

# **Exploring the acceptability and feasibility of Natural Flood Management in the West Thames (UK), and the evidence needed to support decision making**

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# LANDWISE

*LAND Management in lowland catchments for Integrated flood riSk rEduction*

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ABOUT

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## What is LANDWISE?

LANDWISE is one of three projects funded by the Natural Environment Research Council evaluating the effectiveness of Natural Flood Management programme. LANDWISE seeks to examine how well natural land-based measures can be used to reduce the risk of flooding for communities.

# LANDWISE Team

**Research & Consultancy:** University of Reading, British Geological Survey, Centre for Ecology and Hydrology, University of Gloucestershire, Forest Research, JBA Consulting, Institute for Environmental Analytics, JBA Trust, University of Sheffield, Agrimetrics,

**Policy:** Environment Agency, Natural England, Forestry Commission

**Flood Groups:** National Flood Forum, Loddon Valley Residents Association, Swallowfield Flood Resilience Group, Mill Corner Residents, Pang Valley Flood Forum, Andoversford Residents

**Farm Advisors:** National Farmers Union, Arcadian Farm Advice, Farm and Wildlife Advisory Group (SE), Farm and Wildlife Advisory Group (SW), Farm Carbon Cutting Toolkit

**Farmers:** Wilts Soil and Root Innovators, Penn Croft Farm, Hendred Farm Partnership, Fincham Farm Partnership, Greywell, Yateley House Farm, Kingsclere Estate, Farmer Guardians of the Upper Thames and others...

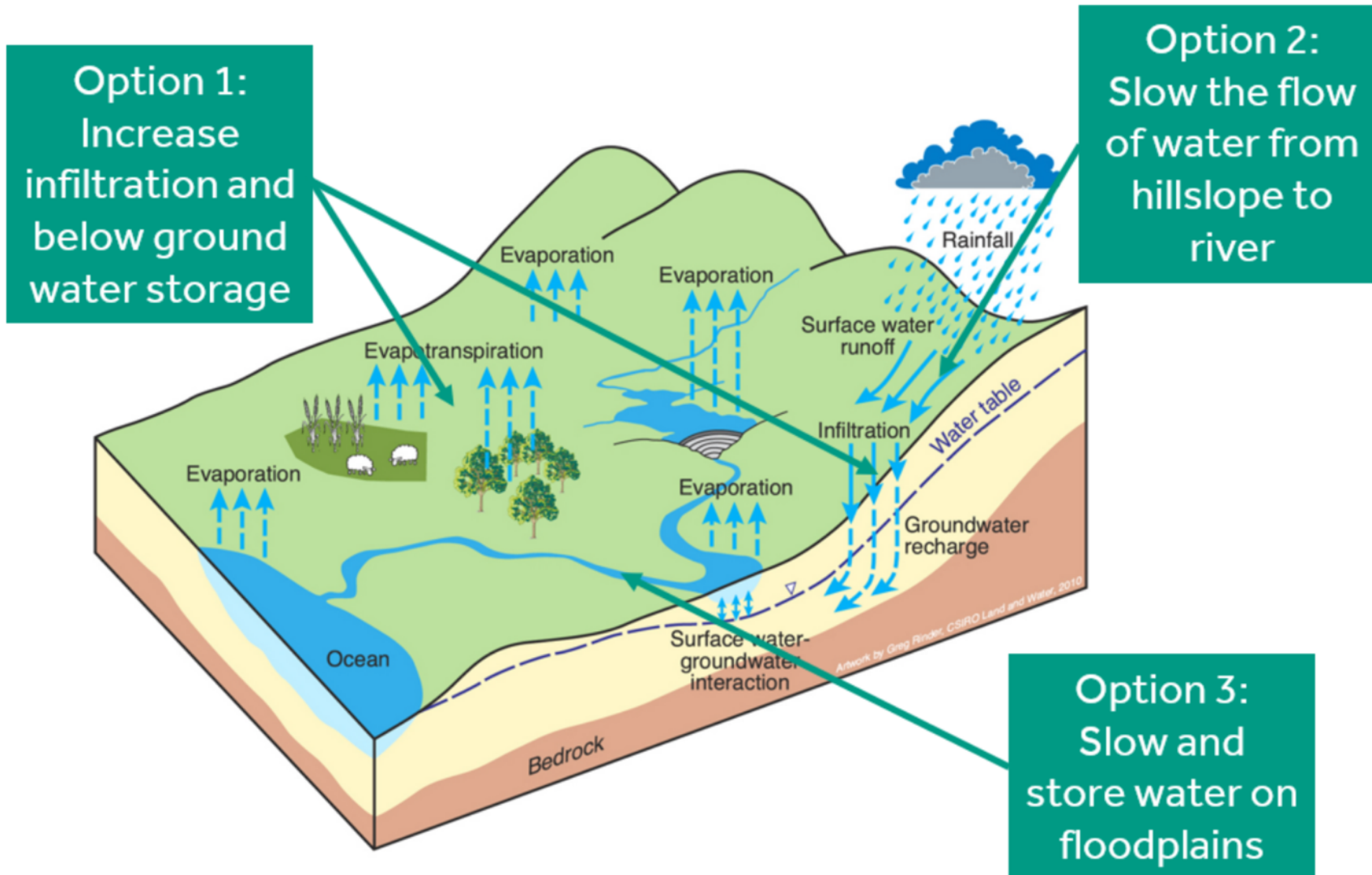
**Conservation NGOs:** The National Trust, Loddon Fisheries & Conservation Consultative, Blackwater Valley Countryside Partnership, Wild Oxfordshire, Foundation for Water Research, Action for River Kennet, South East Rivers Trust, Freshwater Habitats Trust, Berkshire, Buckinghamshire & Oxfordshire Wildlife Trust, Hampshire and Isle of Wight Wildlife Trust, Westcountry Rivers Trust

**Local Flood Authorities:** Wokingham Borough Council, West Berkshire Council, Hart District Council, Swindon Borough Council, Thames Regional Flood & Coastal Committee

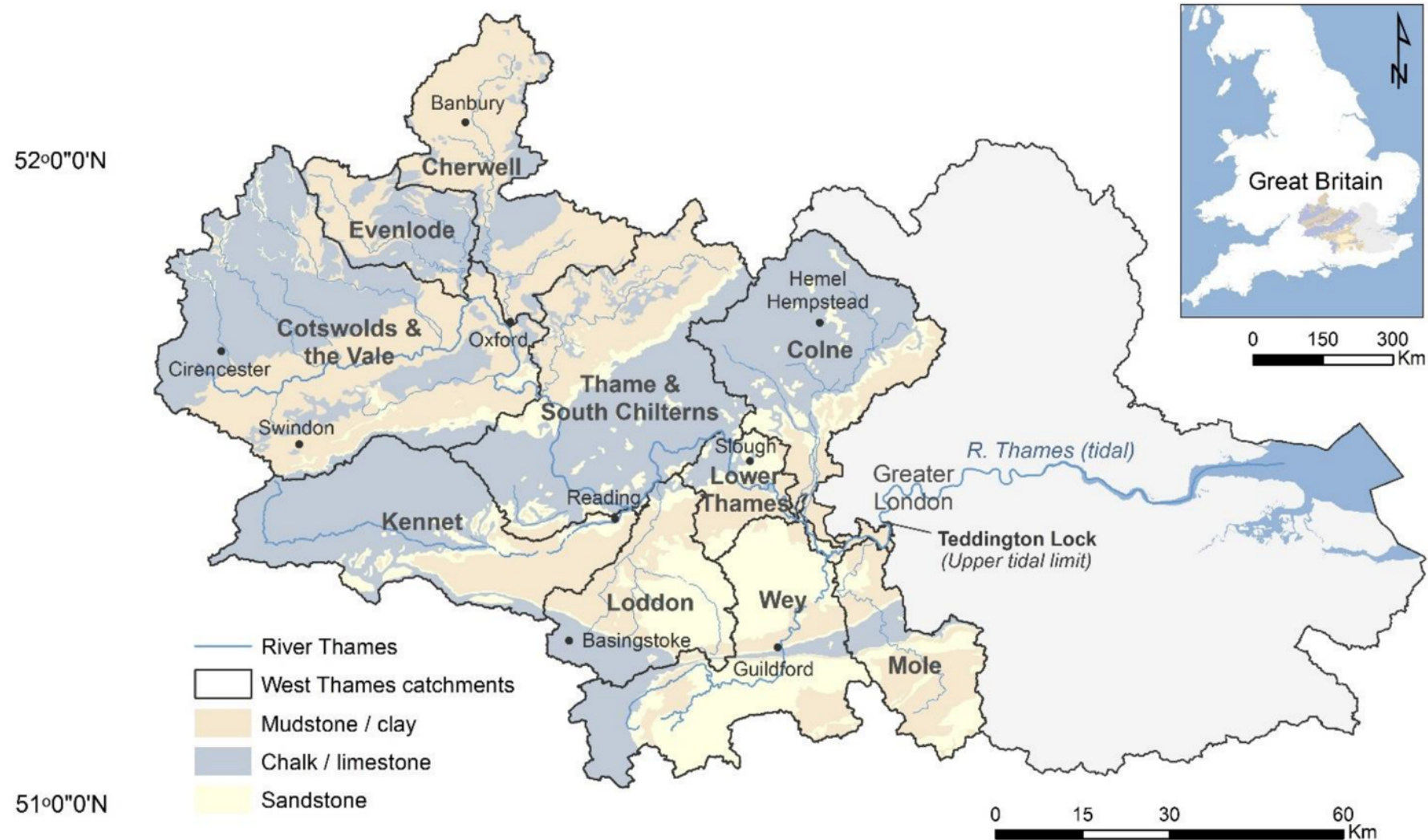
**Water Utilities:** Affinity Water, Thames Water

**Catchment Partnerships:** Loddon, Chilterns, Upper Thames, Evenlode, Kennet and others

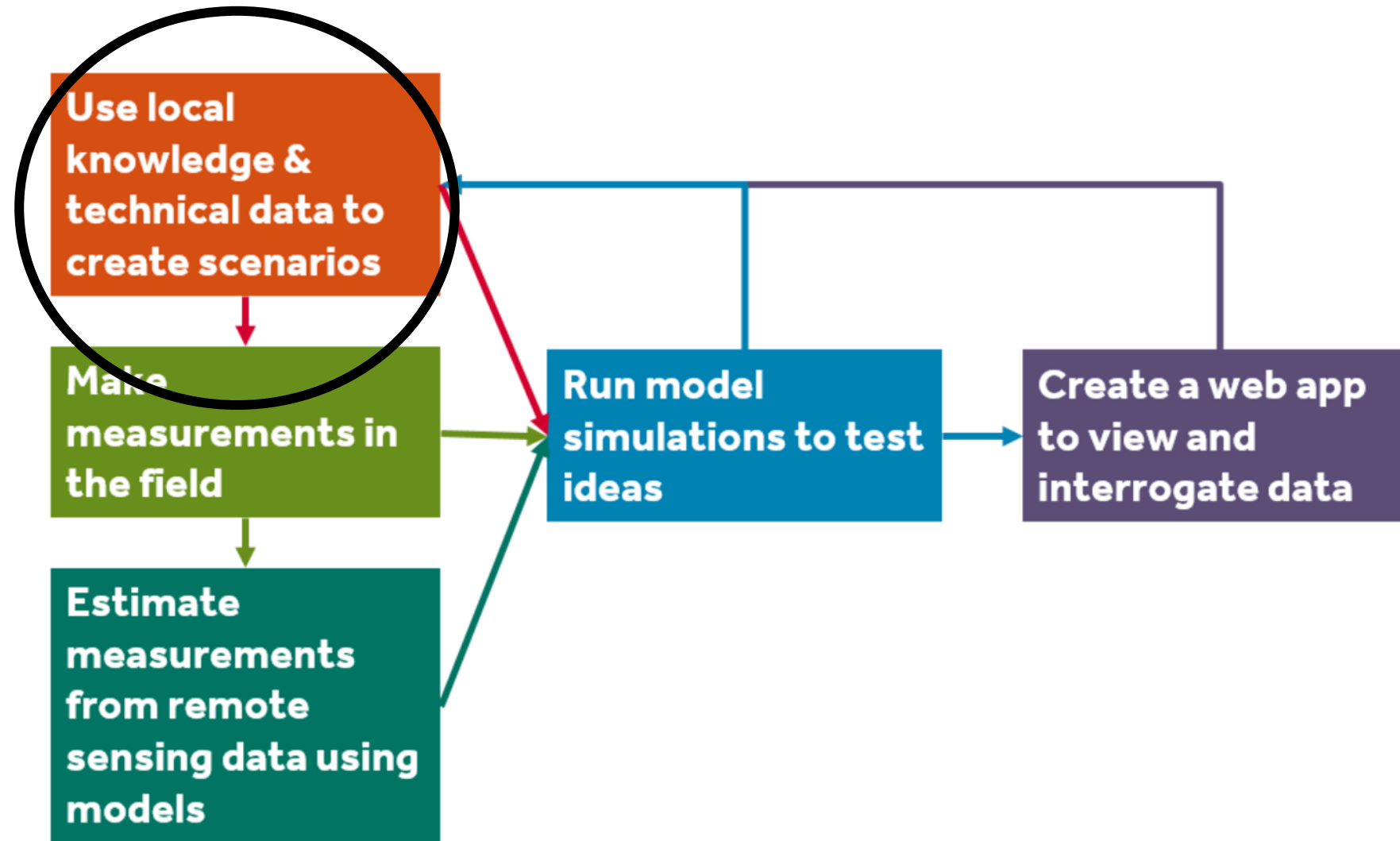
# NFM options



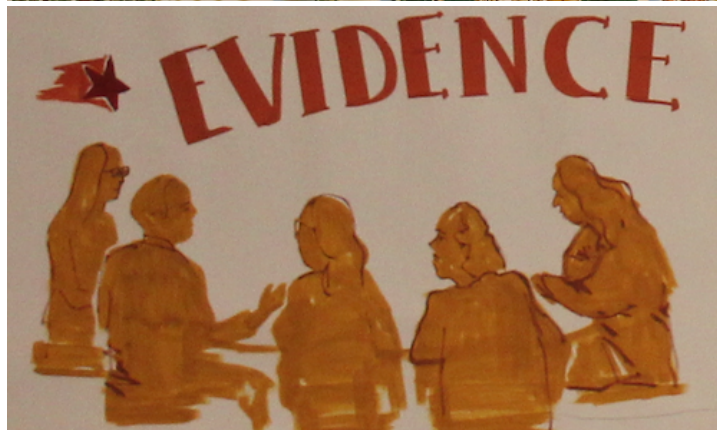
# Location: West Thames



# What the LANDWISE project will do



# Workshop objectives



## Part 1:

- understand from different groups what types of NFM measures they believe are culturally or socially **acceptable** and most **feasible** (i.e. which are easiest to deliver, and which need more additional support)

## Part 2:

- explore the 'evidence' needs from different groups to support decision-making around NFM delivery
- to better understand how technical, qualitative and lay knowledges are needed to support their activities

# Participants

- 51 individuals participated
- LANDWISE Project partners
- 5 organisations/groups represented:  
Government Organisations,  
NGO/Charity,
- Research and Consultancy,  
Farmers/Landowners/Farm Advisors,  
Communities at Risk (including  
communities at flood risk, water  
companies, and local authorities).

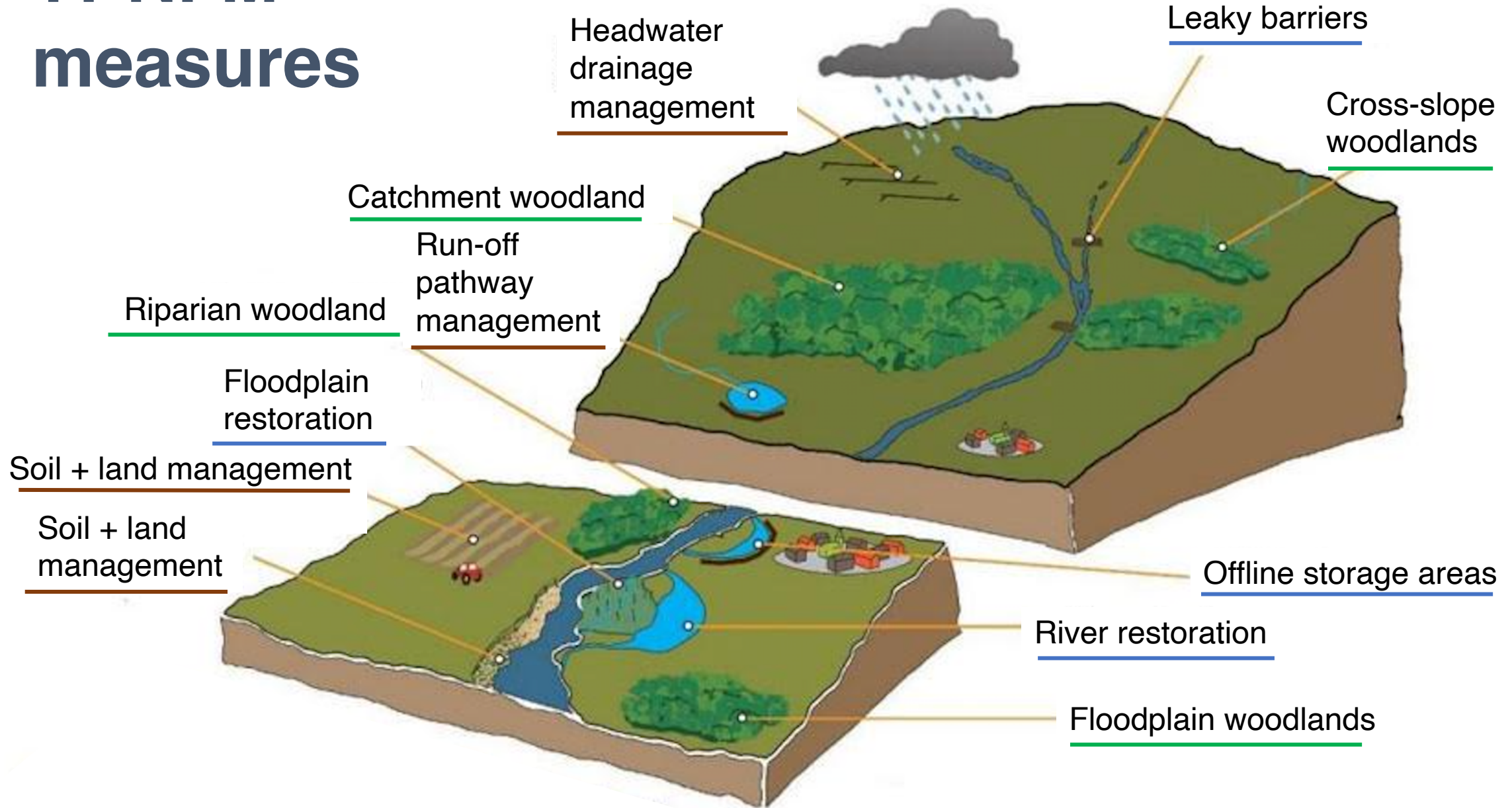




# Group design

Sector	Landscape Type		
	Cotswold Limestone	Chalk Downs	Clay Lowlands
<b>Agriculture</b> (e.g. Farmers, Farm Advisors, Agriculture Researchers, Forestry for Timber/on farm trees etc.)	Cotswold Limestone / Agriculture (n = 6)	Chalk Downs / Agriculture (n = 5)	Clay Lowlands / Agriculture (n = 6)
<b>Conservation</b> (e.g. NGOs like Rivers Trust, Wildlife Trust, Conservation Researchers)	Cotswold Limestone / Conservation (n = 3)	Chalk Downs / Conservation (n = 2)	Clay Lowlands / Conservation (n = 7)
<b>Communities at Risk</b> (e.g. Community Flood Groups, National Flood Forum, Local Flood Authority, Flood Risk Researchers)	Cotswold Limestone / Communities at Risk (n = 6)	Chalk Downs / Communities at Risk (n = 6)	Clay Lowlands / Communities at Risk (n = 7)

# 11 NFM measures



# Part 1: NFM acceptability + feasibility

- Score each NFM measure out of 5 based on; (i) how acceptable each measure is to them, and (ii) how feasible each measure is in terms of how easy it would be to implement for a certain landscape area (the landscape type they had chosen to represent)
- **Individual** and group scores

NFM Measure	Acceptability	Feasibility	Total score (A+F)	Please explain your scores (use other side of paper if needed)
	1 = very low	5 = very high		
<b>Runoff Management</b>				
Soil and land use management	1 2 3 4 5	1 2 3 4 5		
Headwater drainage	1 2 3 4 5	1 2 3 4 5		
Run-off pathway management	1 2 3 4 5	1 2 3 4 5		
<b>Woodland Management</b>				
Catchment woodlands	1 2 3 4 5	1 2 3 4 5		
Floodplain woodlands	1 2 3 4 5	1 2 3 4 5		

# Part 2: Evidence needed for NFM delivery

£  
**Economic**

## Maps



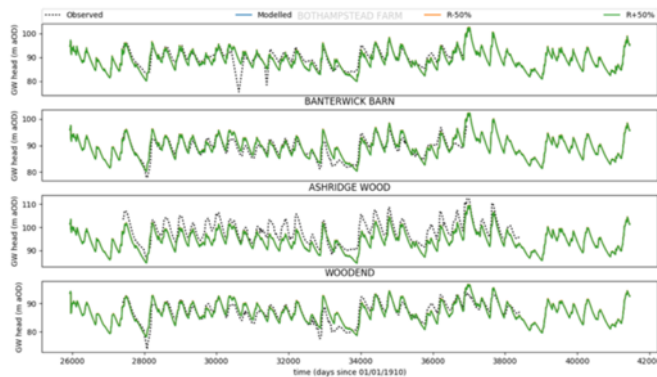
## Pictorial



## Experiential



## Technical model

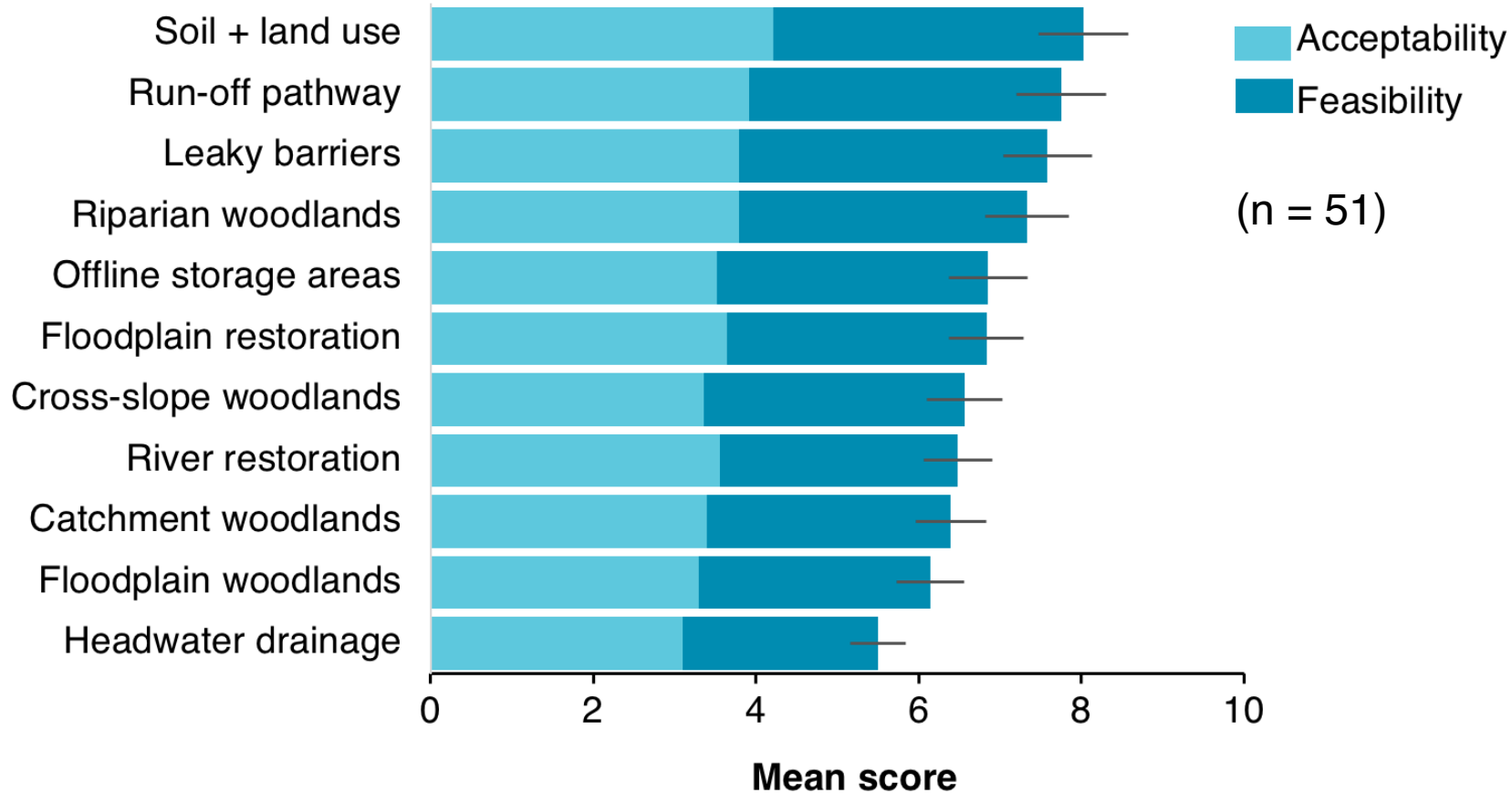


## Technical-observed

**Relational**  
What have others learnt from doing it?

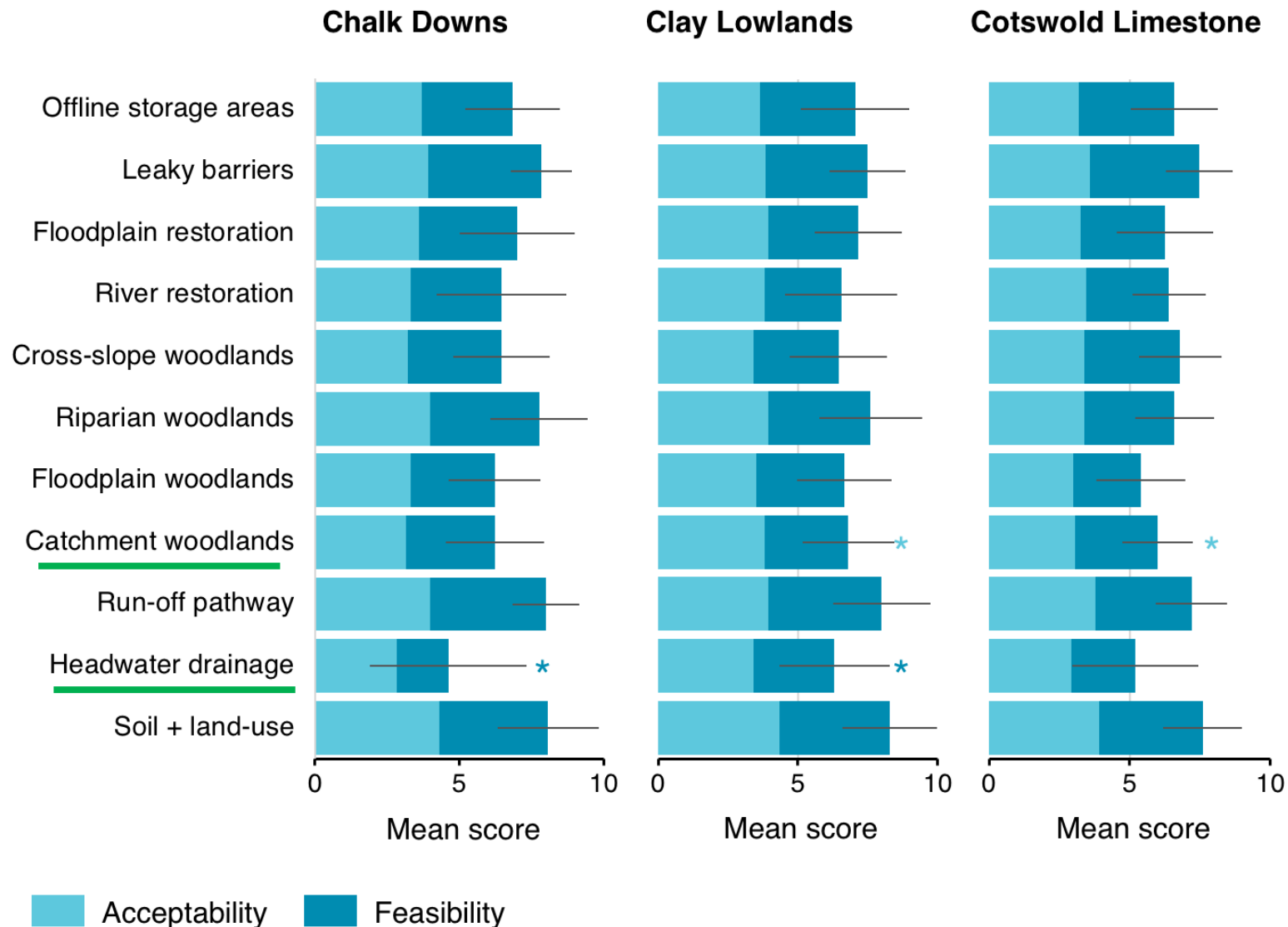
■ Not at all useful ■ Not very useful ■ Moderately useful ■ Useful ■ Very useful

# Results: NFM acceptability + feasibility



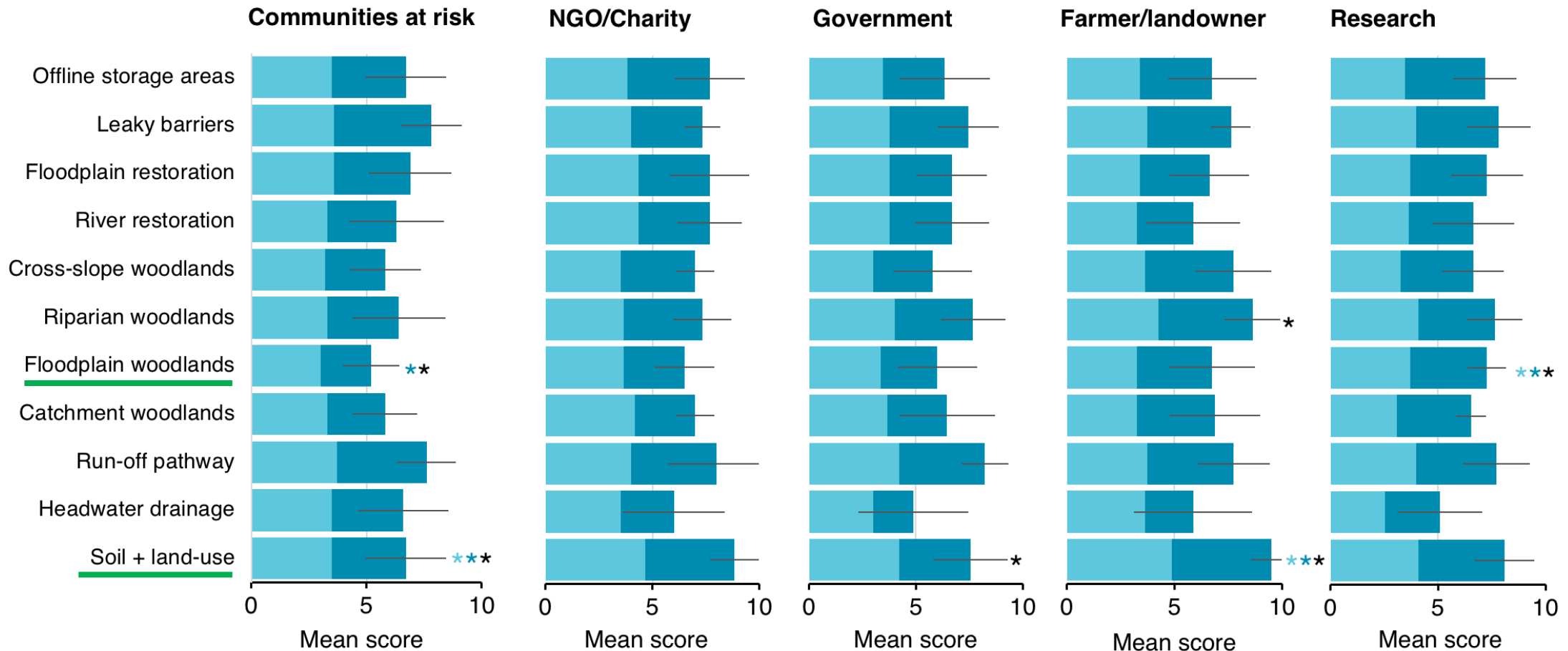
- Soil + land management consistently ranked in top 3 most acceptable and feasible across all landscape types and expertise groups

# Acceptability + feasibility by landscape

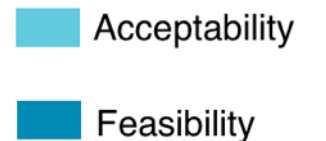


- No sig. diff. in **total scores (acceptability + feasibility)** for different NFM measures by landscape
- Headwater drainage significantly less **feasible** in Chalk Downs compared to Clay Lowlands
- Catchment woodlands significantly less **acceptable** in Cotswold limestone compared to Clay Lowlands

# Acceptability + feasibility by expertise

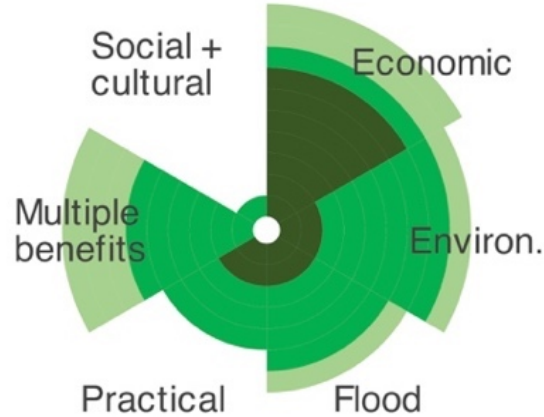


- **Total score** higher for soil + land use by Farmers compared to Government and Communities
- Soil + land use less **acceptable** and **feasible** to Communities at risk compared to Farmers
- **Total score** higher for Floodplain woodlands by Research compared to Communities
- Floodplain woodlands more **feasible** to Research compared to Communities



# Positive drivers of acceptability + feasibility

## Soil + land-use management



Chalk Downs
Clay Lowlands
Cotswold Limestone

### Environment:

- “Supports farmland dependent species - invertebrates and birds in particular” (Conservation)

### Multiple benefits/Environment:

- “Builds up soils and organic matter”. (Conservation)

### Practicality:

- “Easier to do and to integrate into farm systems.” (Agriculture)

## Run-off pathway



### Environment:

- “Opportunities in creating and enhancing habitats, diversity and cluster benefits.” (Conservation)

### Multiple benefits:

- “Benefits for water quality - low-cost interventions for farmers - win-win.” (Cons).

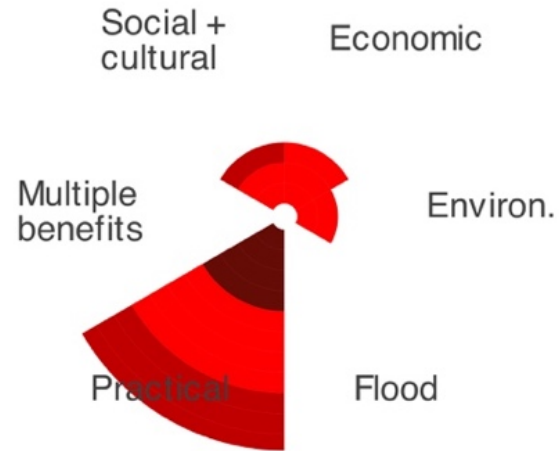
### Practicality:

- “Part of integrated management - water at the 'heart of the farm'.” (Agriculture);  
“Easier to see the effect of run-off pathways” (Agriculture)



# Negative drivers of acceptability + feasibility

## Headwater drainage



Dark Red	Chalk Downs
Red	Clay Lowlands
Light Red	Cotswold Limestone

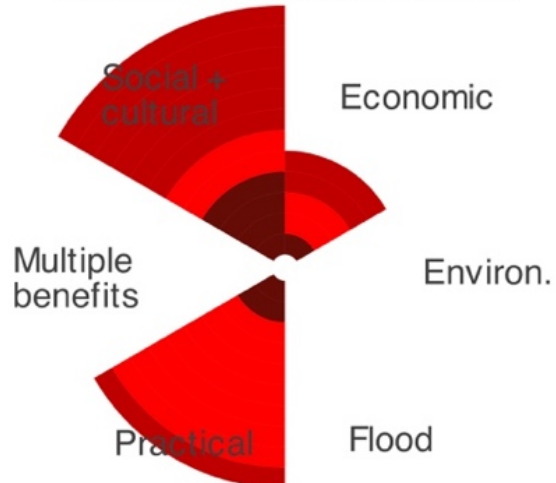
### Practicality:

- “N/A for chalk down land.” (Agriculture); “N/A in Cotswold limestone” (Cons.); “Unsuitable for lowlands” (Conservation).

### Social + cultural:

- “In lowland catchments clashes with drainage systems not accepted by many farmers.” (Conservation)

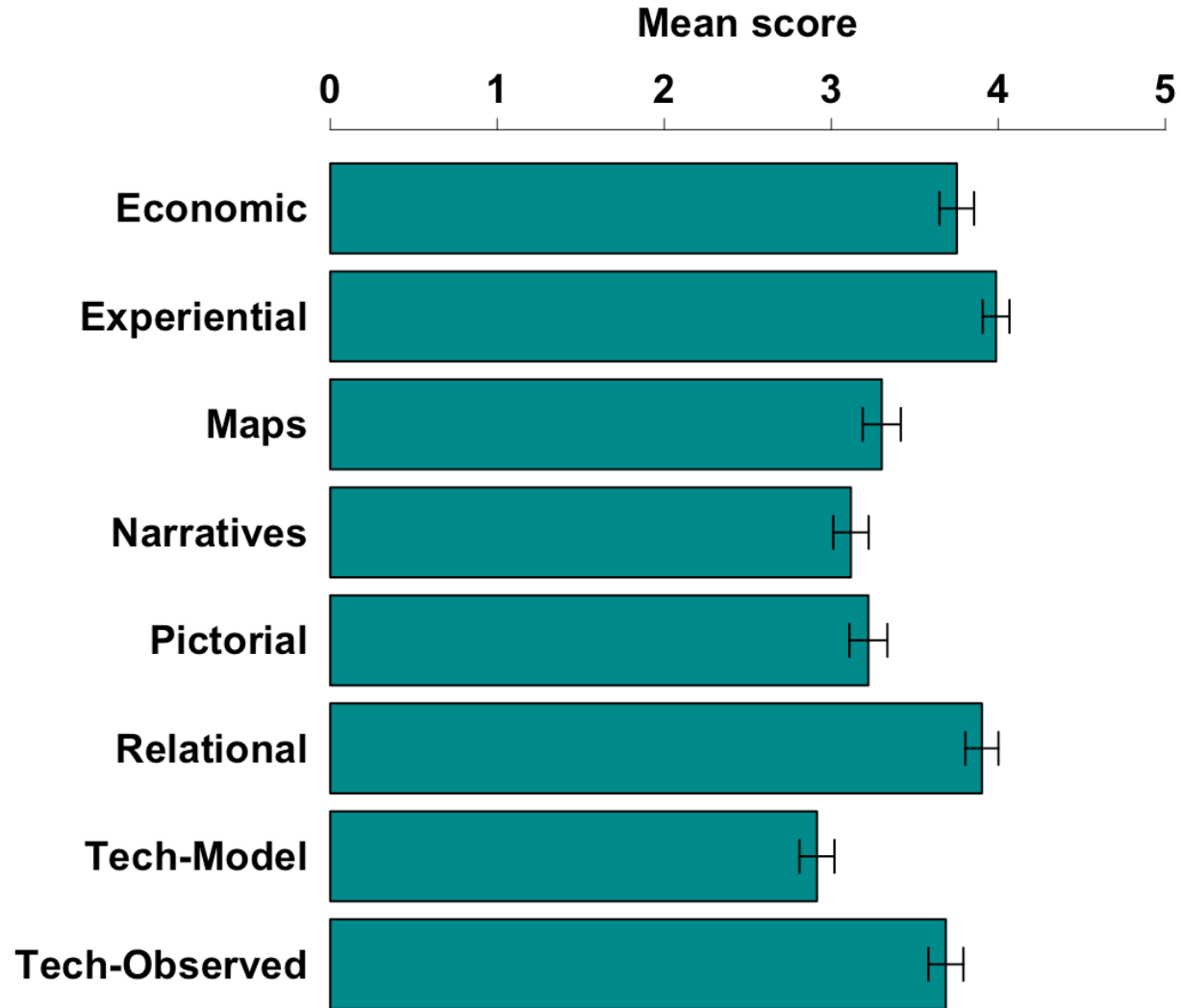
## Catchment woodlands



### Social + cultural (aesthetics):

- “Many chalk catchments are protected landscapes and there will be some resistance to large-scale afforestation.” (Conservation);
- “Acceptability of widescale woodlands likely to be low in AONB.” (Community);
- “Land use change - impacts on landscape.” (Agriculture)

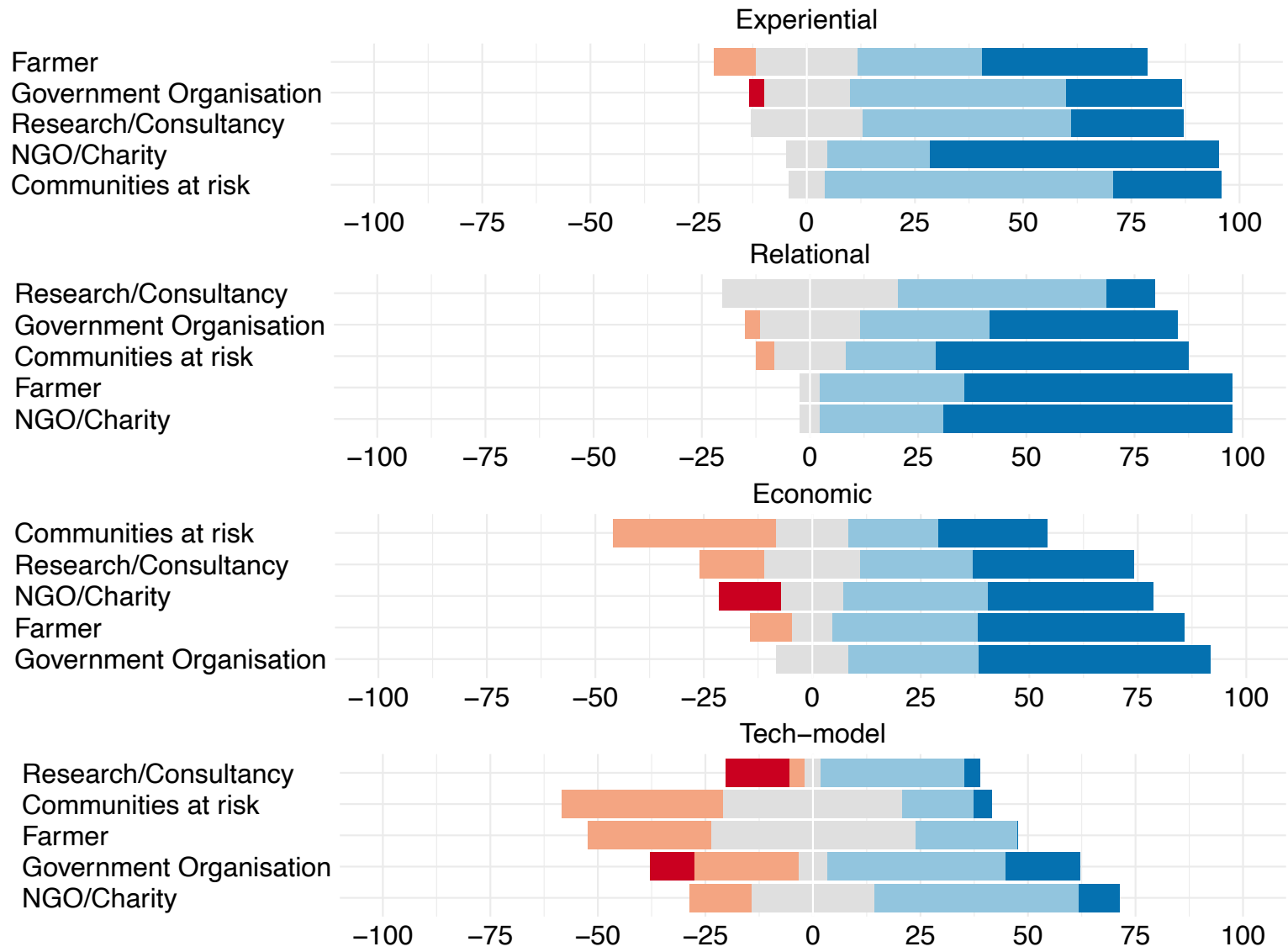
# Results: Types of evidence needed



(n=51 for each type of evidence)

- Experiential, Relational, Economic, Tech-observed scored highest overall
- Tech-model scored lowest overall

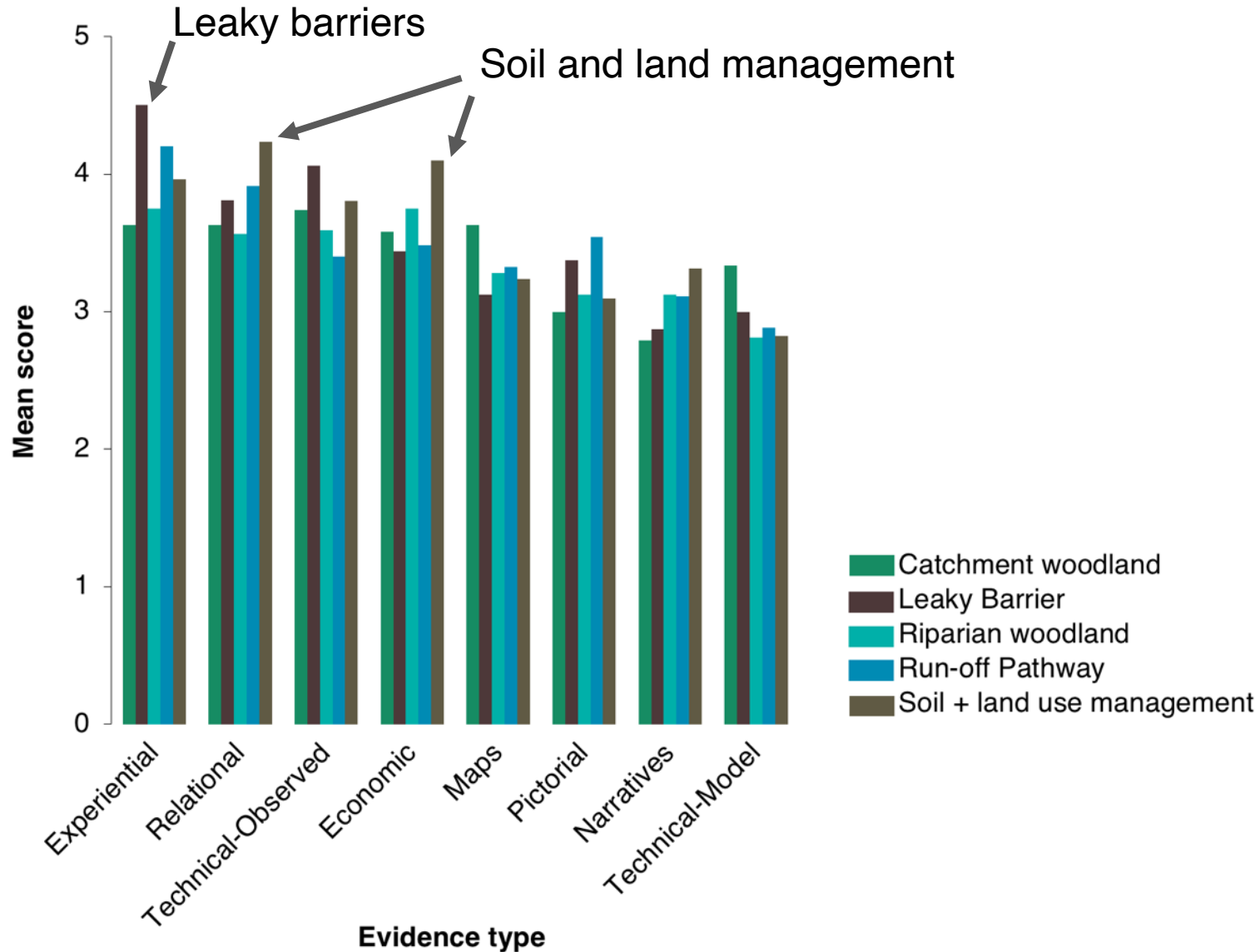
# Evidence needs of different groups



- Communities scored ***Experiential*** highest
- NGO scored ***Relational*** highest
- Farmers scored ***Relational*** highest followed by ***Economic***
- Government scored ***Economic*** highest
- Research scored ***Technical-observed*** highest
- ***Technical-model*** received the lowest scores across all expertise groups

Percent ■ Not at all useful ■ Not very useful ■ Moderately useful ■ Useful ■ Very useful

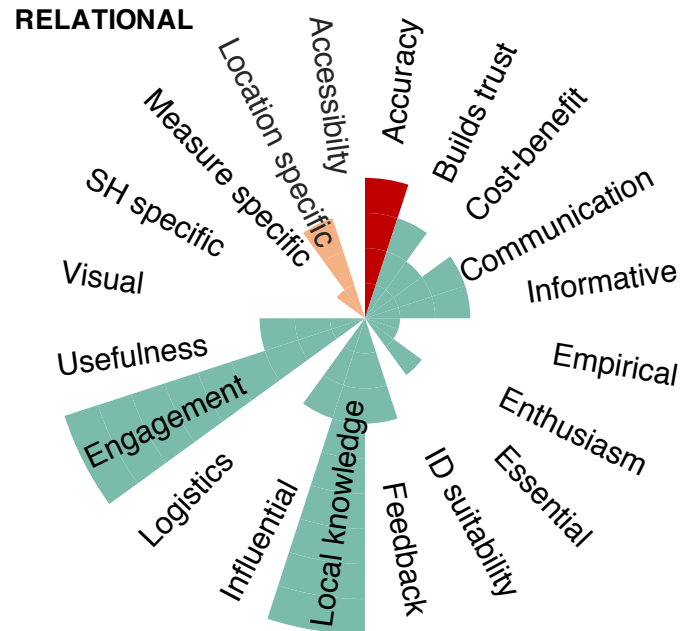
# Evidence needs for different NFM measures



- No significant differences in scores for the different NFM measures.

# Why are relational and experiential popular?

■ Positive ■ Negative ■ Neutral

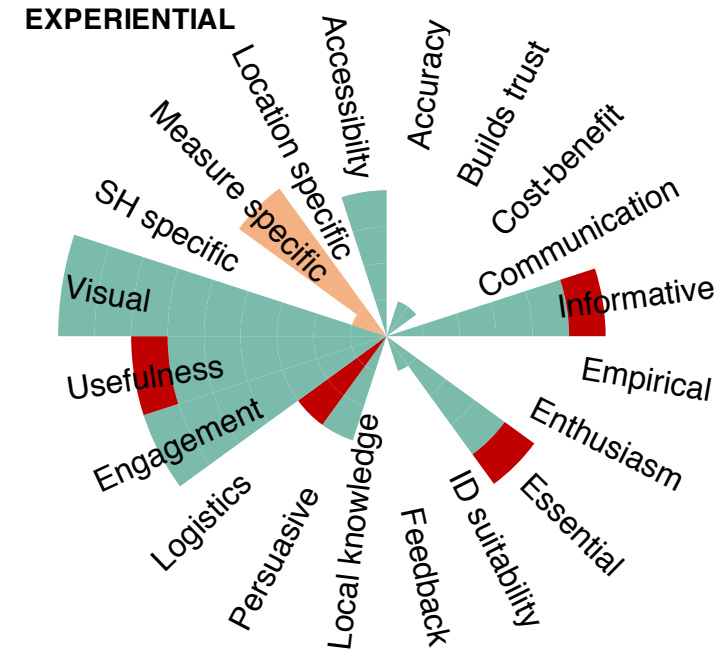


## Local knowledge:

- “Key for NFM to obtain knowledge from land owners” (Community); “Learning from other farmers experience of soil management is vital” (Research)

## Stakeholder Engagement:

- “It’s important to engage with the community and local groups that know the area” (NGO)



## Stakeholder Engagement:

- “Farmers want to be part of solution” (Farmer)

## Usefulness:

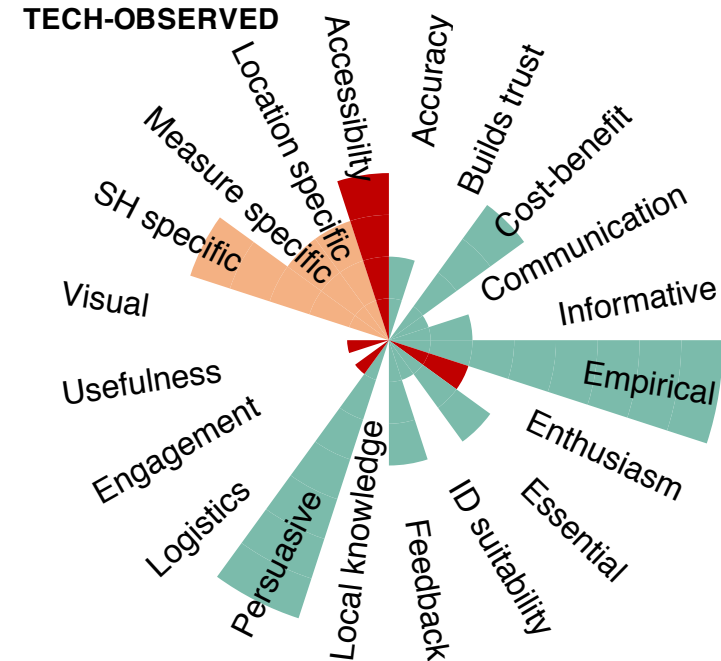
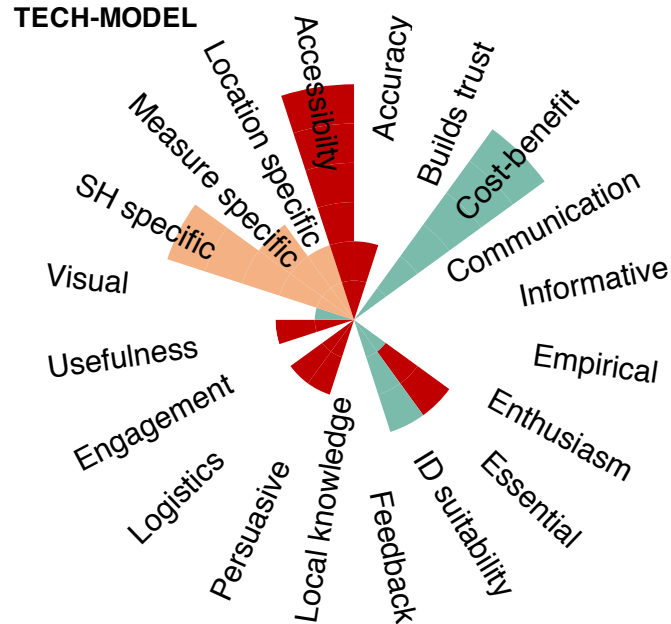
- “Useful to see how leaky barriers operate in practice” (Research)

## Visualisation:

- “Site visits to projects allow farmers to learn without taking a leap of faith” (Farmer)

# Why are Technical-models less popular?

■ Positive 
 ■ Negative 
 ■ Neutral



## Accessibility:

- “If assumptions are understood and accepted” (Govt)

## Accuracy:

- “Models may make a place actually better” (Farmer)

## Stakeholder specific:

- “Important, but not so much to the public, more policy and delivery” (NGO)

## Empirical:

- “Key evidence that shows if the intervention works or not” (Research)

## Persuasive:

- “It’s convincing for land owners and policy makers” (Research)

## Cost-benefit:

- “Needed to underpin economics”

# Summary

- Soil + land management, Run-off pathway management, Leaky barriers most acceptable + feasible NFM measures for the West Thames
- Headwater drainage, Catchment woodlands, Floodplain woodlands less acceptable + feasible
- Social + cultural, multiple benefits (including environmental), economic, and practicality (suitability) are strong drivers of NFM acceptability and feasibility and so should be considered alongside technical information in the decision making process
- Relational and experiential evidence are most valued information for delivering NFM, related to gathering local knowledge and engaging with stakeholders in decision making process
- Technical models less popular – related to perceived accuracy, accessibility, and stakeholder specific
- How to make models more acceptable?

Thank you for listening



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