

# Thames Water Catchment Management Trial

Catchment control measures to conserve soils, reduce run-off and help control riverine phosphorus levels in the Evenlode catchment

2015/16

Claire Allaway - Project Lead and Principal Consultant, Atkins

Dave Gasca –Senior Hydrologist (Atkins) and Evenlode Partnership Hydrologist



# What is the problem with Phosphorus?

## Sources:

Sewage,  
agricultural run  
off, septic tanks,  
urban influences



## Transport:

Overland run off,  
direct void into  
rivers, sediment  
transport



## Effects:

Elevated P – Plants  
and algae take up  
and proliferate -  
water quality and  
habitats affected



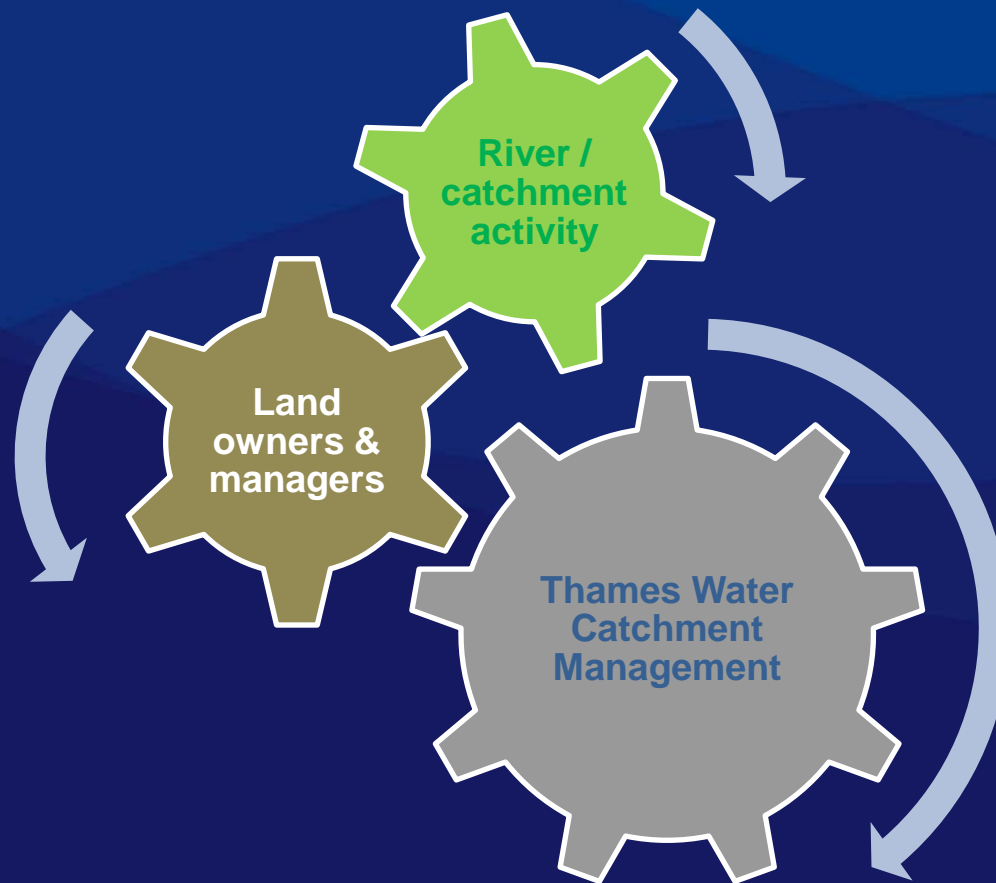
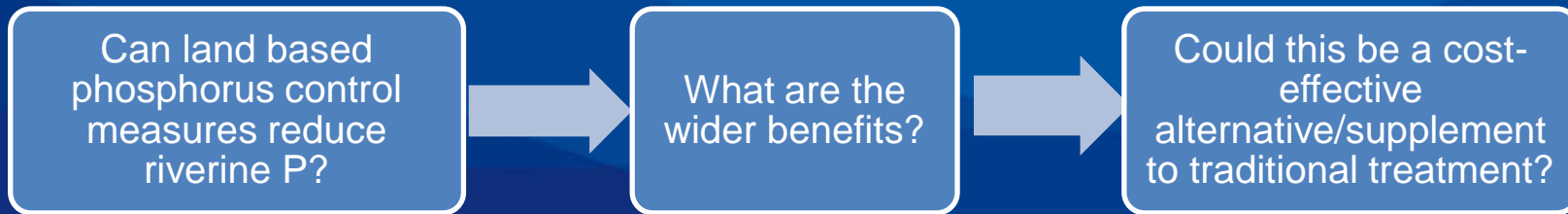
## Outcomes:

Increased cost of  
drinking water  
Angling effects  
Biodiversity effects

## To tackle this:

P standards under the Water Framework Directive – 45% of rivers fail  
Water Companies have to achieve P standards in treated effluents  
Catchment management?

# What is the project about?



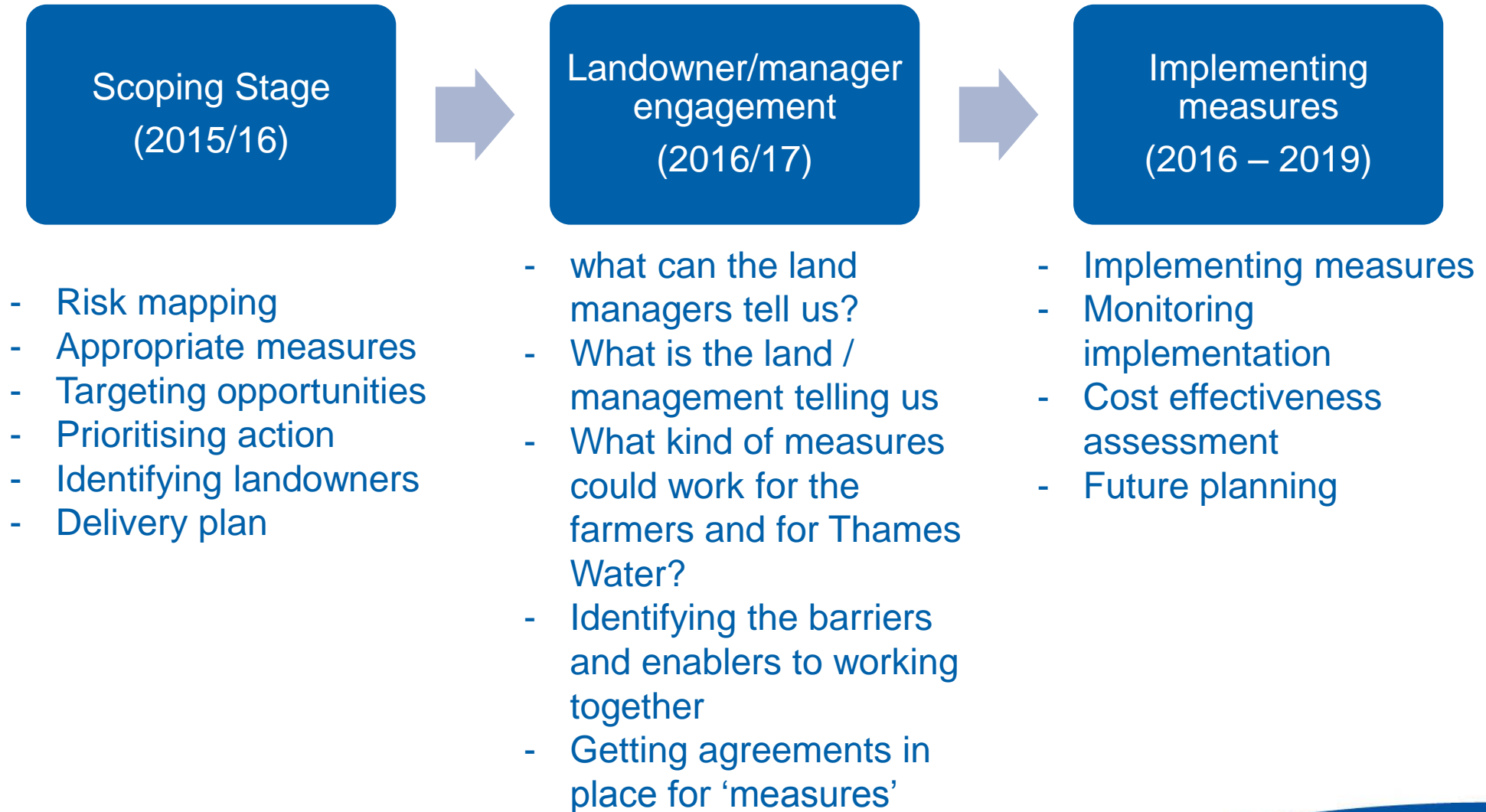
River / catchment activity may include river groups, local conservation initiatives, Environment Agency, Natural England, etc.

Landowners, land managers and anyone operating the land or making decisions about how it is used

Thames Water, Atkins (for Thames Water) plus any specialist sub-consultants e.g. Monitoring, Agricultural advisors, Land Agents, etc.



# What's the process?



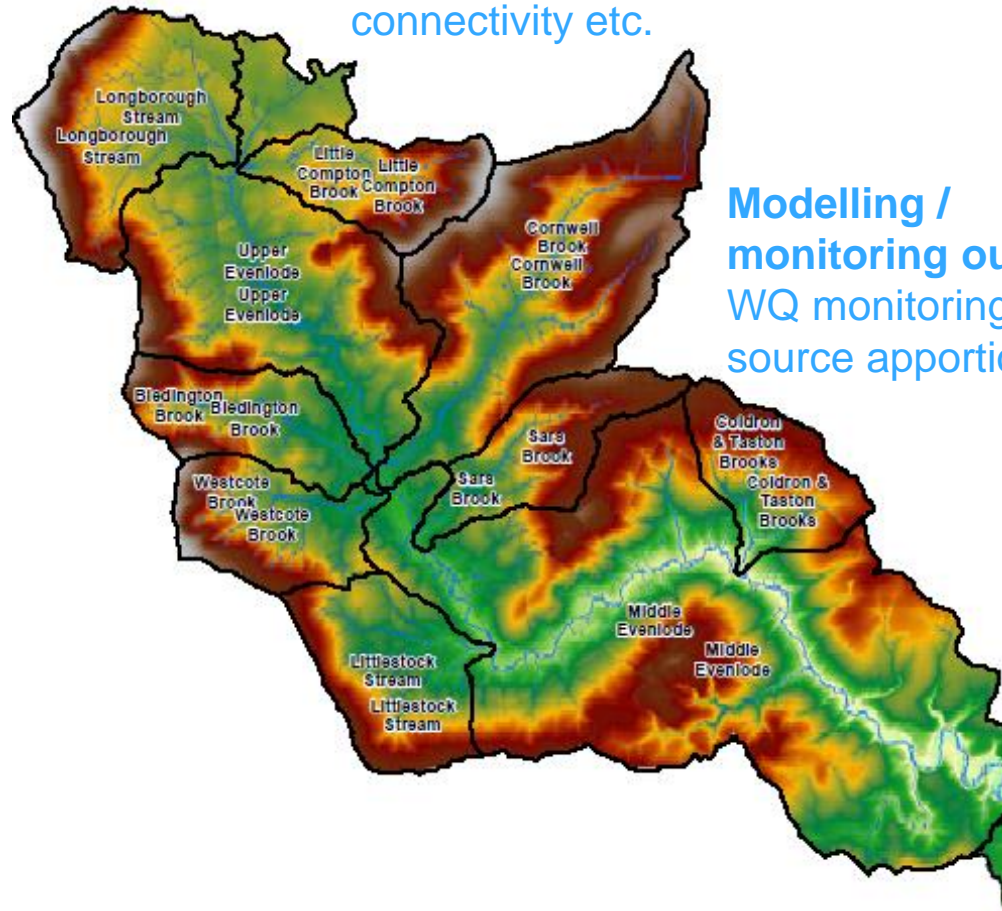
# How do we understand phosphorus risk?

Modelling & data indicating risk + farmer knowledge and experience

**Thematic mapping:**  
soils, slope, land use,  
connectivity etc.

**Farmers knowledge:**  
about the land, its  
management and the  
watercourses

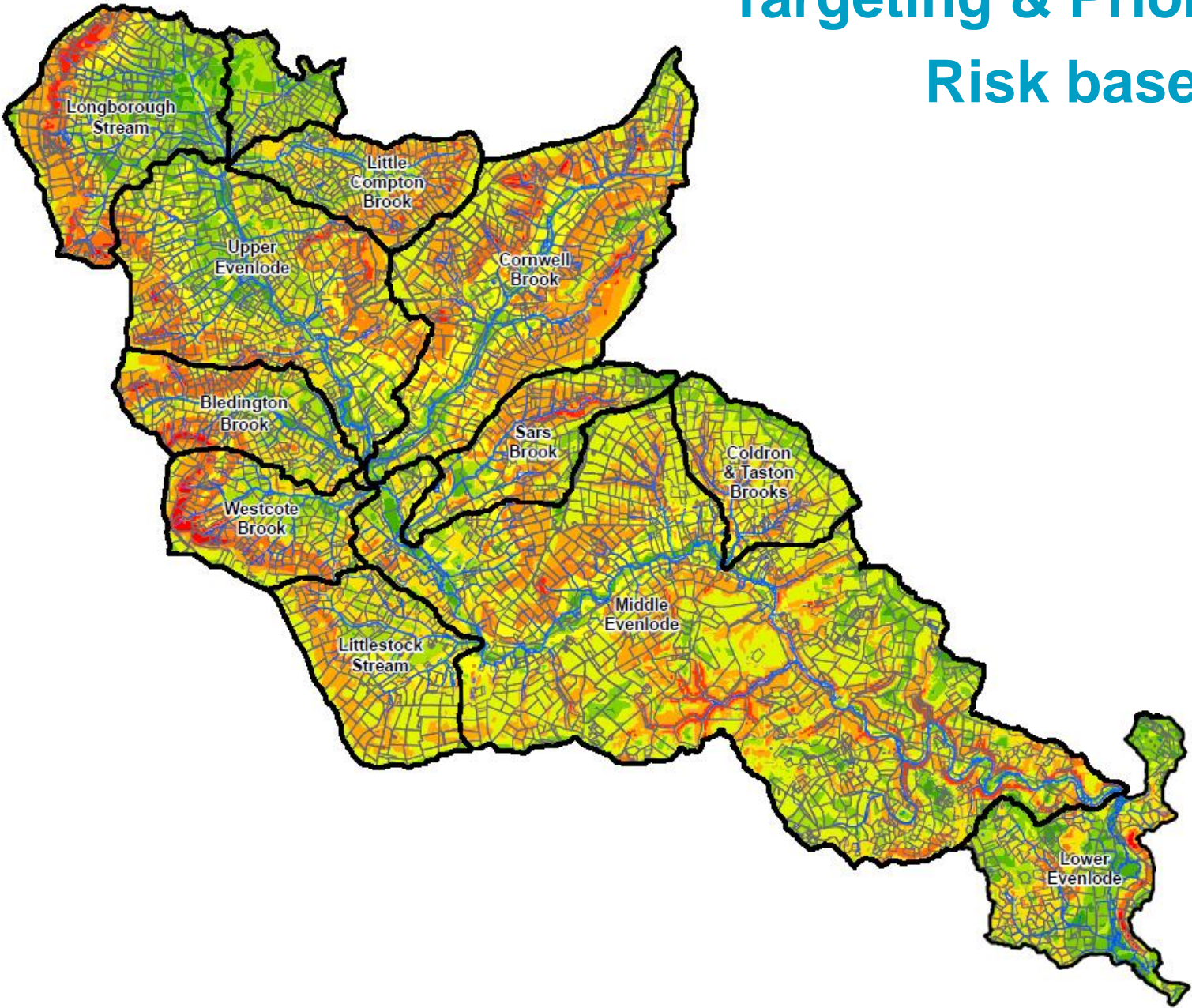
**Modelling /  
monitoring outputs:**  
WQ monitoring data,  
source apportionment



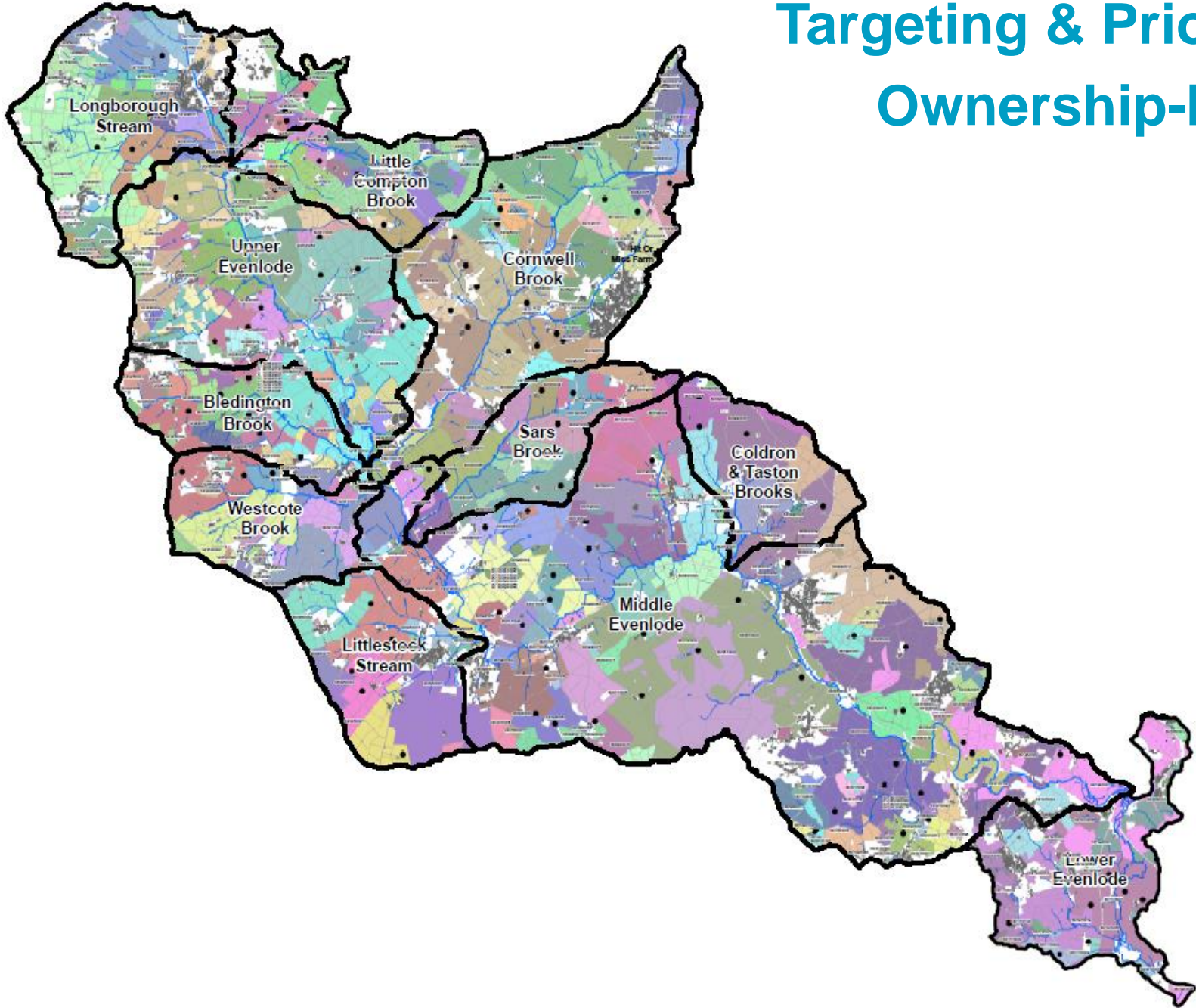


# Targeting & Prioritisation

## Risk based



# Targeting & Prioritisation Ownership-based



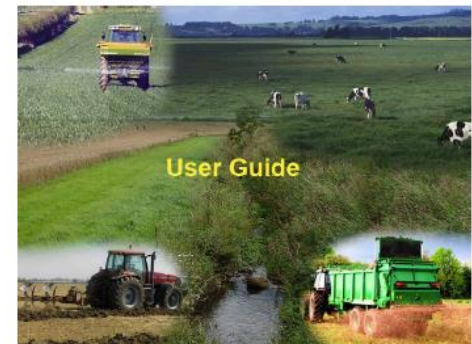


# What measures?

- Flexible - essentially doing something that reduces / disrupts the overland flow of water (that drains land posing a risk from P /sediment) into the river, and holds it back on the land.
- Drainage measures such as:
  - Collection ponds / mini wetlands / swales
  - Hedgerows, shelter belts, fenced off areas left to grow
- Management measures – e.g. fertiliser management
- Prevention of livestock poaching in river, livestock exclusion measures e.g. fencing
- What fits in with farm type and management regime and can work for P?



**An Inventory of Mitigation Methods and Guide to their Effects on Diffuse Water Pollution, Greenhouse Gas Emissions and Ammonia Emissions from Agriculture**



Newell Price, J.P., Harris, D., Taylor, M., Williams, J.R., Anthony, S.G., Duethmann, D., Gooday, R.D., Lord, E.I. and Chambers, B.J. (ADAS), and Chadwick, D.R. and Misselbrook, T.H. (Rothamsted Research, North Wyke)

December 2011

Prepared as part of Defra Project WQ0106



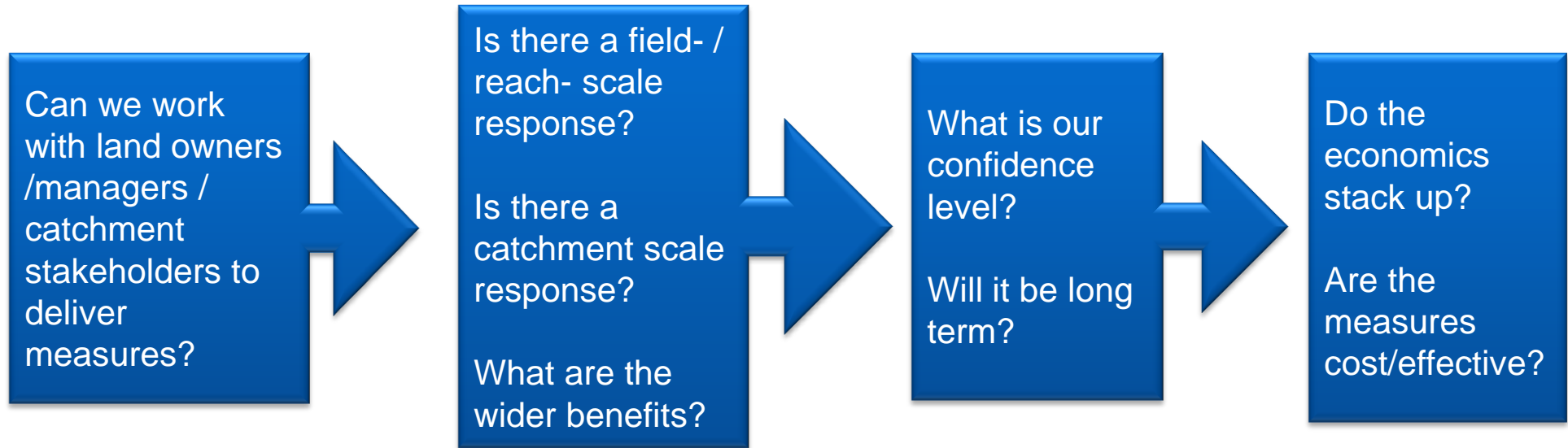


# Multiple benefits of measures

Measures on land to reduce phosphorus can also provide significant benefits for other aspects of life and work in the Evenlode catchment

- **Natural flood mitigation and river bank erosion** – measures to reduce run off can help reduce flood peaks and help reduce river bank erosion
- **River habitat** – measures can also reduce sediment inputs and subsequent deposition – better for fish and plants
- **Soil conservation** – reducing run off keeps your soil on your fields
- **Landscape value** – more diverse habitat
- **Farmer interest** – why not try something different?

# What do we need to understand?



Can we apply this approach elsewhere?