li> <li>- (Re)Insurers</li> <li>- Local authorities</li> <li>- Corporates</li> </ul>
<b>Alignment with SWC key themes</b>	<ul style="list-style-type: none"> <li>- Enhance flood resilience</li> <li>- Improve water quality</li> <li>- Enhance biodiversity</li> </ul>	<ul style="list-style-type: none"> <li>- Enhance flood resilience</li> <li>- Improve water quality</li> <li>- Enhance biodiversity</li> </ul>	<ul style="list-style-type: none"> <li>- Enhance flood resilience</li> <li>- Improve water quality</li> <li>- Enhance biodiversity</li> <li>- Improve geomorphology</li> </ul>

<sup>[1]</sup> These are illustrative examples only, and may not be representative in the context of this catchment

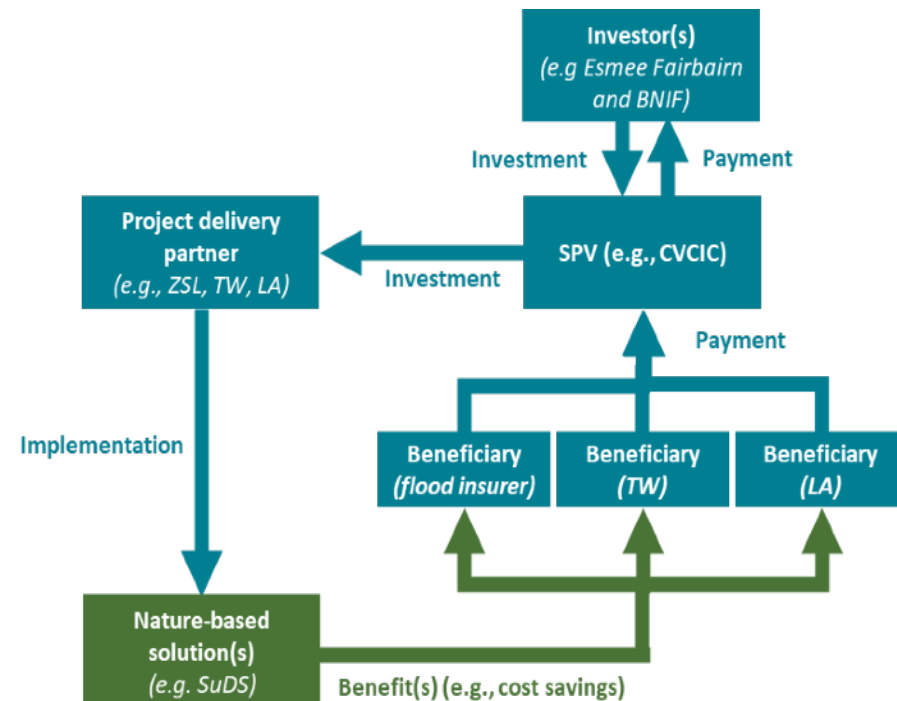
# Potential Financing Mechanism

There are an array of innovative financing mechanisms which could be used to attract repayable finance to support the deployment of interventions throughout the Crane catchment. One such mechanism is the Payment for Services model.

## Payment for Services mechanism

- **Investors provide upfront capital** to support the deployment of interventions. **Beneficiaries of interventions make fixed payments** based on services delivered. This revenue is used to support repayment of investment.
- Well suited to **multiple buyers**. This reduces the financial burden of funding interventions on any single actor.
- Provides an opportunity to **optimize existing SWC funding** and **catalyse further investment into the catchment**.
- **Benefit sharing mechanisms** could also be explored, with the SPV allocating these funds towards, for example, community activities.

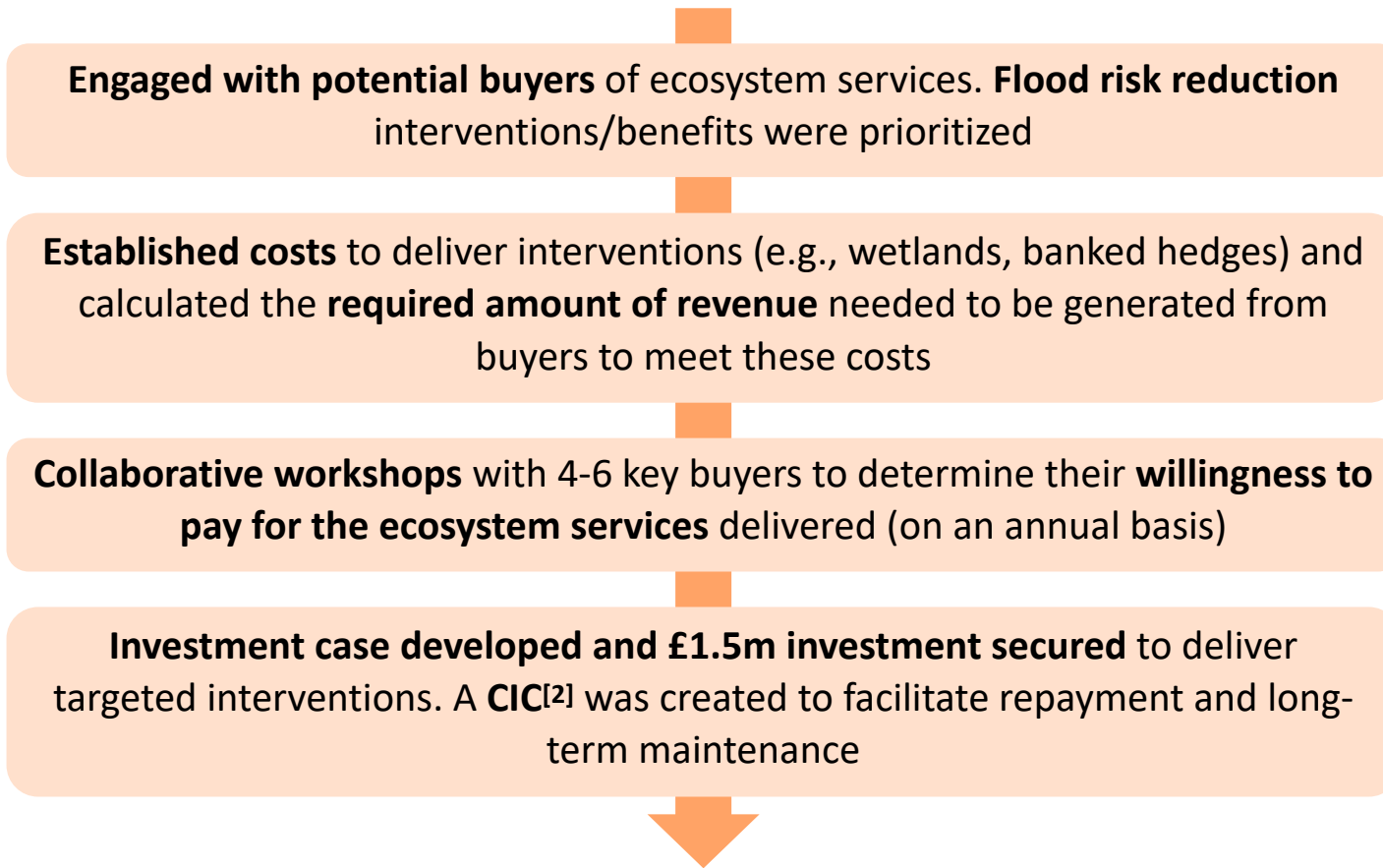
## Model illustration





# Case Study: River Wyre NFM

The Rivers Trust's Wyre Natural Flood Management project secured ~£1.5m in investment<sup>[1]</sup> to implement NFM measures which deliver environmental and social benefits across Lancashire.

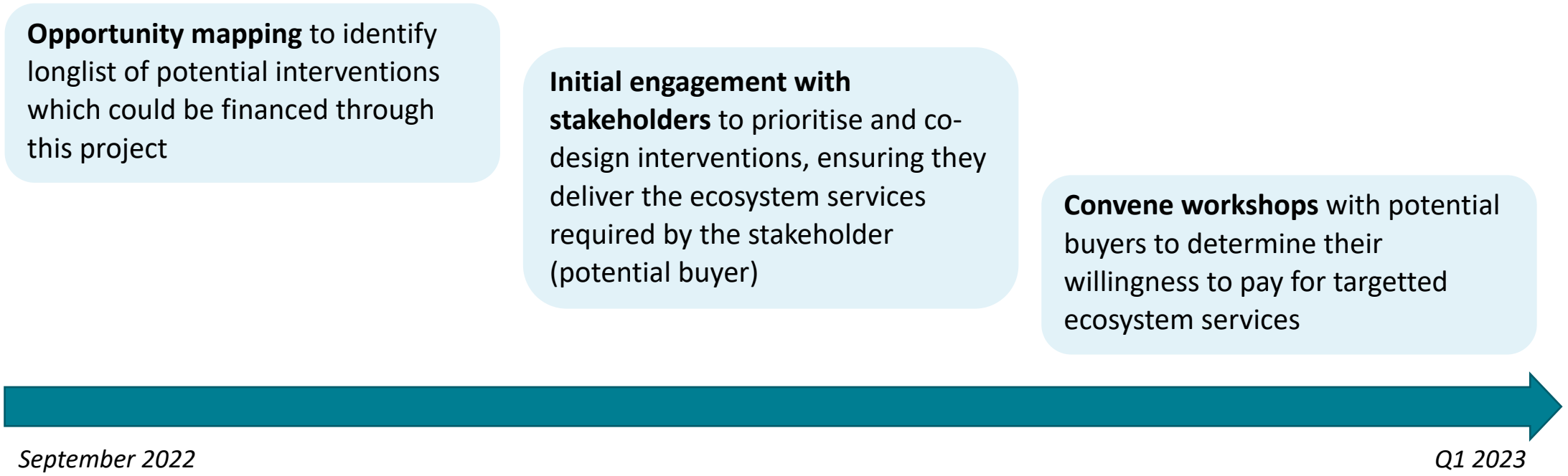


## Summary of buyers and rationale

- **Environment Agency and United Utilities:** Reduced risk of asset flooding
- **Insurers and local council:** cost avoidance model
- **Corporate:** CSR purposes (e.g., water stewardship strategy)

# Next Steps

We will shortly begin to undertake targeted engagements with key stakeholders active in the Crane catchment. Through these engagements we hope to identify and prioritise the interventions which we will develop our investment case around.



In the meantime, we would welcome any information on relevant proposed interventions in the catchment which have yet to receive funding

Thank you





**Enabling investment  
into conservation, climate  
and communities.**

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# Water Company Funding

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# Water company funding challenges and opportunities

**Helena Soteriou**

Catchment Initiatives Programme Manager

18<sup>th</sup> October 2022



# Agenda

1. Our regulatory framework and an overview of the Price Review (PR24) process
2. How do we invest in improving and enhancing the environment?
3. Reflections & breakout discussion



# Our regulators and the Price Review 2024 (PR24) process



# Our regulators

Ofwat is not our only regulator.

## Environment Agency

Responsible for:

- Regulating waste
- Water quality and resources
- Inland rivers, estuaries and harbours
- Conservation and ecology
- Managing the risk of flooding

## Natural England

## Drinking Water Inspectorate

Provides independent reassurance that public water supplies are safe, and drinking quality is acceptable to consumers.

## Health & Safety Executive

Regulates and enforces health and safety legislation.

## Consumer Council for Water

Provides advice and represents consumers on water matters. Investigates and handles complaints.

## Ofwat

The economic regulator of the water sector in England and Wales

## Competition & Markets Authority

The appeal body for water companies. Regulates and enforces competition laws

# Ofwat's duties

Ofwat has to balance its duties

## Ofwat's main duties:

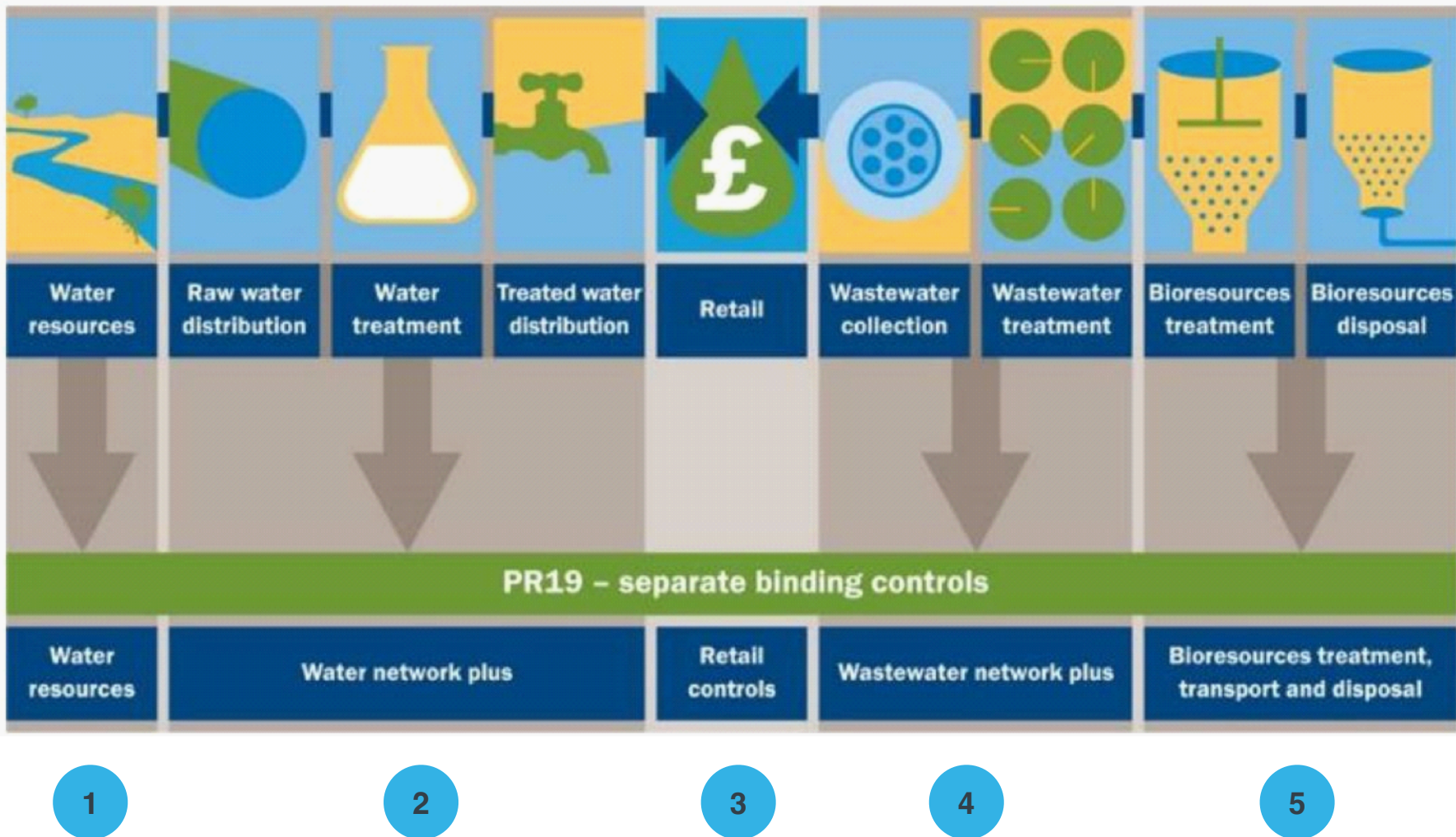
- **protect the interests of consumers**, wherever appropriate by **promoting effective competition**
- secure that water companies properly carry out their licensed activities and statutory functions
- **secure that water companies can finance** the proper carrying out of their statutory functions
- secure the **long-term resilience** of water companies' water supply and wastewater systems; and to secure that they take steps to enable them, **in the long term, to meet the need for water supplies and wastewater services.**

## Key secondary duties:

- promote economy and efficiency by water companies in their work
- secure that no undue preference or discrimination is shown by water companies
- secure that consumers' interests are protected where water companies sell land
- ensure that consumers' interests are protected in relation to any unregulated activities of water companies
- contribute to the achievement of sustainable development.

# Our price controls

We face five separate price controls



# Price control building blocks

Ofwat use four core building blocks to control and influence what we do.

## Outcomes

- What the company needs to deliver
- What customers want vs. outputs

## Allowed Expenditure

- What the efficient company needs to spend (Opex + Capex = Totex)
- Enhancement spend

## Incentives

- The consequences of over/under delivery
- Performance commitments

## Allowed Revenue

- The revenue an efficient company can earn
- Note: the revenue is translated into prices, based on assumptions about usage

# What customers, communities and stakeholders want

The current view of what customers, communities and stakeholders want can be broken down into 15 Wants.

Service that **'just works'** today and in the future...

provided in an **environmentally responsible** way...

by a company that always has **good customer service**...

which gives something back to the **society and**...

Water	Wastewater	Customer	
<p>WT1. I want a constant supply of safe, high-quality water at good pressure</p> <p>WT2. I want you to fix leaks to reduce wasting drinking water</p> <p>WT3. I want you to be self-sufficient and ensure a reliable supply of water into the future</p>	<p>WS1. I want a reliable sewerage system that works 24/7</p> <p>WS2. I want you to prevent sewer flooding into my property</p> <p>WS3. I want a reliable and sustainable wastewater service in the future</p>	<p>CS1. I want fair, affordable and accurate bills</p> <p>CS2. I want ease of contact and quick resolution of my issue</p> <p>CS3. I want you to treat me as an individual through a personalised service</p>	
Environment			
<p>ENV1. I want you to reduce the strain on the environment and restore natural habitats</p>	<p>ENV2. I want you to stop polluting rivers and to improve their quality</p>	<p>ENV3. I want you to reduce emissions and reach net zero</p>	
Community			
<p>CI1. I want you to give something back to the community</p> <p>CI2. I want you to be responsible and transparent</p> <p>CI3. I want you to minimise the impact of your operations</p>			

# The strategic context

The PR24 process needs to grapple with some complex issues

## Climate change and population growth

Unless we act now, by 2050 our water supply is likely to fall short by 30%.

## Public attitudes are on the move

We expect a large shift in public attitudes around the value of investing to prevent water scarcity and avoid environmental pollution (river health in particular).

## Increased flooding risks

Climate change will also exacerbate the impact of storms on our wastewater systems, with deluges projected to be 15% more intense by 2050.

## Affordability concerns are growing

The rising cost of living and the impact of the pandemic are increasing concerns about the size of water bills. These concerns are reinforced by the regressive structure of charges.

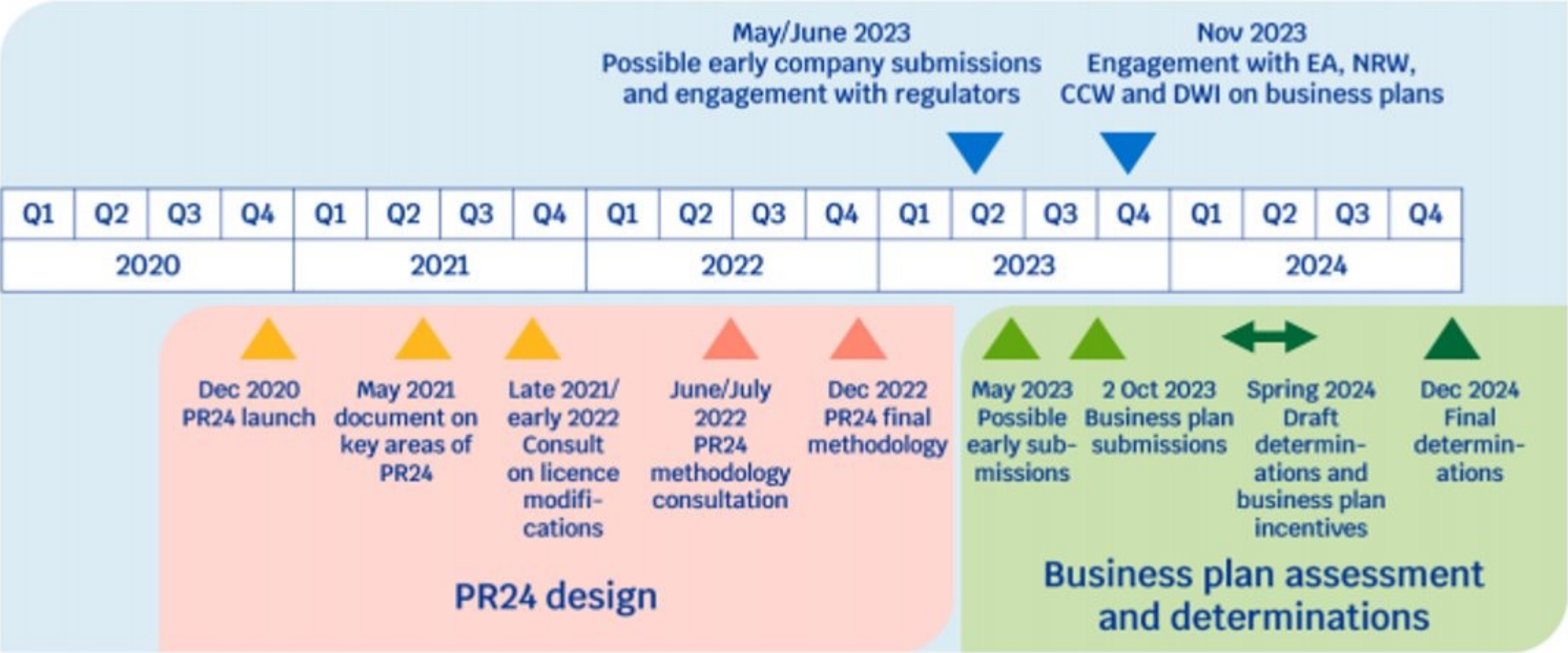
# Ofwat's PR24 ambitions

Key challenges and ambitions for water companies in Draft Methodology July 2022



# Ofwat's timetable

Ofwat have set out their process and timetable for PR24

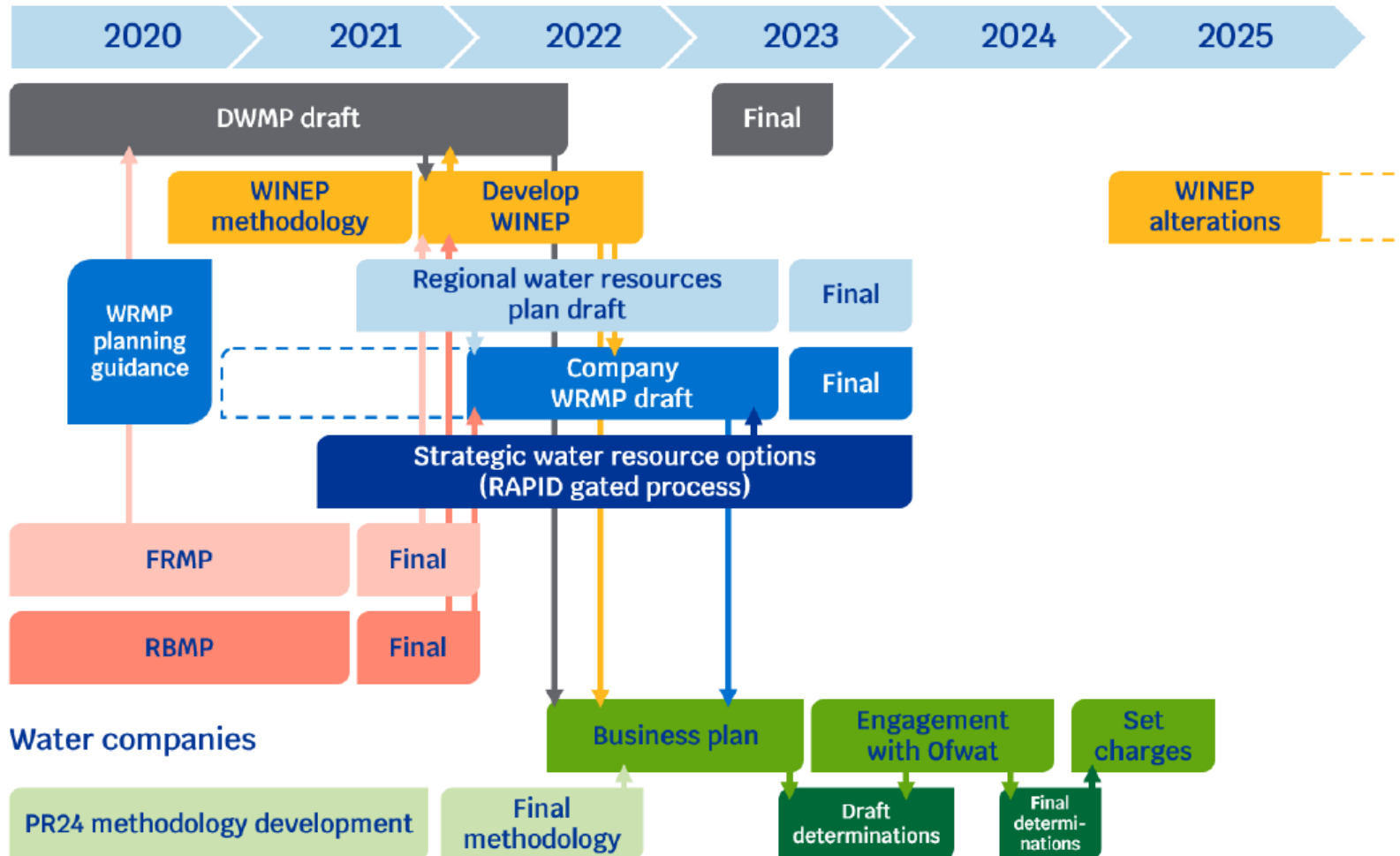


Source: Ofwat



# Parallel planning processes

Regrettably, the PR24 process sits alongside many other planning frameworks



- DWMP: Drainage and Wastewater Management Plan
- WINEP: Water industry National Environment Plan
- WRMP: Water Resource Management Plan
- RAPID: Regulators' Alliance for Progressing Infrastructure Development
- FRMP: Flood Risk Management Plan
- RBMP: River Basin Management Plan

Source: Ofwat

# Our approach

We are developing our PR24 plan iteratively, informed by engagement



**Bronze**

November  
2021

**Aim**

Gather together what we know and identify gaps

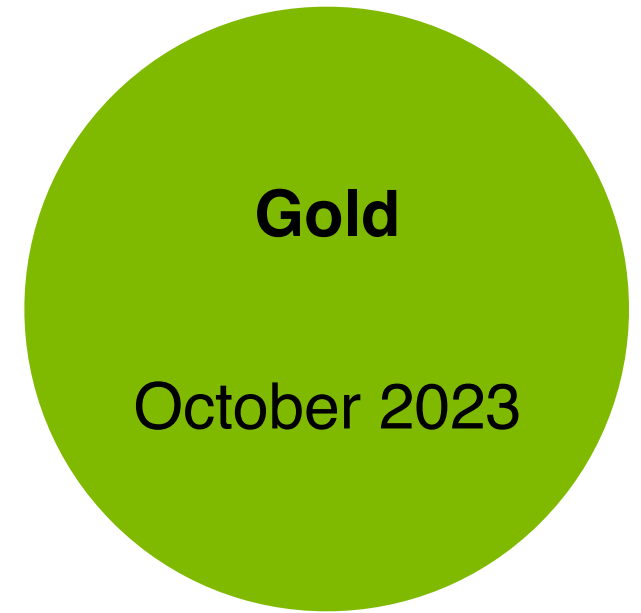


**Silver**

December  
2022

**Aim**

A full “dress rehearsal” for the final submission



**Gold**

October 2023

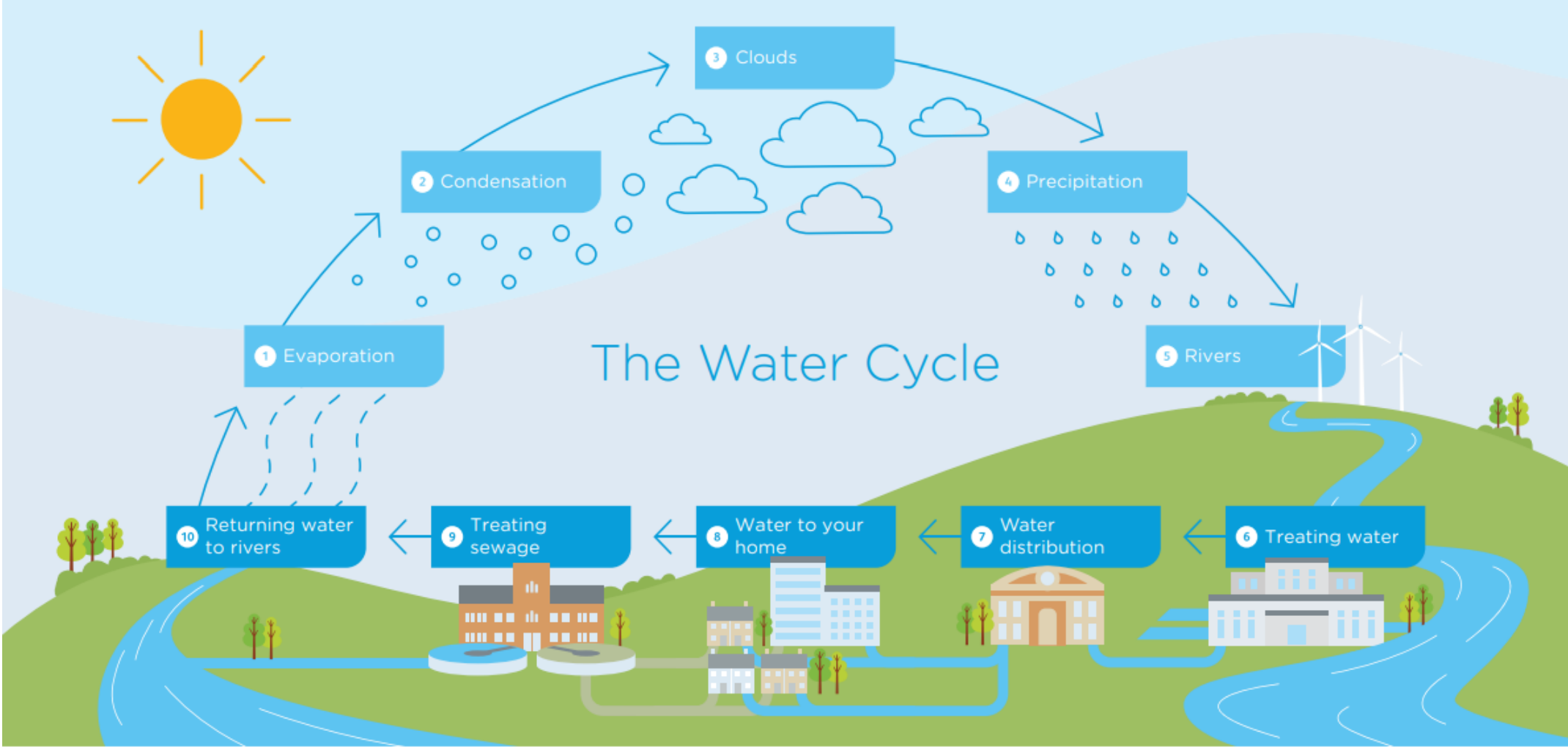
**Aim**

The version we submit to Ofwat

# Reflections & Questions

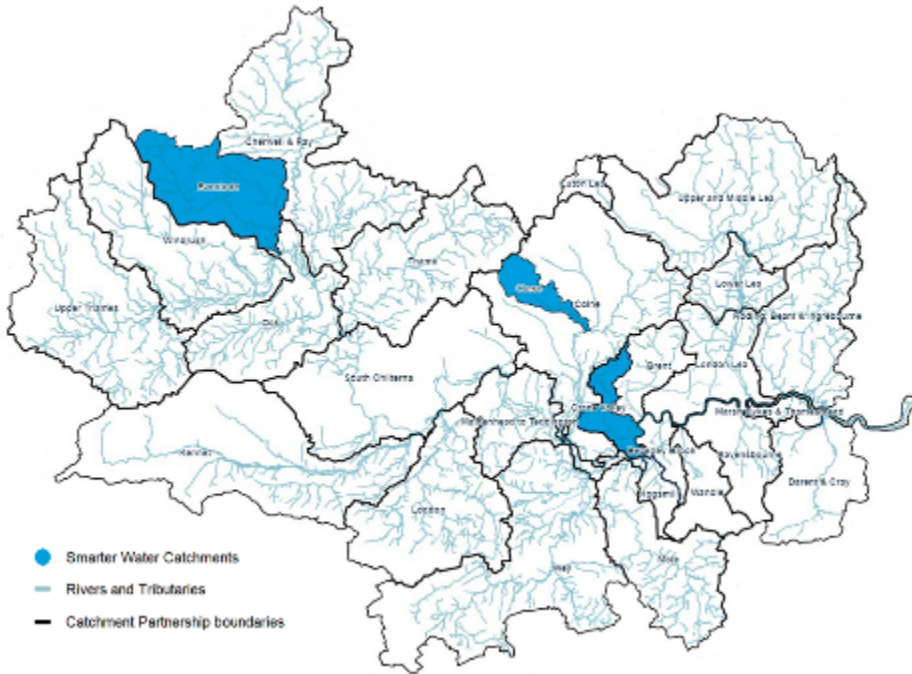
How do we invest in the environment?

# Investing in the environment



# Smarter Water Catchments – enhancement case in AMP7

Trial a suitable future model for looking at the environment as a system and working in closer partnerships to co-create & co-deliver innovative solutions to our greatest challenges



Of the 27 Catchment Partnerships in the Thames region, we are investing £9m in 3 of them to demonstrate the approach

- Develop deeper understanding of the challenges
- Determine requirements on how to overcome them
- Explore co-funding opportunities
- Set a precedent for future ways of working across the water industry
- Inform future investment decisions

We have demonstrated the successes of this approach and are looking at expanding it across our Thames region from 2025. However we will need to consider how this gets funded through the Price Review process.

# Other enhancement cases

What is the **WINEP** and what are our obligations?

Starts with the Water Industry Strategic Environmental Requirements (WISER)

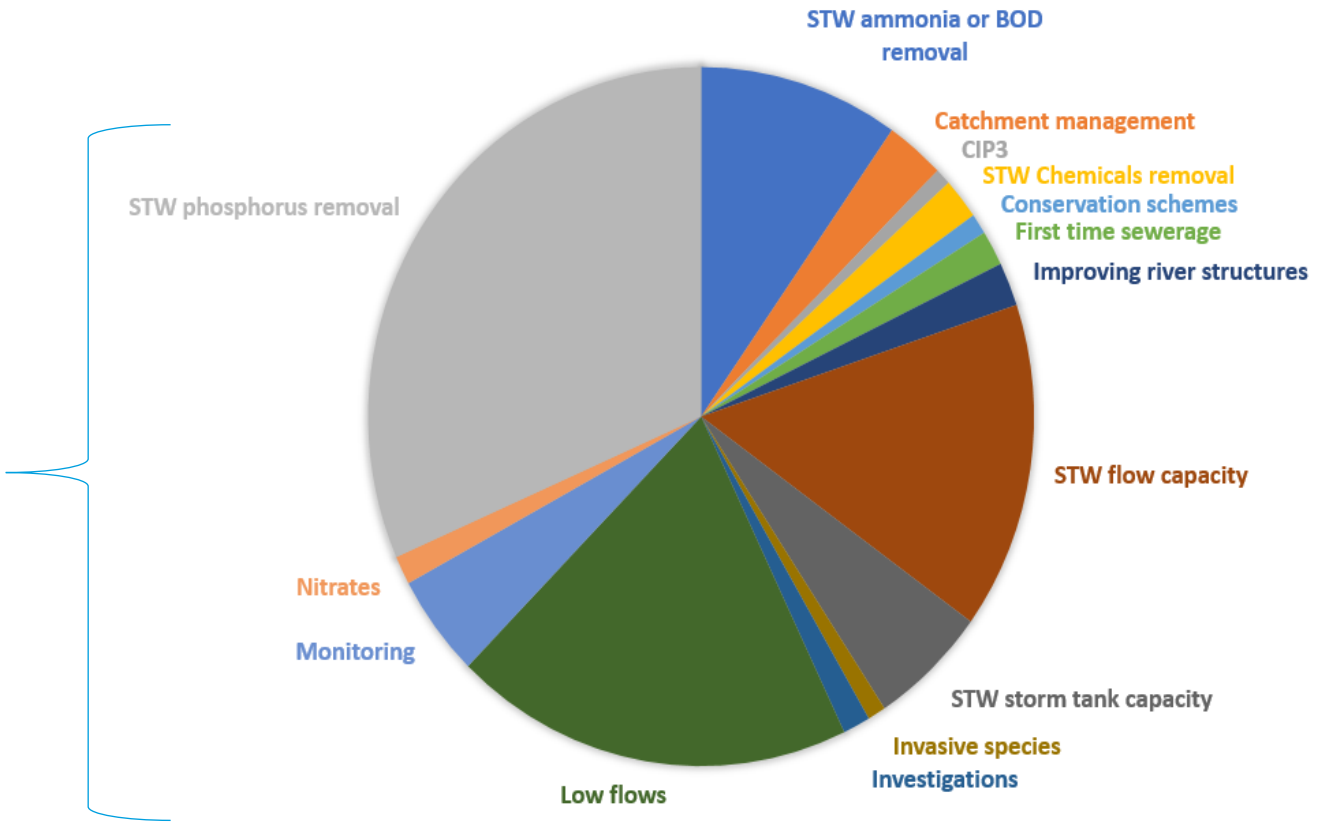
- Authored by EA and NE
- Sets out the law and the regulators' expectations and divides into three levels of obligation:
  - Statutory
  - Statutory plus
  - Best practice
- Three themes
  - Protection and enhancement
  - Resilience
  - Excellent performance
- Covers many types of law / areas of the environment
- Turned into WINEP drivers
  - Guidance for each driver provided



# What does our current WINEP (2020- 2025) consist of?

Includes 834 actions, covering both water and wastewater activities

In PR19 the cost of the WINEP for the industry was £4.2 billion and £474 million for Thames Water



An initial view of our 2025 - 2030 WINEP would be 4 times this

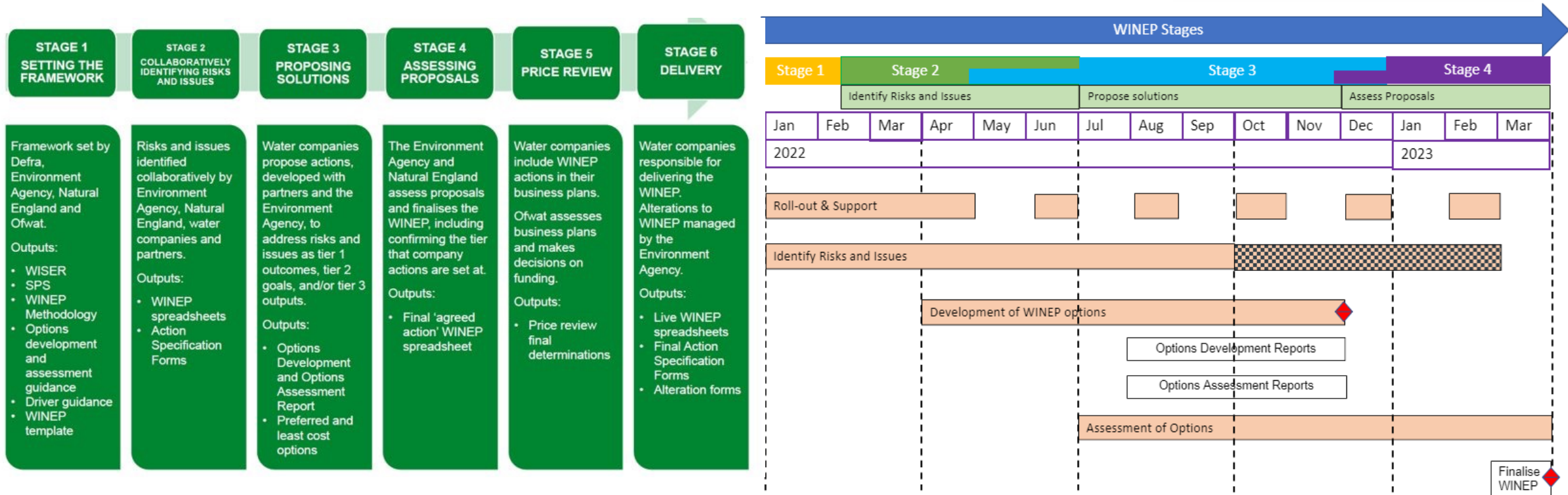


# What has changed for PR24?

New Water Industry National Environment Programme (WINEP) guidance has some fundamental changes

Element	Price Review 2019	Price Review 2024
Time horizon	Short-term 5 years	Longer-term 10 years
Focus	Outputs	Outcome (3-tier approach with line of sight to environmental goals)
Actions	Asset-level	Increased catchment-level (innovative catchment & nature-based opportunities)
Obligations	Statutory	Statutory, plus wider environmental benefits
Owners	Environment Agency	Collaboration between regulators and water company
Developers	Regulators and water companies	Wider co-design and co-funding (20% target for non-statutory)

# PR24 WINEP stages



Deliver Stage 3 (options development) by the end of November 2022, however delays in issuing driver guidance from the EA has meant that some measures have an extended deadline.

# Aligning to PR24 WINEP Drivers

## Main drivers

Water Framework Directive (surface water)
Local WFD (water company going beyond cost beneficial)
Environmental Permitting Regulations
Shellfish Waters
Bathing Waters
Eels
WFD Groundwater
<b>Urban Wastewater Treatment Regulations</b>
NERC Biodiversity Priority
Drinking Water Protected Areas
Habitats Directive
SSSI
Invasive species (INNS)
Marine Conservation Zone
Local Driver



Typically in three/four varieties

- Investigations
- Monitoring
- No deterioration
- Improvements

## Sub divisions (examples)

U_IMP1	PE threshold P reduction schemes
U_IMP2	New designation PE threshold P reduction schemes
U_IMP3	New designation PE threshold nitrate reduction schemes
U_IMP4	Spill frequency reduction scheme.
U_IMP5	FFT must be increased to 3PG + IMAX + 3E
U_IMP6	Storm tank capacity must be increased to 68 litres/head or to 2 hours at max flow through the tanks.
U_INV	Spill frequency reduction investigation (SOAF)
U_INV2	FFT flow meter investigations
U_MON 1	New EDMs for high significance overflows
U_MON 2	New EDMs for other overflows
U_MON 3	EDMs for inlets to storm tanks
U_MON 4	FFT flow monitoring
U_MON 5	First time final effluent flow monitoring

# Reflections & Questions

# Breakout Groups

1. With regards to the WINEP drivers, what are your key risks and issues in the Crane Valley?
2. What do you think might be missing from this list?
3. Are you aware of any co-funding opportunities in this catchment?





# Workshop Summary Session



# Conference Summary Session

John Waxman and Richard Aylard





Thank you for coming  
The bar (upstairs) is now open!

