Oxford to Cambridge
Integrated Water Management Framework

Rethinking water planning

Environment Agency

Introduction

The Oxford to Cambridge Growth Corridor was promoted by the Chancellor in 2025 as an area that offers huge potential for our nation's growth prospect. It could add up to £78 billion to the UK economy by 2035.

The challenge

This area is one of the most seriously **water stressed** places in the country. How do we ensure that the environment is seen as an opportunity to enabling sustainable growth?

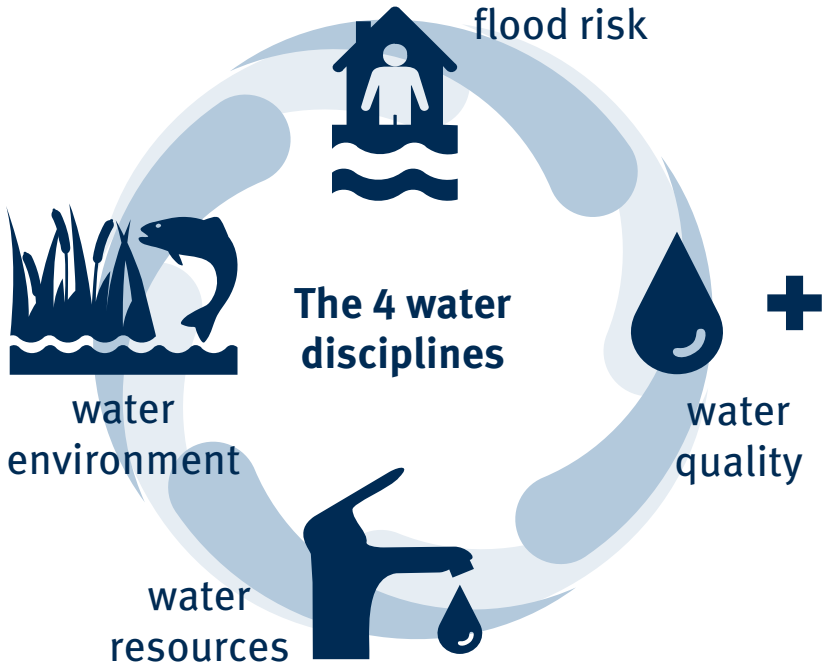
Our project ambition

To demonstrate the value of a coordinated approach to statutory water planning across two or more of the water disciplines through development and test and trial of approaches in a place.

Defining the project

Context

Current approaches to statutory water planning for each water discipline, or sub-system, as shown in the diagram, identify and select investments/interventions largely in isolation. This way of working inhibits the realisation of efficiencies and opportunities to deliver more for the water environment. The established approach doesn't allow for the whole value of each proposed intervention to be recognised during the selection process.

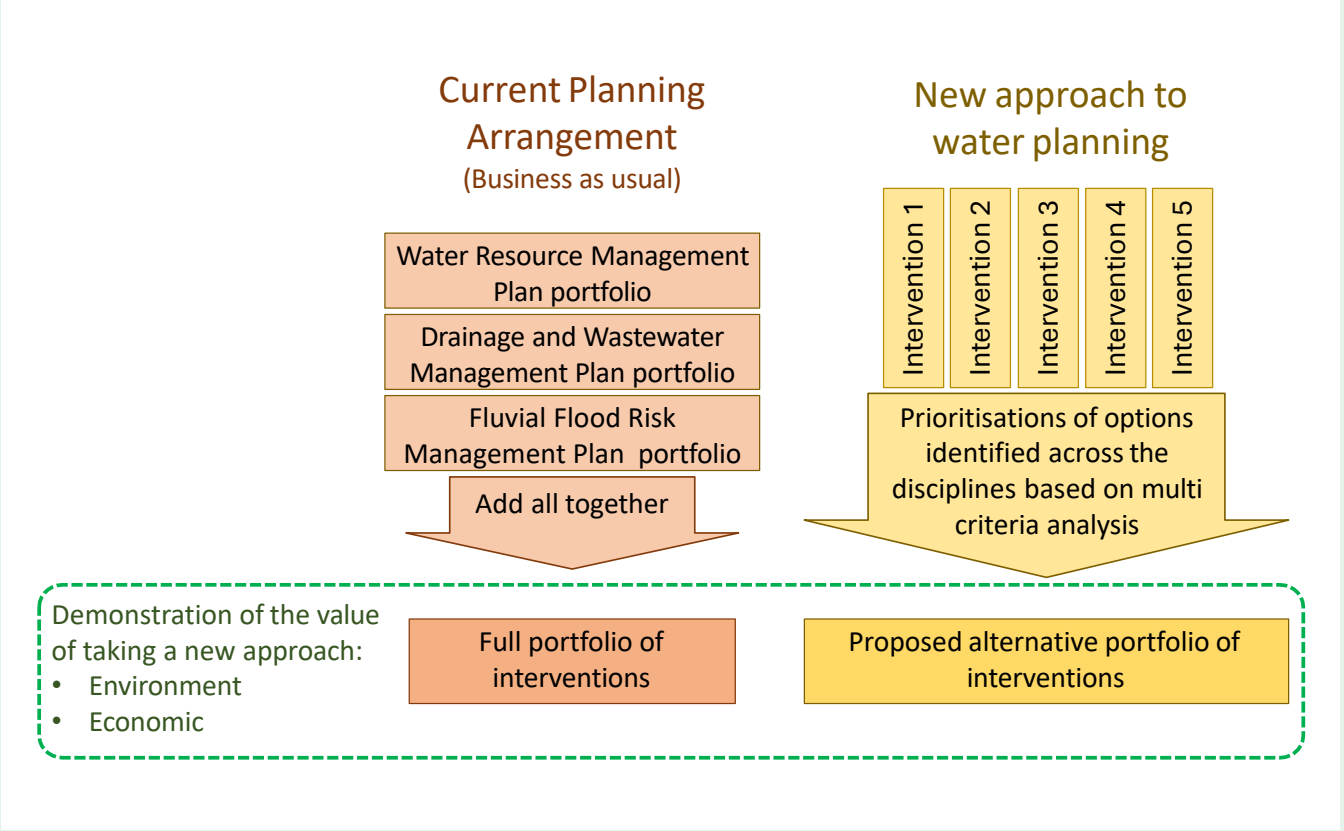


Objectives

- To demonstrate the value of a coordinated approach to statutory water planning across disciplines through test and trial application in a place using existing, actual plans.
- To build on the theoretical value of considering multiple benefits when deciding on investment/interventions.
- To build evidence that could be used as part of a business case for change to inform future ways of working, changing the way investment decisions are currently identified, prioritised, and delivered.
- To demonstrate the benefits of greater coordination by bringing together intervention selection for 2 or more of the water disciplines (the 4 water disciplines or sub systems for this project are: water quality, water resources, flood risk and water environment).

What we aimed to achieve

- A number of approaches, designed in detail, that could be used to bring together investment planning processes across the 4 water disciplines, allowing statutory water plans to be better aligned and to work more effectively together.
- Qualitative and quantitative evidence of the value of the proposed approaches through place-based application (specific, real, tangible examples) applying/ demonstrating the theoretical outcomes of Phase 1 in practice through case studies either wholly, or partially within the Oxford to Cambridge area.
- An appraisal of the effectiveness of these designed approaches against current, established ways of working (business as usual (BAU)).
- Comparison of the proposed portfolios against each other and current ways of working (BAU).
- We aimed for the evidence produced in this project to be used by the Environment Agency, Defra and water company staff as an example of how statutory water planning could be transformed. The approaches were not expected to be perfect; however, we hoped for elements of them to be considered for further development.
- Build an evidence base to demonstrate a change in approach, allowing the Environment Agency to inform future ways of working, to ultimately support achievement of our environmental ambitions and 25 Year Environment Plan (YEP) goals.



Rethinking water planning

Statutory Water Planning

River Basin Management Plans (RBMP)

Responsible authority: Environment Agency and Catchment Based Approach

Water Resource Management Plans (WRMP)

Owned by: water company

Flood Risk Management Plans (FRMP)

Owned by: Regional Flood and Coastal Communities and Environment Agency

Flood Risk Management Plans (FRMP)

Owned by: Regional Flood and Coastal Communities and Environment Agency

Drainage and Wastewater Management Plans (DWMP)

Owned by: water company

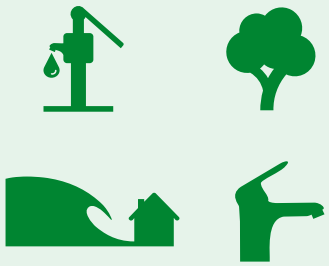
Can we plan water interventions across statutory plans differently?

Business as usual (BAU)

- Identify and define the needs of each of the statutory water plans
- Individual portfolios of preferred intervention options

New/alternative approach

- Integrated working and options selection
- Combined portfolio of preferred options
- Split back out for delivery of the preferred options through existing delivery mechanisms



Project background, purpose, approach and conclusions

Techniques applied in the trials

Integrated Modelling summary

Participatory Systems Mapping

Trialling ways to achieve the ambition

Approach 1

Systems Approach to Integrated Water Management (SIWM)

We tested integrated modelling to see if it could support intervention selection. We found:

- it uses and provides numerical values to provide context
- it can consider the in-combination effects of multiple options
- it can highlight potential benefits and disbenefits that may not otherwise be considered
- the results can be presented via tables and/or visually through maps to aid understanding

Approach 2

Options-Based Catchment Reconciliation

Integrated planning is based on creating synergies between strategic plans to allow for efficient overall improvements in positive environmental outcomes.

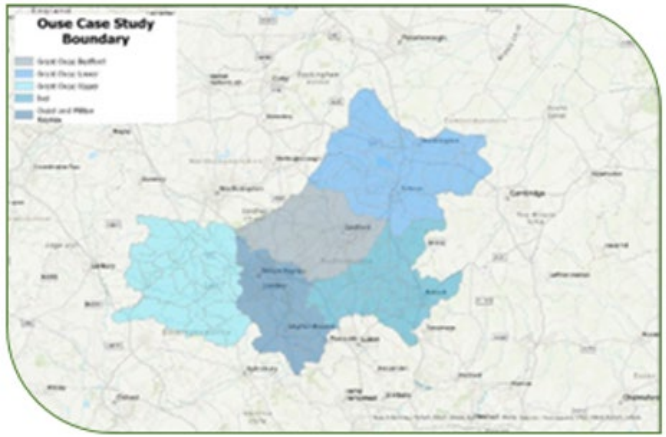
This approach provides an alternative to integrated modelling, offering a comparison through a structured, weighted assessment, based on professional expert judgement.

Approach 1: Systems Approach to Integrated Water Management (SIWM)

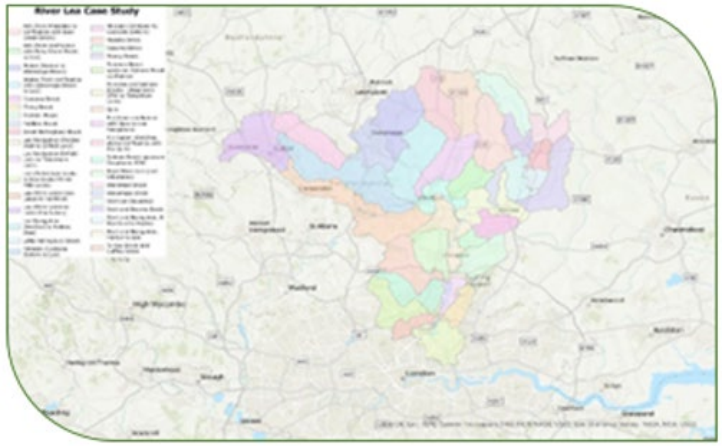
Approach 2: Options-Based Catchment Reconciliation

Approach 1

River Great Ouse catchment

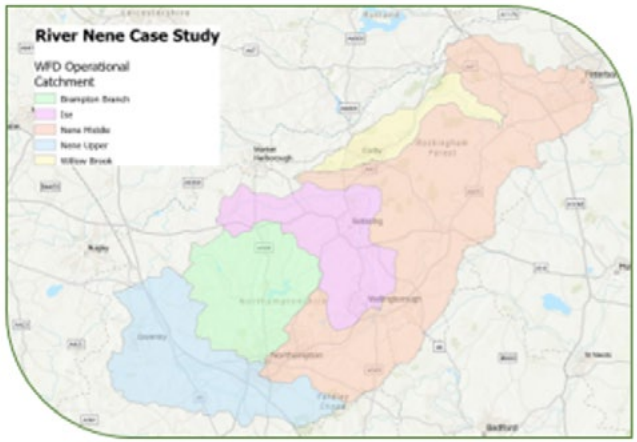


River Lea Catchment



Approach 2

River Nene



Application of these approaches

These approaches have been designed to be carried out before, or as part of, the development of a major new strategic plan. To effectively integrate the different water disciplines this 'live' approach would need to be run at regular intervals and considered each time one of the following 'core plans' is reviewed and updated. The ideal scenario would be leadership of the approach through a centrally funded integrated planning office, servicing all key stakeholders. However, in lieu of this it is expected that the lead organisation would differ based on the location, scale, interest, where stakeholders are in their planning cycle, and available resources. These approaches rely on using waterbodies as the base geographical unit, river basins or large sub-catchments are therefore the ideal geographical boundary to work with. An additional benefit of working at a river basin scale is that the Environment Agency develops its River Basin Management Plans (RBMPs) and Flood Risk Management Plans (FRMPs) at this scale.

Project conclusions

Building on Phase 1, this project has tested/trialled through 3 catchment case studies two ways of taking an integrated approach to water management to deliver environmental objectives and improve wider environmental and social outcomes. The comparison of these approaches and their results has demonstrated the value of:

1. **Taking a systems approach**

2. **The benefit from stakeholder engagement**

3. **The potential of integrated modelling to add significant value as a means to enable/support the co-creation of portfolios of options that address multiple benefits (across the water system).**

The parallel nature and timing of the project, prevented precise strategies and costed portfolios being specified for each case study, yet demonstrated the value of more effective collaboration/coordination across all decision-makers and an integrated portfolios of options.

Approach 1

Approach 1 illustrated that given sufficient time, resource, and adequate stakeholder support, a systems modelling led approach to intervention selection is possible, leading to beneficial systems-wide outcomes. However, the complexity of the system, minimum data and cost requirements, and time/resource required to run enough iterations to validate results mean that to carry out this approach as part of a statutory process would require significant investment. This would hopefully be repaid by a better portfolio of interventions in the medium term.

Approach 2

Approach 2 provides a quick and simple way of conceptualising the benefits, disbenefits, and trade-offs of a variety of intervention portfolios. It would provide a good starting point to aid discussions about the types of interventions stakeholders would like to implement in waterbodies, and to agree an aligned target. However, due to the low-resolution scoring, lack of options scaling, and lack of certainty about meeting waterbody needs, this approach is best suited as an engagement tool, rather than being used to direct catchment planning.