Local Resource Option Screening Studies

Slide pack to introduce method, procurement and timelines to potential Suppliers

July 2025 – This presentation was originally given to suppliers in advance of Round 1 of the LRO studies. This has been updated with tweaks to the method but not re-presented.

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Agenda

- Introduction to team
- Programme context
- Introduction to LROs
- Detailed methodology
- Procurement process
- Timelines
- Any questions?

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Introduction – Water Resources Resilience - Agriculture

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Programme context

- Government aims to increase food security
  - Local water resources studies
  - Improve resilience

- At the "Farm to Fork Food Summit" held in May 2023, the Prime Minister's announcements included commitments to:
  - *support farmer-led groups to identify local water resource schemes, building on the success of projects like Felixstowe Hydrocycle. These have since been referred to as Local Resource Options (LROs).*

- Funding streams:
  - Defra
  - MHCLG

Department for Environment Food & Rural Affairs

Ministry of Housing, Communities & Local Government

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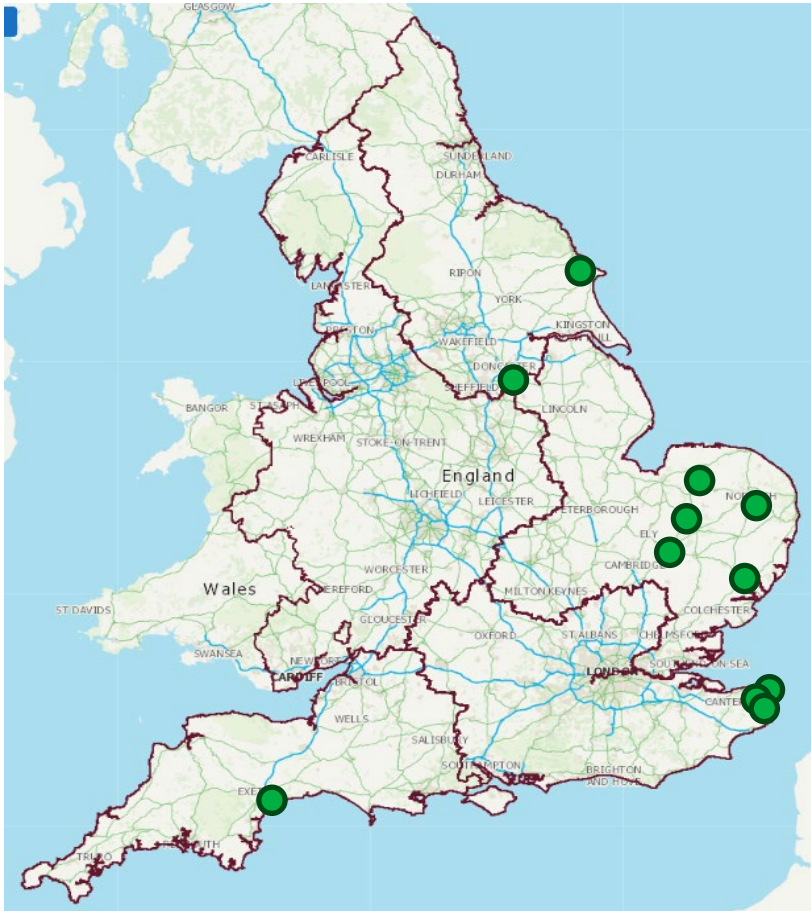
Programme context

- Methodology developed and refined based on 19 projects in 2024-25
- Open applications for groups of farms closed on 20th July
- 11 projects - currently
- The following slides will provide you with an understanding of the tasks, methodology, input data and level of resourcing required



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What is a Local Resource Option?

"A water resources solution that improves resilience or supply of water for a small group of abstractors in their area. Owned, operated and/or controlled by those abstractors."

What types of LROs are there?

- Farm storage reservoirs (new, resizing and/or change to multi-season operation)
- Water rights trading
- Water efficiency tools
- Water sharing (e.g. the Lincoln Water Transfer)
- Demand management and leakage reduction

- Abstraction and storage of high flow water (floodwater)
- Improved connectivity between existing sources
- Water recycling (waste water reuse)
- Land drainage water use (e.g. the Felixstowe Hydrocycle)
- Managed aquifer recharge
- Rainwater harvesting

Or any combination of the above!

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What is a Screening Study?

A desktop study which examines the possible options by applying different criteria to find the best solutions for the farming group location and activities

Input →

- Hydrogeological data
- Hydrometric data
- Agricultural demand
- Catchment review
- Current supply
- Future look
- Climate change
- Potential solutions
- Farmers' views

Process →

- Eliminate non-starters
- Assess remaining list of options wrt to Location
- Screen
- Rank

Output

- Top options
- Cost estimate
- Yield estimate
- Reliability assessment
- Pathway for implementation
- Barrier identification

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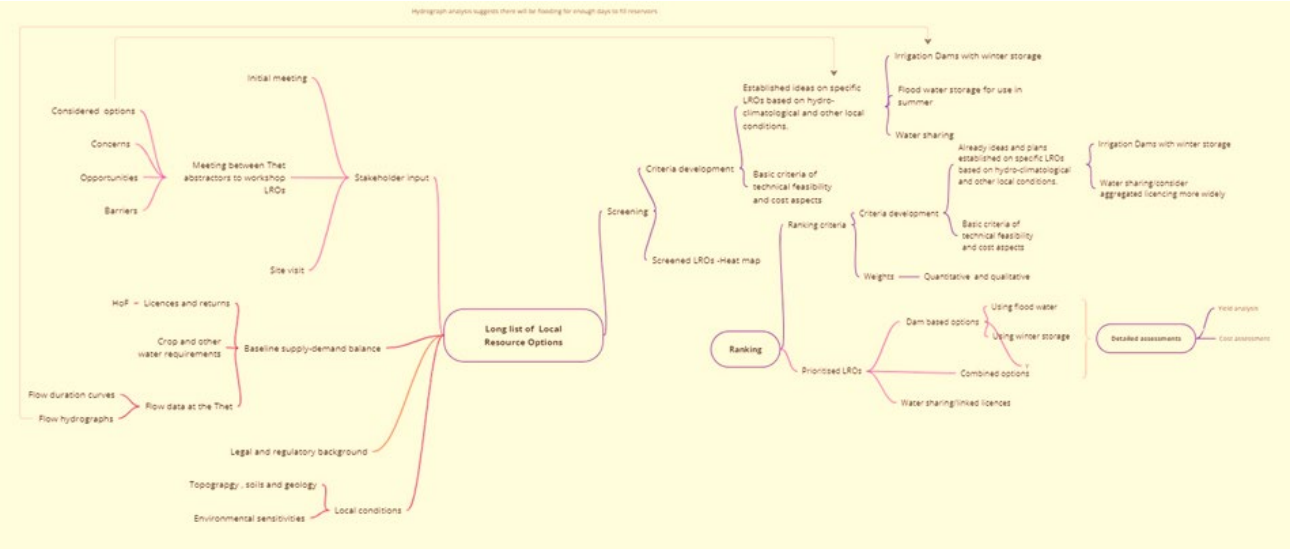
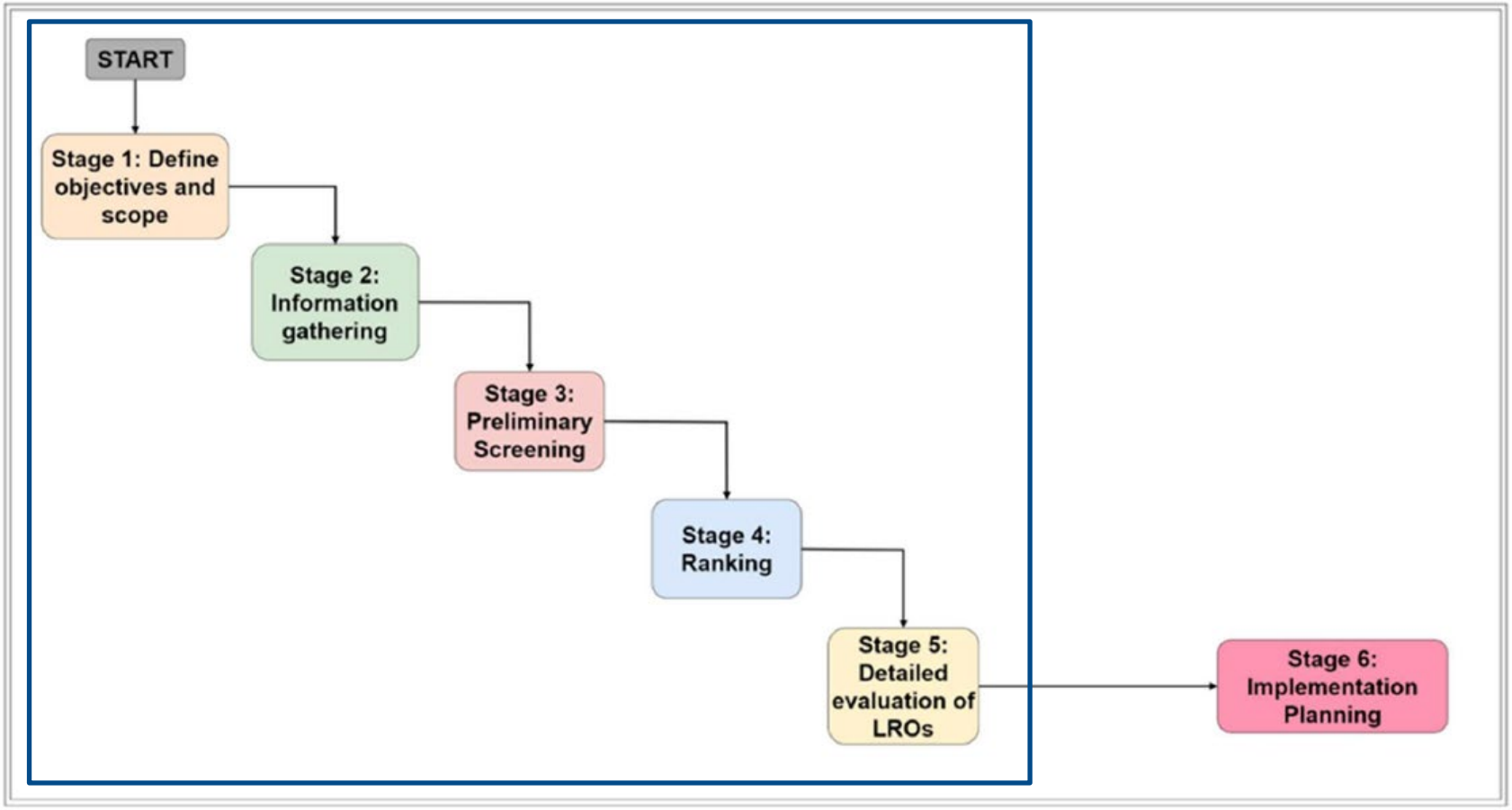
How was the method created?

- Pilot Project in the Thet
- East Anglian – chalk stream
- 2 arable farms, with spray irrigation growing root veg and barley
- Currently using a mix of surface and groundwater for direct spray irrigation

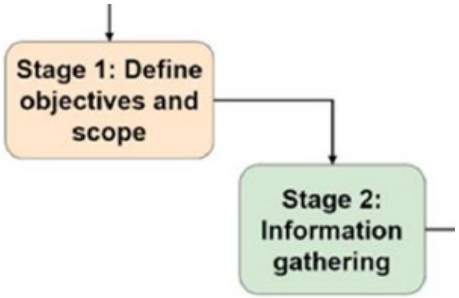
- Expect sustainability reductions to their licences
- JBA brainstormed how to answer the question, creating the screening and ranking process…

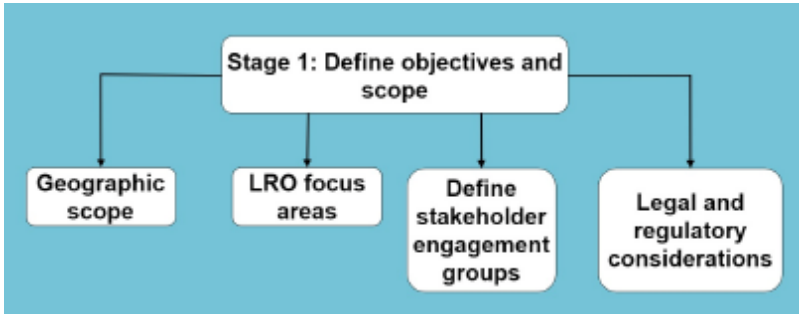


Detailed Methodology - Process

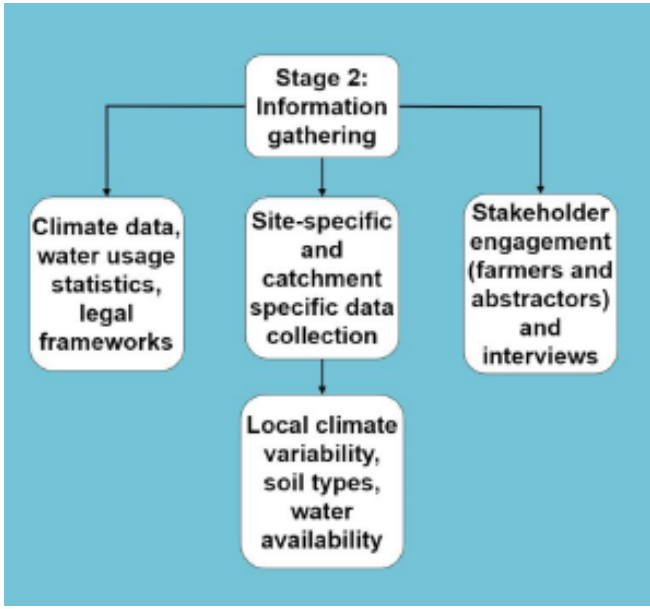


Methodology - Data





Topic	Details	References
Site specific information		
Area		
Climate	Eastern England: climate - Much of eastern England receives less than 700 mm per year and includes some of the driest areas in the country.England and Wales the wettest places are in the Lake District, receiving an average of over 3000 mm of rain	Met Office Climate PDF's https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/weather/regional-climates/eastern-england_-climate-met-office.pdf
Topography	The overall area is low-lying, varying from around 38-12mAOD. The River flows in a south-westerly direction through the study catchment, cutting a central valley through the area.	Environment Agency LiDAR (2022) https://nrfa.ceh.ac.uk/data/search
Soils	Soils within the area are generally comprised of shallow lime-rich soils over chalk or limestone and freely draining sandy Breckland soils. In the River valley bottom, there are loamy and sandy soils with naturally high groundwater, neighboured by small areas of freely draining slightly acidy sandy soils	Soilscapes Cranfield https://nrfa.ceh.ac.uk/data/search
Geology	Bedrock geology is composed of White Chalk Subgroup with overlying superficial deposits of alluvium, river terrace sands and gravels and till. There is also an area of brickearth mapped to the southeast of East Harling.	BGS GeoIndex
Hydrogeology	The study site is situated on a principal aquifer characterised by highly significant fracture flow. Within the catchment, valley tops are shown to contain Zone 2a (drift), 2b (drift) and Zone 3 (Till) recharge domains, likely to give low recharge values, whilst the valley floors are shown to be Alluvium/ Sands and gravel, likely to have high recharge values. There may be some interaction between zones, whereby surface water runoff from the low-recharge valley tops flows into the high recharge valley bottoms	

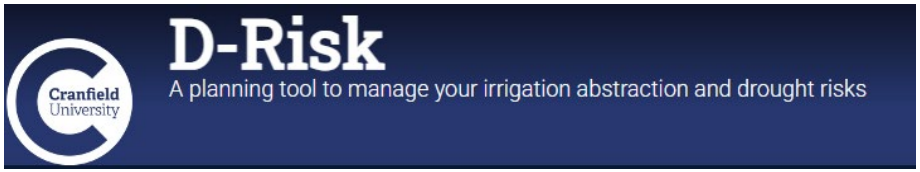


Water balance

Methodology – Water Balances

	Supply	Demand
Recent Actual	Rainfall + Recent actual returns + PWS	Crop + livestock
Theoretical	Rainfall + Abstraction licence conditions + PWS	Crop + livestock
Future	Rainfall + (Abstraction licence conditions - reductions) + PWS	Future crop + livestock
Future with LRO	Rainfall + (Abstraction licence conditions inc LRO - reductions) + PWS	Future crop + livestock

Licence reductions to be from ED project and a consideration of changing surface water flow patterns – EA to provide



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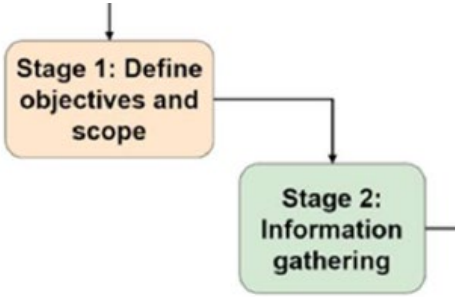
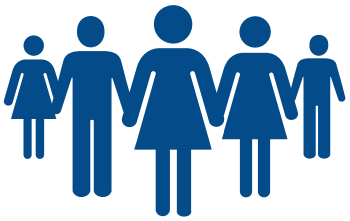
Methodology - Stakeholders



1. Farms involved in the study

Data licence

2. Environment Agency
3. Natural England



4. Regional Planning Group
5. Water for Food Group (NFU, UKIA, AHDB, …)

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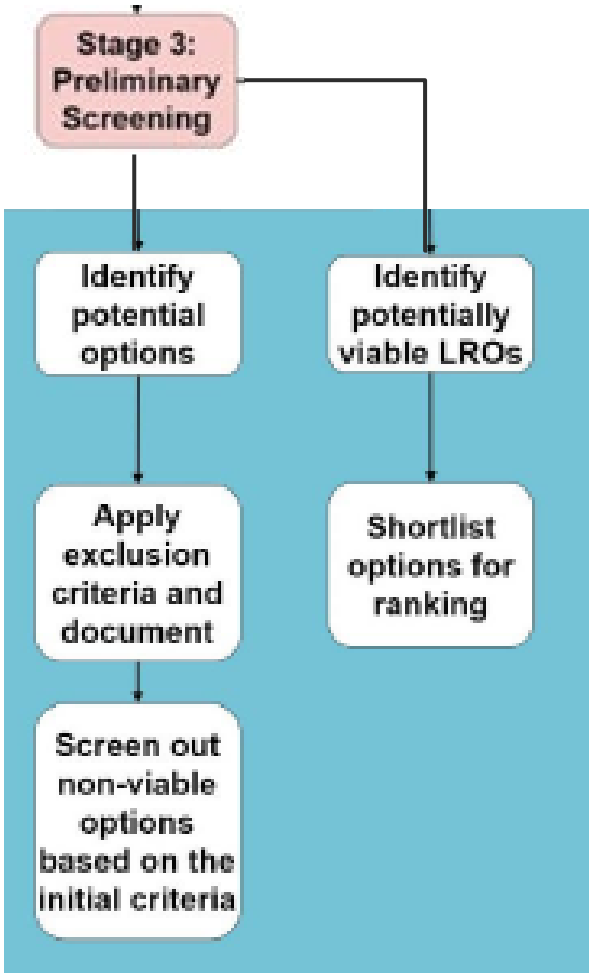
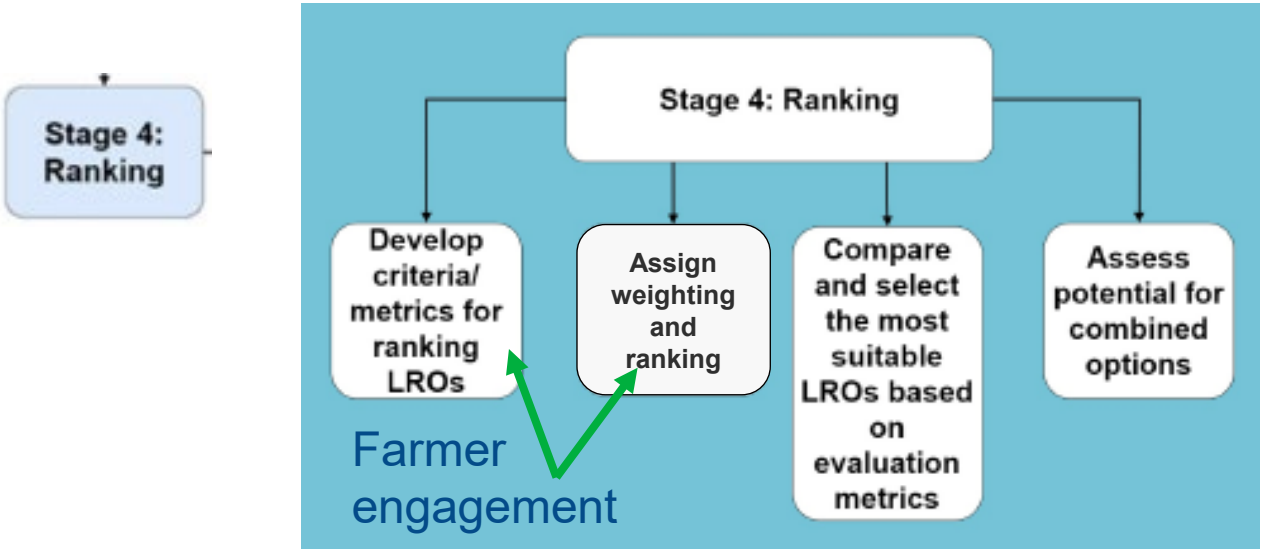
Methodology – Long list



	A	B	C
1	Single Options		
2	LRO ID	LRO Title	LRO Description
3	LRO1	Managed aquifer recharge	Storing excess water in aquifers during times of surplus for use during periods of scarcity.
4	LRO2	Farm Storage Reservoirs	Creating reservoirs on farms to collect and store rainwater or surface water.
5	LRO3	Linking sources / aggregating licences	Linking existing/ new solutions
6	LRO4	Rainwater Harvesting	Collecting and storing rainwater from roofs or other surfaces for agricultural use.

	E	F	G
	Combined Options		
	LRO ID	LRO Title	LRO Description
	LRO2 + LRO15	Farm Storage Reservoirs + Flood water use	Creating reservoirs on farms to collect and store rainwater or surface water. + Combining flood risk management with water storage and conservation efforts to mitigate impacts while enhancing water availability.
	LRO2 + LRO3	Farm Storage Reservoirs + Linking sources / aggregating licences	Creating reservoirs on farms to collect and store rainwater or surface water. + Linking existing/ new solutions
		Example Additional	...

Methodology - Rank



	A	B	C	D	F	G	H	I	J	K	L
1						Scoring					
2	Rank number	Criterion	Description	Rank	Weight	0	1	2	3	4	5
3	RC1	Water resource benefit	Assessing the ability to use the water source in a manner that can be sustained over the long term without leading to depletion.	1	0.15	N benefit	Low yield	Low/mediu m	Medium	Medium/High	High
4	RC2	Cost	The financial investment required for implementation and ongoing maintenance of the LRO.	2	0.14	>£ 0m	£5m-£10m	£1m-£5m	£500,000-£1m	£100,000-£500,000	<£100,000
5	RC3	Compliance with Water Licensing Regulations	Ensuring the water resource option aligns with legal frameworks and regulations governing water use.	4	0.12	No attempt to obtain pe nits/licen se	Difficulty in obtaining necessary permits/licenses.	Some permits/lice nses obtained, not fully compliant.	Current licences and permits acquired. Future licences with LRO needed.	Most necessary licences and permits acquired, some only allowed once LRO is approved	Fully compliant, no licences needed
6	RC4	Technical Feasibility	The practicality of implementing the option with current technology and within the specific local context.	3	0.1	Not feasible.	Feasible with significant difficulty .	Feasible with moderate difficulty	Feasible with some minor issues to resolve.	Easily feasible within current capabilities and	Feasibility is not an issue and is within easy

"Ranking of Ranking"

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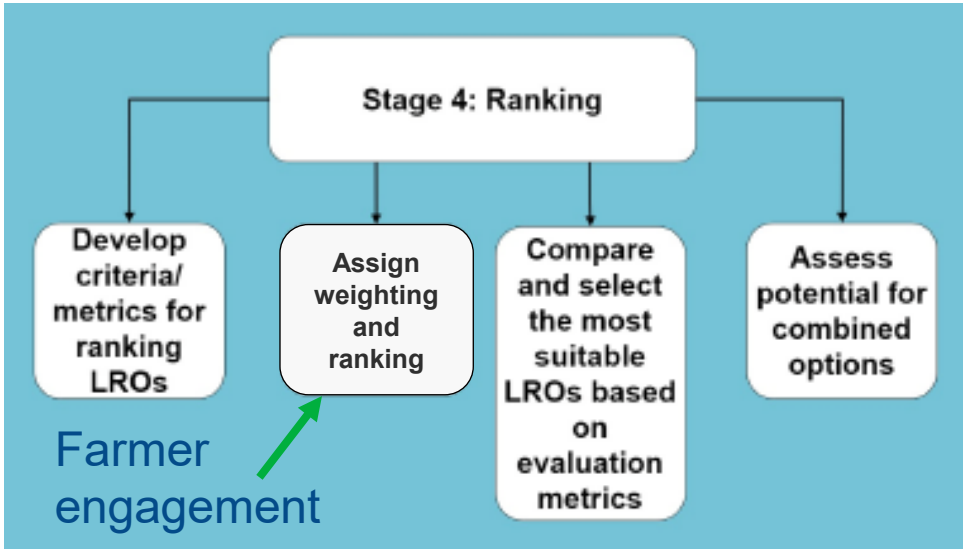
Methodology - Rank

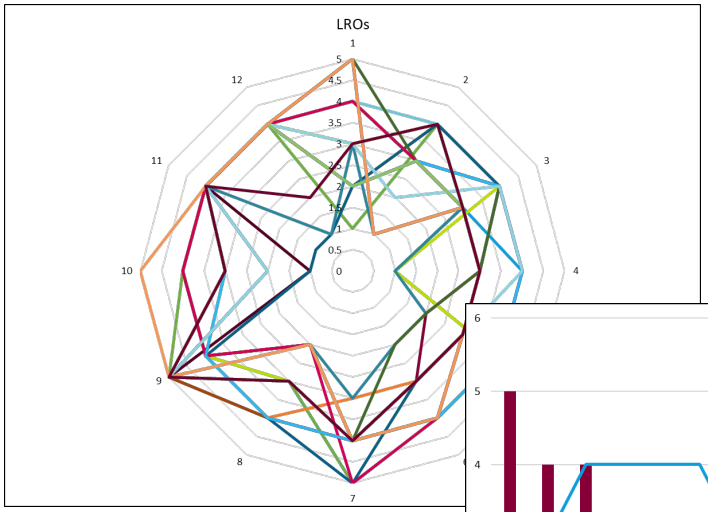


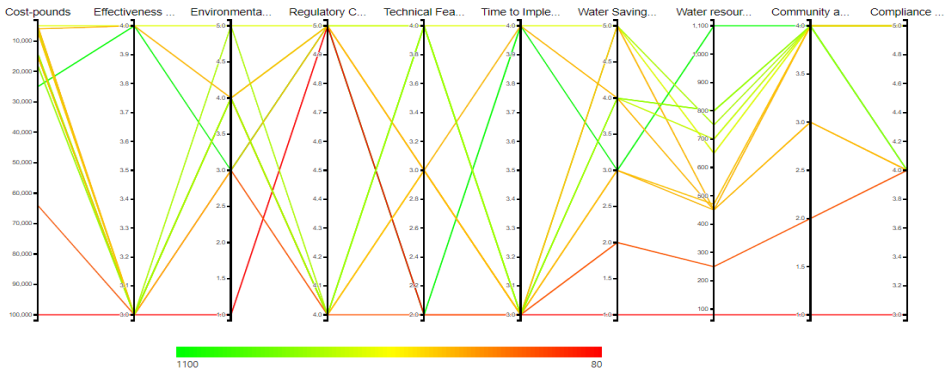
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	HV
1	Ranking metric	LRO name	Water resource benefit	Cost	Compliance with Water Licensing Regulations	Technical Feasibility	Environmental Impact	Community and Ecosystem Effects	Water Savings per Pound Invested	Time to Implement	Regulatory Compliance	Synergies with Other Initiatives	Effectiveness in Reducing License Strain	Water security /reliability of supply	Result
2			0.154	0.141	0.115	0.128	0.103	0.09	0.077	0.064	0.051	0.038	0.026	0.013	Total
3	LRO1	Aquifer Storage and Recovery	5	1	3	3	2	3	4	2	4	4	4		3.06
4	LRO2	Farm Storage Reservoirs	4	3	3	4	4	4	5	3	4	4	4		3.76
5	LRO3	Linking sources / aggregating licences	4	4	3	3	3	3	4	3	5	3	4	4	3.51
6	LRO4	Rainwater Harvesting	1	4	3	1	4	4	5	3	5	4	4		3.10
7	LRO5	Conjunctive Use Schemes	3	4	4	1	4	4	4	3	4	4	4		3.40
8	LRO6	Micro-Irrigation Systems	2	4	4	3	3	3	3	4	4	4	4		3.29
9	LRO7	Soil Moisture Monitoring	2	3	4	4	4	4	4	4	5	1	4		3.49
10	LRO8	Water-Efficient Technologies	2	4	4	3	3	3	5	4	4	1	1		3.22
11	LRO9	Water Rights Trading	3	1	3	1	2	2	3	2	5	2	4		2.27
12	LRO10	Water Sharing Agreements	5	3	4	3	2	2	4	2	4	4	4		3.37
13	LRO11	Leakage Control	4	3	3	3	3	4	4	2	4	3	4	4	3.35
14	LRO12	Improving Irrigation Techniques	2	3	3	3	3	3	4	4	5	3	4	4	3.13

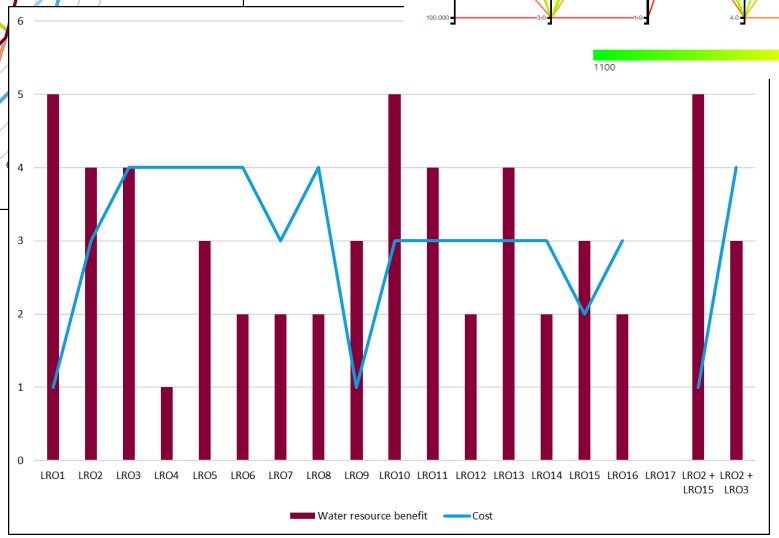
Methodology - Rank

Stage 4: Ranking

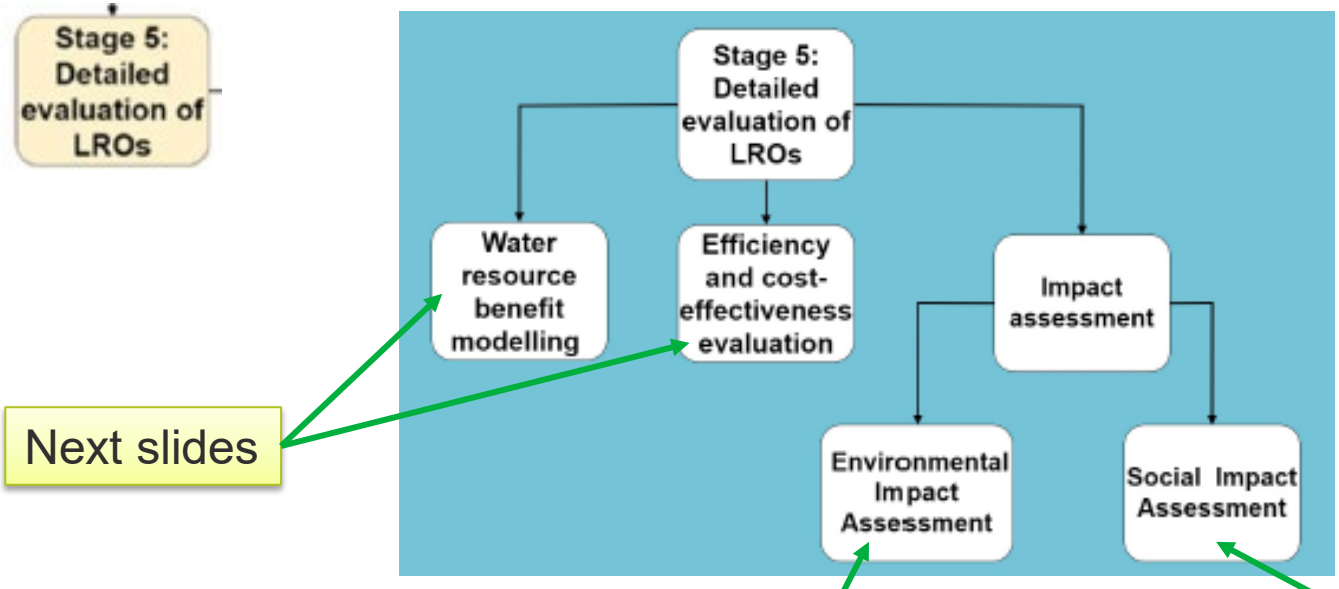
You can present the results in different ways to help spot reasons for high/low scores







Methodology - Evaluation



Next slides

Environmental Assessments
- Identify areas that require monitoring prior to applications
- Propose mitigations/ enhancements to improve EIA

Identify if there are any Societal impacts which could occur due to the LRO, these could impact planning applications

Note that in the RFQ we ask that one of your in-depth options shall be water sharing between the group. So, this should form a dominant component of a top option

Methodology – Cost

Life cycle cost analysis; use quotes or ‘rules of thumb’ avoid bottom-up costings

Report summary shall be concluded with a cost comparison table as follows:

	LRO1	LRO2	LRO3
Yield (m^3)			
Capital (£)	Costs shall be based on industry standard values or quotes from contractors where specialist services are considers. Consultants shall be dissuaded from using a bottom-up approach for construction (e.g. don’t work out m3 to be moved and equipment day rates). Within report detail any land costs (inter and extra to the group)		
Operational (£/year)	Maintenance costs shall include a distributed value for large item replacement e.g. reservoir liners, inspections, pump replacement. Additional pumping costs required to service system		
Combined (£/m^3/year)	This shall be the annual averaged all-in cost including a loan return period of 15 years		

Methodology – Yield or DO

- When sizing a solution:
  - Consider what is required - demand gap
  - What is available – ALS, HOF
- Test for 20 years
  - Either scaled gauge flow (to consider climate change) or eFlaG data set
  - EA to provide support in selection

pywr

Hydro International
Hydro-Logic® Aquator

- Report to be jargon free – no ‘return periods’ or ‘percentage exceedance’ – a degree in Statistics should not be required to understand
- Show 20 years of output either yield or success/failure of supply
- If using 2004-2024 then this gives historical context with dry years
- If not then give context

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Reporting and Review

- Spreadsheet
- Report
- Summary powerpoint for wrap-up meeting

  - The report will be reviewed by the farm group, EA project team, other EA teams and our partners (Water for Food Group, Regional Groups)
  - Consolidated comments will be provided for incorporation into the final report

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Project Management

- Kick-off meeting with EA
- Kick-off meeting / Site visit with farms
- Meeting with Regional Groups
- Bi-weekly virtual meetings with your EA project manager
- Close out meeting / presentation

- Overall projects are expected to take circa 4 months

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EA LRO XX Weekly Report

Week Commencing xx/xx/xxxx

R
A
G

Overall Status

G

Progress	Plan for coming week
How is everything going? What progress has been made in the last week?	*What are you hoping to achieve in the next week?*
Risk, Issues & Blockers	**Information Needed**
Are there any new risks to manage? Are there any delays to the timeline and what is causing these delays?	*What information do you need from the EA? I.e., data, stakeholder contact details, attendance at meetings, etc.*

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Gantt Chart Review

Please provide a status update on the main tasks listed in the table below.
You could write 'complete' 'in progress' or leave the box blank if not started.

Task	Status
Desk top data collection	
Kick-off meeting with study participants, objective setting for project including key criteria for ranking; Site visit and data collection	
Water balance assessment and identification of potential LROs	
Liaison/virtual meetings with Regional Group leads and Water for Food Group members to discuss area opportunities	
Meeting with farms to agree screening and ranking criteria and their importance	
Complete screening and ranking of potential LROs, confirm results with farms	
Detailed evaluation of top 3 options	
Issue draft report to the Environment Agency for review	
Incorporate comments from Environment Agency	
Present outcomes to farms and issue report to them for their review	
Issue final report which considers and incorporates comments from all.	

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AOB

Feel free to add slides as needed to cover AOB or delete this one if not relevant.

What happens afterwards?

Farms

- Will be under no obligation to develop any of the identified schemes
- Current licences will not be affected by your involvement in a study
- Can use the study to start moving towards a more water secure future

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- We'll use the collated output over all the studies to help inform Defra policy and Regional Planning

Consultants

- Farms may wish to take projects forwards into development
- No restrictions on you bidding for this work

Where could this go in the future …. outside of agriculture specific projects

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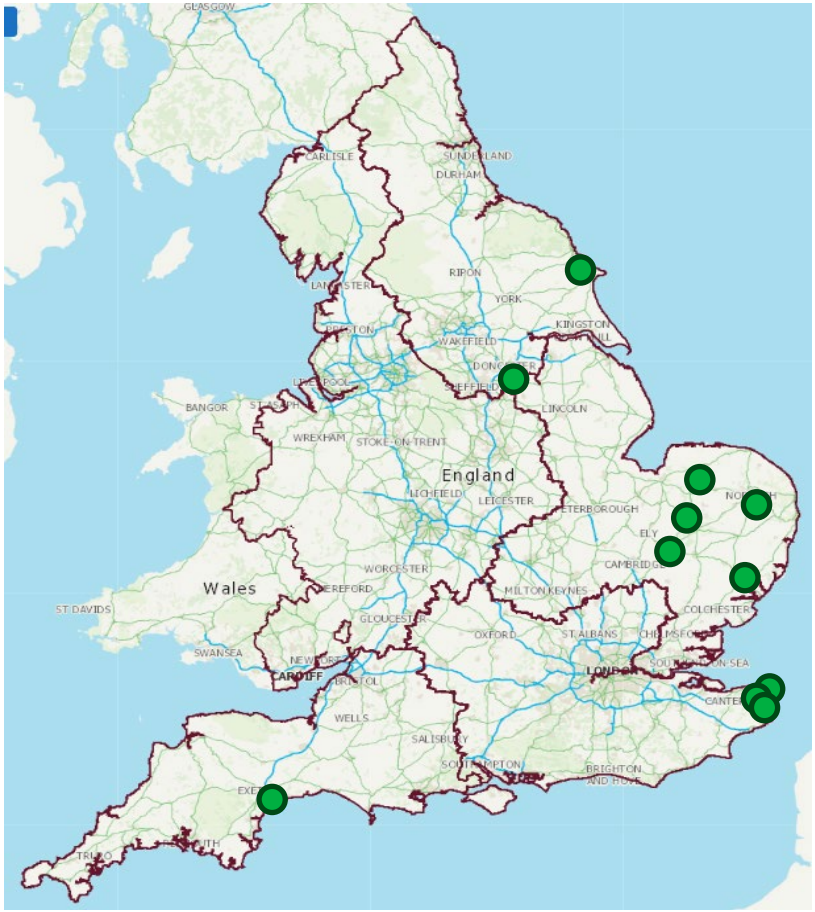
Who are the applicants?

- Groups of farms
  - 2 ~ 11 members
- Spread across England
- Range of types of agriculture
  - Crops / Veg / Soft fruit / livestock
- Range of current water sources
  - Groundwater
  - Land drainage (via IDB)
  - Surface
  - Rainwater
  - PWS



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Procurement

- 3 quotation system: invite 3 contractors to respond to Request for Quotation (RFQ): Projects will be let separately
  - Exception - 3 projects will be via Open Quotation due to size and complexity
- Consultants will be shortlisted based first on skillset, geographical area, and capacity to ensure BAU
- Evaluation Criteria will be based 60% on technical proficiency, and 40% Cost: Most Advantageous Tender (MAT)
- Period for Clarifications: for transparency, any clarification responses may be shared with other bidders
- Projects to be let on a lumpsum basis; a suggested price breakdown will be included in the RFQ

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Procurement

- Bid Documentation:

- RFQ
  - Specification of Requirements
  - Evaluation methodology
  - Annex 1: Mandatory Requirements
  - Annex 2: Commercial Response
  - Annex 3: Acceptance of terms and conditions
  - Annex 4: Technical question proforma
- Appendix A: Screening tool (excel)
- Appendix B: Methodology document
- Appendix C: this presentation

Return these 4 items plus Gantt chart, case studies and CVs

- EA standard terms and conditions

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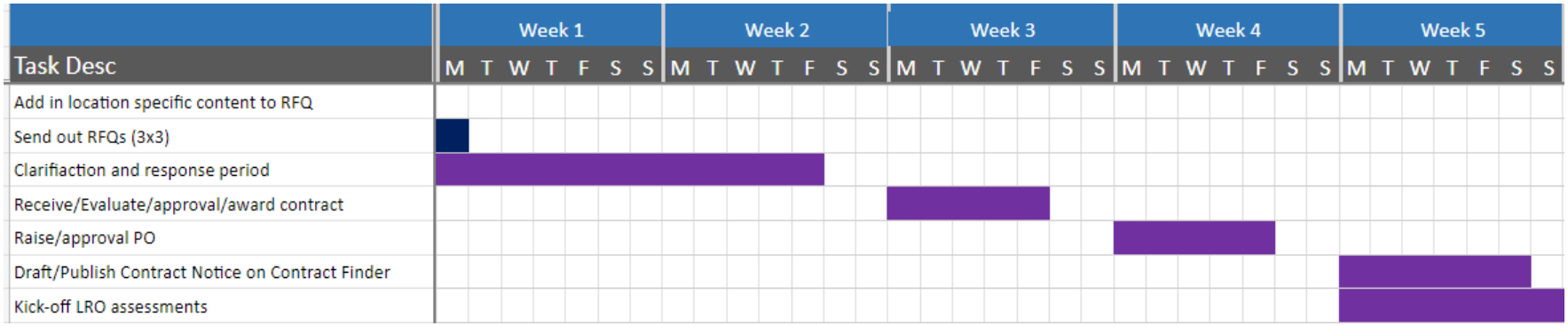
Procurement



- 11 separate projects – currently – may increase if more budget becomes available

Project Group	Start date (approx.)	End Date (approx.)	Value Range (approx.)
Round 1	End of August	December	£20-£25k
Round 2	Mid September	January	£20-£25k

- All Projects must be completed in **January 2026**

- Scope of work and delivery expectations remain the same for each round of projects

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Find out more

Defra Farming Blog

- Apply now for a water screening study – Farming (blog.gov.uk)

Search .gov.uk for Local Water Resources

- Local water resources options screening studies: how to apply - GOV.UK (www.gov.uk)

Thank you
and
Any Questions?

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