



# **Accounting for the environment in Northern Ireland**

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## Overarching context

The first generation to leave the natural environment of England in a better state than that in which we found it - a cleaner greener country for us all

- A Green Future: Our 25 year Plan to Improve the Environment published January 2018
- Underpinned by a natural capital approach
- NCC recommended government produce a 25 year plan in 2015
- NCC 'How to do it' workbook – published April 2017
- HMT Green Book on appraisal and evaluation now incorporates natural capital

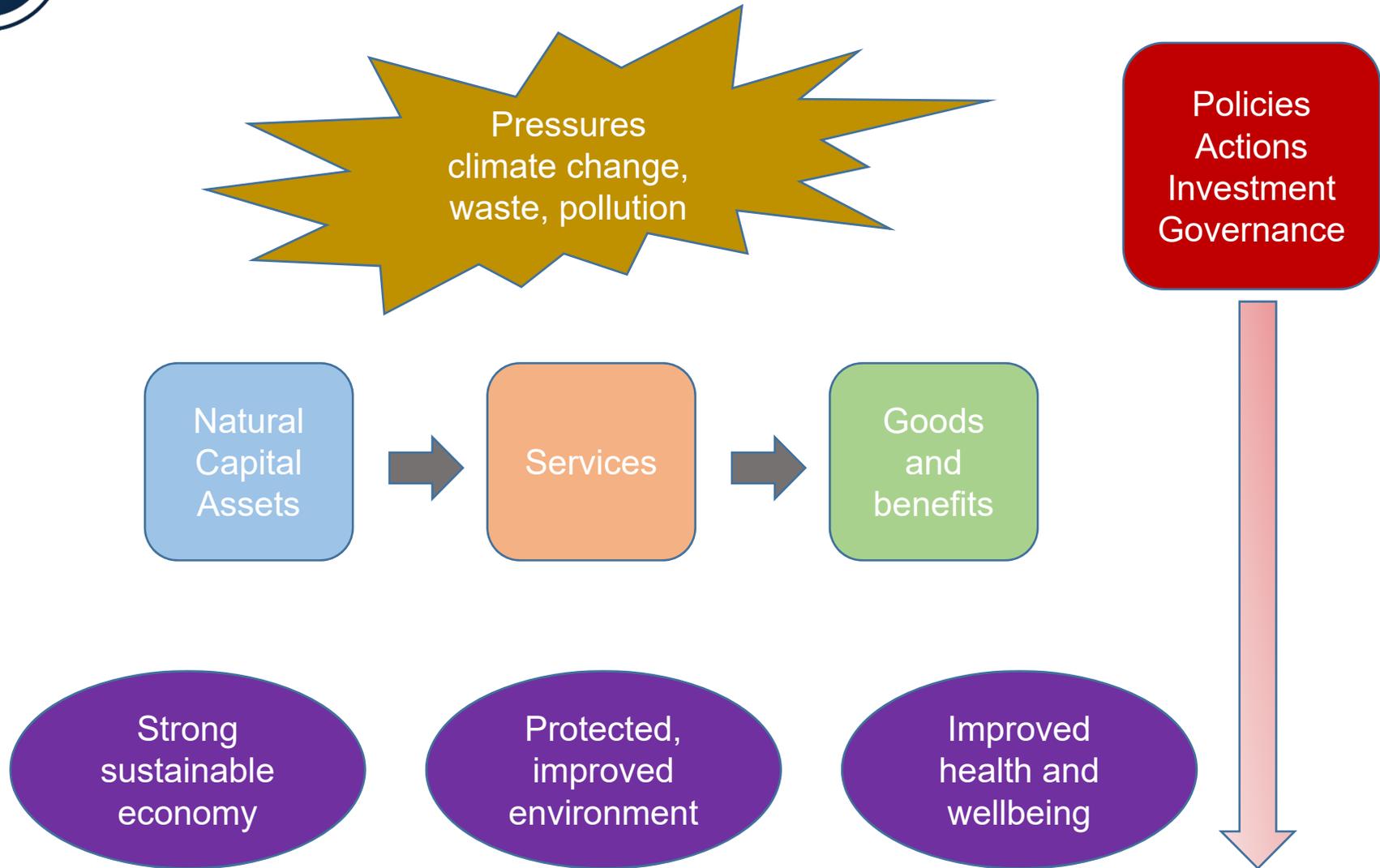


A Green Future: Our 25 Year Plan to Improve the Environment





# Overall approach



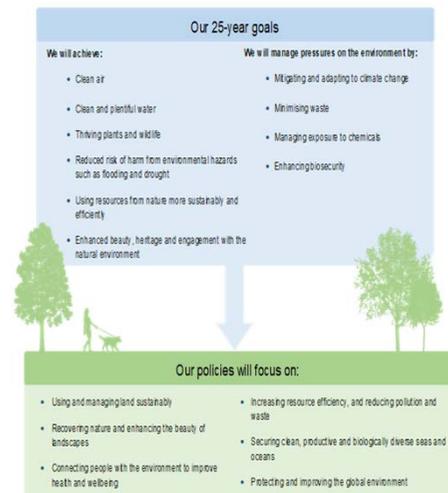


# A Green Future: Our 25 year Plan to Improve the Environment

- Embedding an ‘environmental net gain’ principle for development, including housing and infrastructure
- Designing and delivering a new environmental land management system
- Developing better information on soil health
- Restoring vulnerable peatlands and ending peat use in horticultural products by 2030.
- Planting more trees in and around our towns and cities
- Expanding the use of natural flood management solutions
- Putting in place more sustainable drainage systems
- Promoting health and wellbeing through the natural environment



A Green Future: Our 25 Year Plan to Improve the Environment





## Some of the Natural Capital Committee's areas of continuing engagement

- Quantified measures of success
  - targets for the 25-year goals – we will know we have succeeded when .....
  - metrics to assess progress towards the 25-year goals
- The plan should be placed on a statutory footing
- A single authority with statutory responsibility for its delivery accountable to Parliament
- Supported by an independent statutory scrutiny body to assess progress on an annual basis
- Local and national delivery arrangements and coordination will be important - local natural capital plans
- Full engagement with the health and wellbeing agenda



## Natural capital principles

- Place and area based
- Need to understand:
  - assets and their ownership
  - whether renewable or non-renewable
  - the extent and condition
  - if stock is increasing or decreasing
  - if at risk
  - proximity to any tipping points
- Manage natural capital so it can continue to meet the needs of people and the economy, despite mounting pressures
- And don't forget the biodiversity





## Asset assessment

Asset register

Physical flow of benefits

Monetary value of benefits

Asset risk register

Restoration cost

Maintenance cost

Natural capital balance sheet

natural capital assets, extent and condition – including of national and local importance

determine physical flow of benefits

calculate value of benefits

is the asset condition and extent at risk and if yes from what?

calculate costs of restoring assets

calculate costs of maintaining assets

is value increasing or decreasing year on year?



## National Planning Policy Framework Section 15 conserving and enhancing the natural environment

- Planning policies and decisions should:
  - protect and enhance valued landscapes
  - recognise the intrinsic character and beauty of the countryside recognise the wider benefits from natural capital
  - provide net gains for biodiversity
  - establish coherent ecological networks
  - prevent unacceptable levels of pollution
  - help to improve local environmental conditions
  - take a strategic approach to maintaining and strengthening networks of habitats and green infrastructure
  - plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries
  - promote the conservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species;
  - identify and pursue opportunities for securing measurable net gains for biodiversity
- If significant harm to biodiversity from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused



## National Planning Policy Framework

- Development on land that will impact on a SSSI should not normally be permitted
  - unless the benefits of the development clearly outweigh the impact on the site and any broader impacts on the national network of sites
- Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland) should be refused
  - unless there are wholly exceptional reasons and a suitable mitigation strategy exists
- Where development would involve the loss of individual aged or veteran trees that lie outside ancient woodland, it should be refused
  - unless the need for, and benefits of, development in that location would clearly outweigh the loss
- Development whose primary objective is to conserve or enhance biodiversity should be supported
- Opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for the environment
- Planning policies and decisions should aim to enable and support healthy lifestyles for example through the provision of safe and accessible green infrastructure



## How to do it workbook

- **Setting out the vision:** identify the high-level objectives, including benefits to focus on
- **Understanding the starting point:** determine the boundary of the assessment
  - geographic area; people involved; existing work programmes and activities
- **Building the evidence base:** identify on a prioritised basis, the natural capital assets that underpin the services delivering the benefits
  - natural capital asset register – extent and condition; natural capital risk register; natural capital accounts; maintenance
- **Identifying and weighing up options for future activities:** opportunity mapping
- **Implementation and evaluation:**
  - practical, implementable and prioritised action plan with the necessary funding identified
  - Integrated action and pooled resources
  - effective governance, accountability and reporting



## Thoughts on environmental net gain

- NPPF should reflect the 25-year plan approach
- Decision support
- Net environmental gain = net biodiversity gain plus
- Restore and maintain existing natural capital
- Use costs and benefits approach to inform investment in new natural capital
- Include so called insignificant impacts
- Incorporate mitigation, restoration, enhancement, compensation, maintenance and investment aspects
- Net environmental gain of 20%?
- Don't net off benefits and dis-benefits
- Beware of trade offs
- Consider location including proximity to beneficiaries
- Account for:
  - time lag between impact and the establishment of the new; distinctiveness: species richness, diversity, rarity; uncertainty of the effectiveness of the restoration





## High level findings: Oxford, Milton Keynes, Cambridge Growth Corridor

- The Natural Capital Committee 'How to do it workbook' provides a useful framework on which to build
- It takes time and effort to build confidence and common purpose in multi-stakeholder groups
- A range of approaches to address aspects of natural capital have already been developed in the various local authorities and counties
- Any new approaches need to find ways of building on this work
- The identification and weighing of natural capital investment options was complex
- LNPs provide added value in the decision-making process as they bring together a wide range of views on particular topics
- The existing environmental protections do not mitigate the cumulative impacts of new development



## Natural capital policy options

- What questions are being asked:
  - route planning; housing locations; new settlement design; how to halt the decline; what is the baseline position; what is most at risk; what should be included in a land management payment system; catchment management; reduce flood risk; reduce air pollution
- Introduce a net environmental gain (biodiversity plus) requirement in planning policy for all development including housing and infrastructure
- All infrastructure providers, housing developers and local councils to implement a net environmental gain (biodiversity plus)
- All housing developments incorporate net environment gain and publicly accessible green space within their design
- Close cooperation with the health and wellbeing agenda

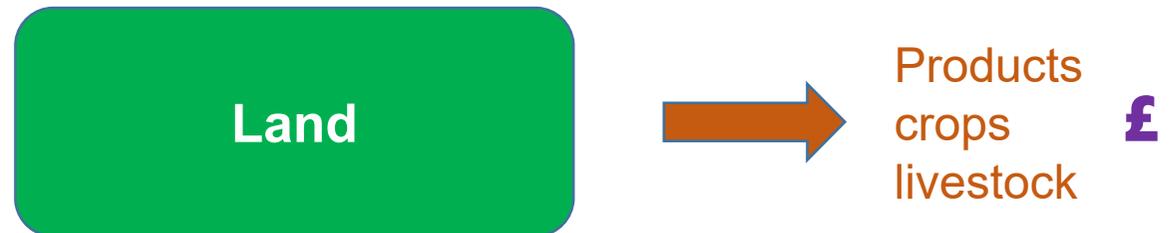


## Natural capital policy options

- Which ecosystem services could be funded under a public goods for public money policy?
  - provisioning; regulating; cultural; supporting
- What are the tests to decide if the public should fund something?
- Who are the beneficiaries including the public and are they willing to pay?
- Proximity of beneficiaries in relation to the value of the service
- Do the benefits provide public services or do they increase the value of private?
- Is it an ecosystem service with underpinning natural capital asset or is it just a service to an identified beneficiary?
- People can't be paid to comply with legislation
- Ecosystem service values cannot be at the expense of a reduction in the value of the underpinning assets
- Require integrated approaches to be taken to maximise the benefits of existing funding



## Provisioning ecosystem service £





# Provisioning ecosystem service £ £

Inputs  
fertiliser, manures,  
slurry, chemicals,  
feed, seeds

£



crops animals  
£



Products  
crops  
livestock £

Activities  
farming practices



# Provisioning ecosystem service £ £ £

is it a public good?

Inputs  
fertiliser, manures,  
slurry, chemicals,  
feed, seeds

£



crops animals

£



Products  
crops  
livestock

£

Activities  
farming practices



Diffuse pollution  
nitrates, phosphates,  
sediments

£



River



Water quality 1

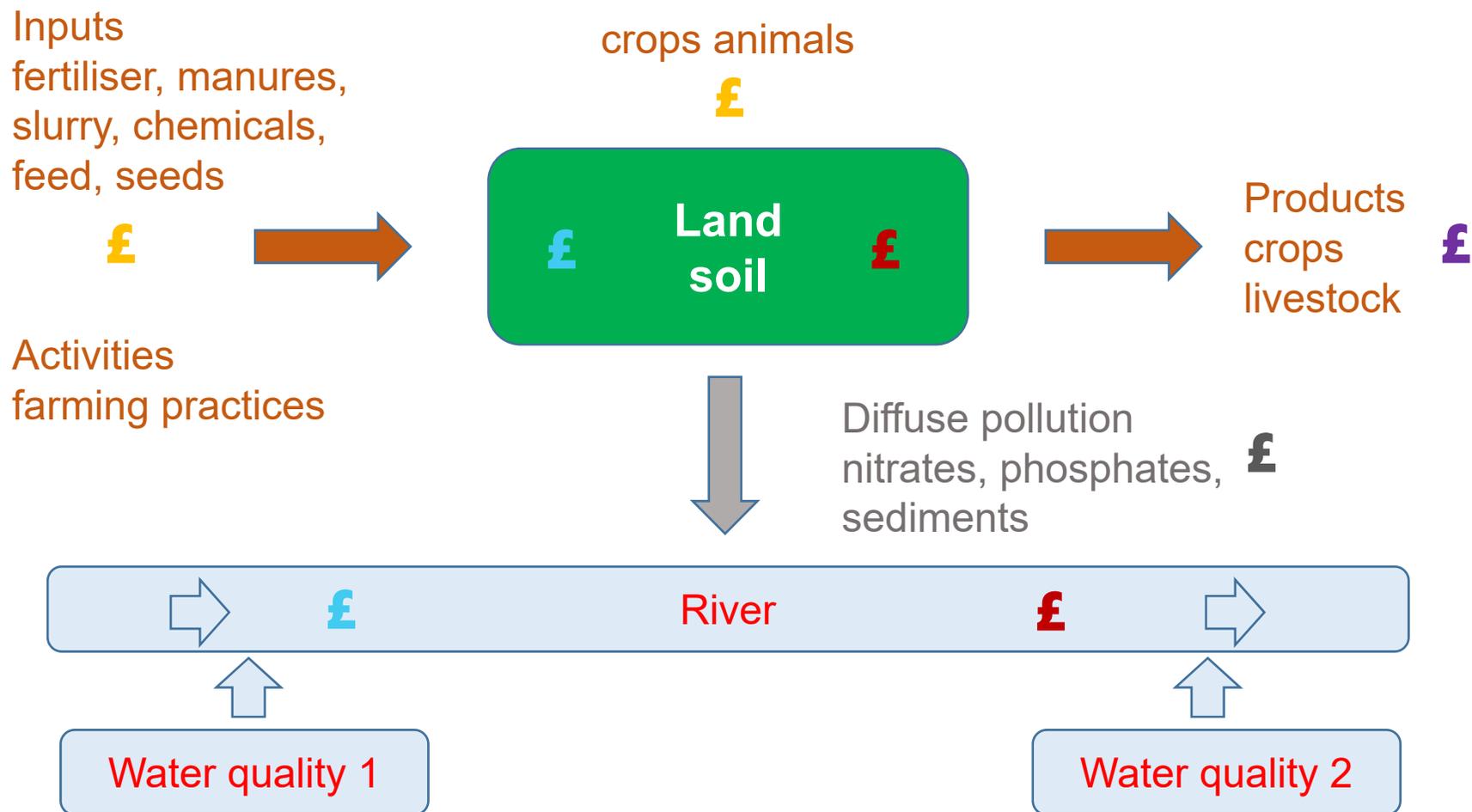


Water quality 2



# Ecosystem services £ £ £ and natural capital? £ £ in a catchment context

how do the activities affect the value of the natural capital assets – are the assets soil, water etc increasing or decreasing in value?  
and what about the emissions to air?



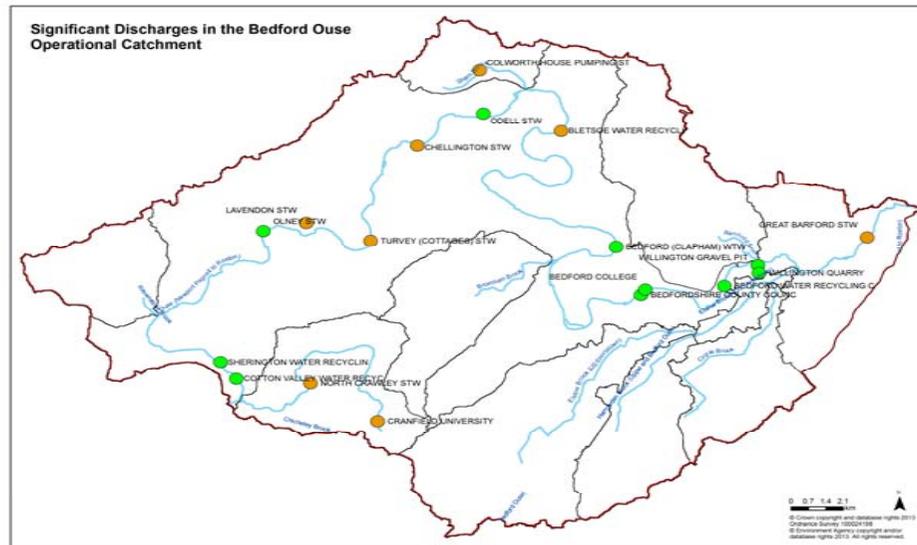
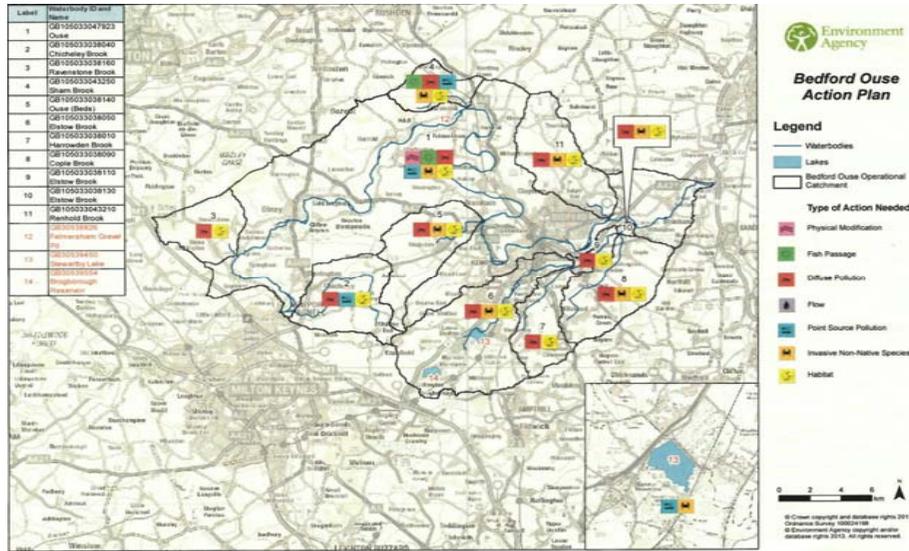


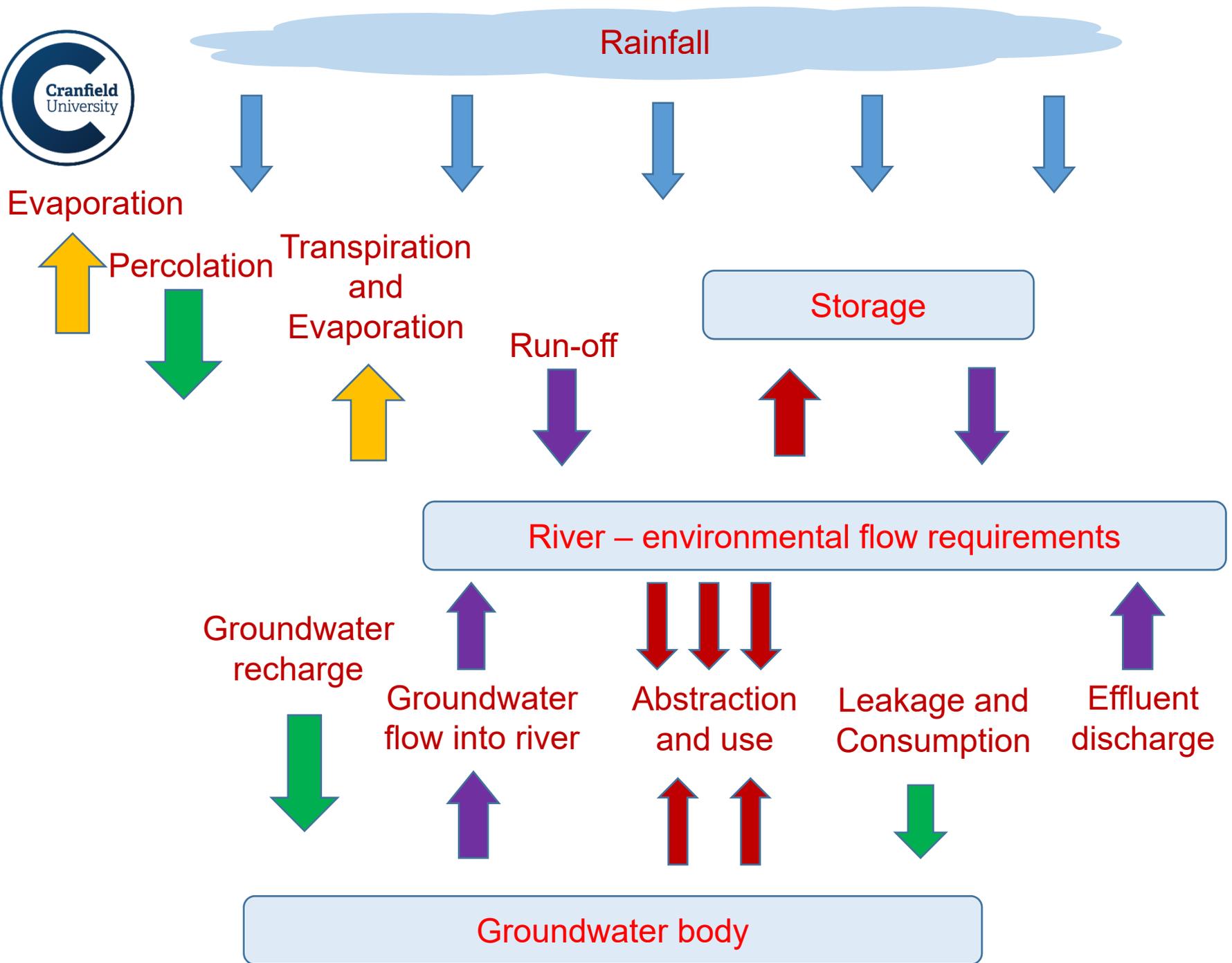
## To protect and enhance the environment and natural capital in Northern Ireland

- A baseline set of data and maps should be produced and made available for use across Northern Ireland
- This should include constraints, opportunities and beneficiaries
- A natural capital asset register with an associated risk register should be established - this should include the asset extent and condition, the risks facing them, what is missing, and the cost of their restoration and maintenance
- An agreed approach to assessing net environmental gain (Version 1) should be developed for use across Northern Ireland
- A prioritised natural capital investment plan should be developed for implementation at local, local authority and Northern Ireland wide levels



# Understanding catchment pressures



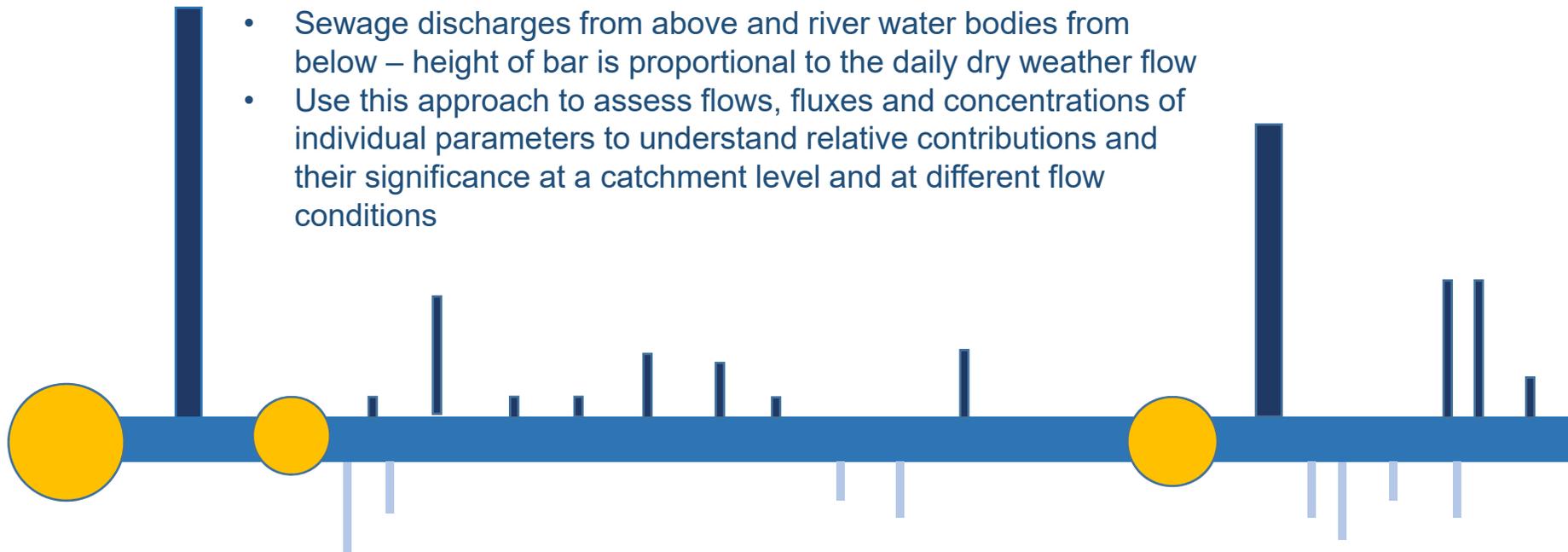




## River tube map (PRTM)

same river system as on the previous slide

- Sewage discharges from above and river water bodies from below – height of bar is proportional to the daily dry weather flow
- Use this approach to assess flows, fluxes and concentrations of individual parameters to understand relative contributions and their significance at a catchment level and at different flow conditions



City / town



Main river water body



River water body



Sewage treatment works discharge

- Some interventions on a particular water body will have a negligible impact on a downstream water body
- It is unlikely that enhanced interventions on diffuse rural pollution on land alongside the main river will have a measurable impact – but clearly could be very effective on some of the smaller water bodies
- A catchment based permit for groups of treatment works may be appropriate as may flow and season based discharge limits



## Catchment approaches

- Under what circumstances are:
  - catchment, seasonal and receiving flow based permits appropriate
- Will regulators accept the risk that a catchment based solution may not work?





# Scottish approach to rural diffuse pollution

## River basin management plan 1: 2009 – 2015

- General binding rules for wide range of land management activities
- Scottish Rural Development Programme funding for some to go beyond GBR requirements
- Catchment walks in 14 priority catchments
- Fixed monetary penalties for farms that remained non-compliant at third revisit
- 84% of farms compliant at their first revisit

## River basin management plan 2: 2016 – 2021

- Only 1 revisit to a non-compliant farm before initiating enforcement action
- Advice on both pollution and the General Binding Rules





## Drinking water protection scheme measures

- Nutrient management plans
- Pesticide control
- Stock fencing
- Livestock watering
- Field management
  - loosen compacted soil layer
  - contour cultivation
  - manage over-winter tram lines
- Reducing surface flow
  - gate relocation
  - re-surfacing of gateways
  - cross drains under farm tracks
  - grass swales
  - check dams
- Peatland restoration
  - grip blocking
  - application of nurse crops
  - heather brash spreading

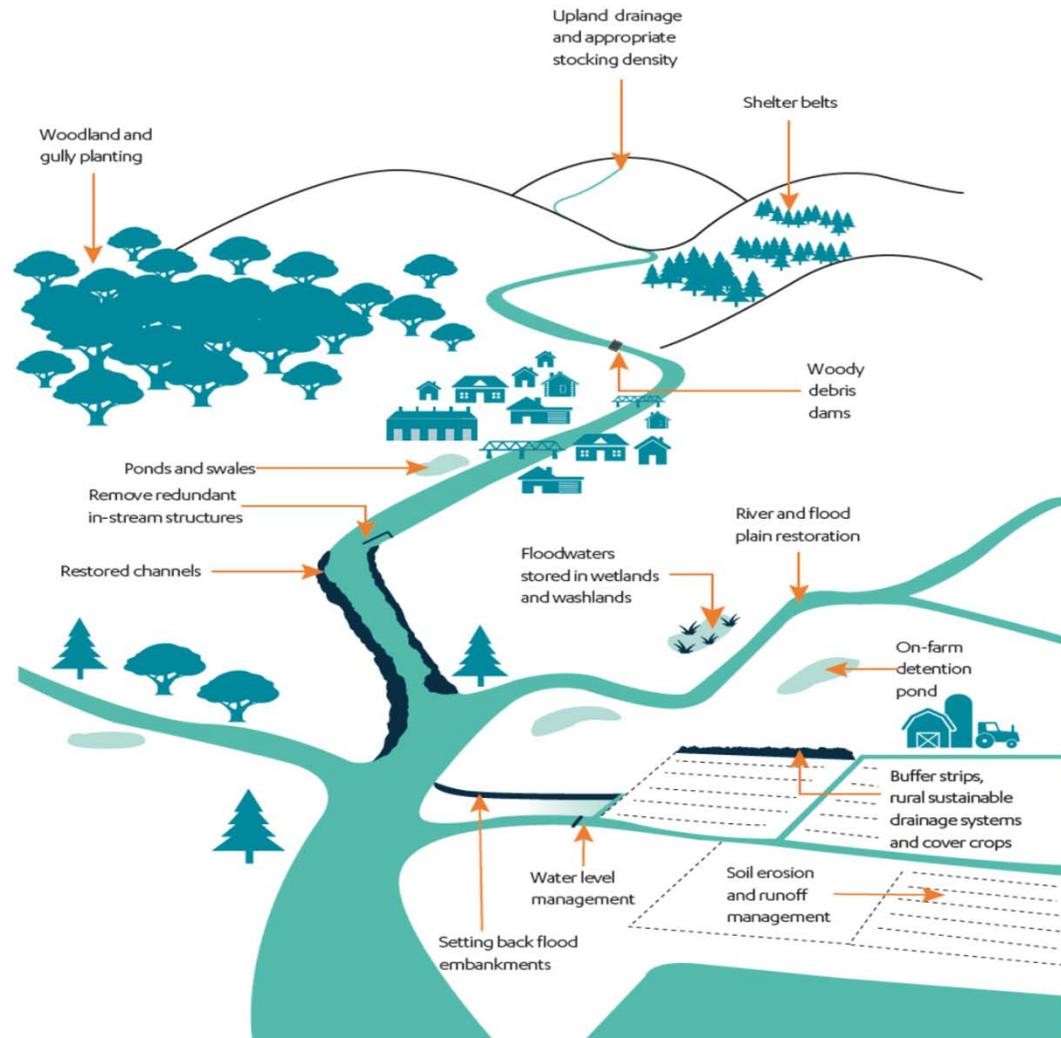




# Land management based approaches



Figure 15: Flood management interventions across a catchment<sup>95</sup>





# Land management based approaches excellent and essential but don't over promise what they can achieve



Figure 15: Flood management interventions across a catchment<sup>95</sup>

