

Key Elements of *Integrated Catchment Management*

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Demonstration
Test
Catchments

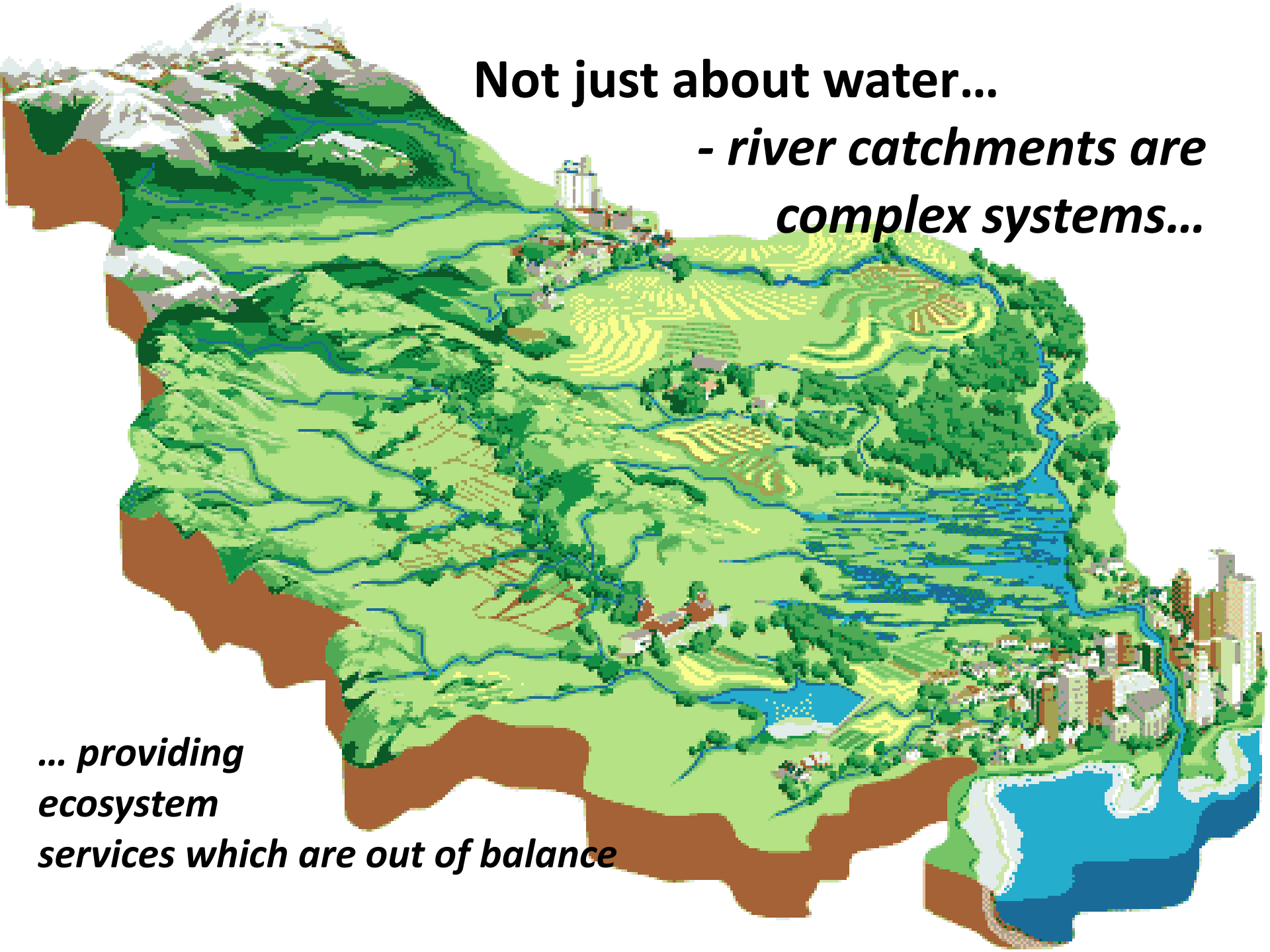


Catchment Science Centre

Not just about water...

***- river catchments are
complex systems...***

***... providing
ecosystem
services which are out of balance***



Integrated Catchment Management

- Concept developed since the early 1900s
- Gained prominence in the last 20 or 30 years as a potentially valid management approach.
- Different terminologies used including: Integrated Water Management (IWM), Integrated River Basin Management (IRBM), and Integrated Water Resource Management (IWRM)
- Consensus similarly varies over a definition of what ICM actually means

What is Integrated Catchment Management?

4 definitions

Global Water Partnership (GWP) 2000

*“a **process** which promotes the coordinated development and management of water, land and related resources, in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems”*

Motueka River Catchment, New Zealand

*“a **process** that recognises the catchment as the appropriate organising unit for understanding and managing ecosystem processes...*

- in a context that includes social, economic and political considerations, and*
- guides communities towards an agreed vision of sustainable land and water resource management for their catchment”*

Murray-Darling Basin Ministerial Council, Australia

*“a **process** through which people can develop a vision, agree on shared values and behaviors, make informed decisions and act together to manage the natural resources of their catchment.*

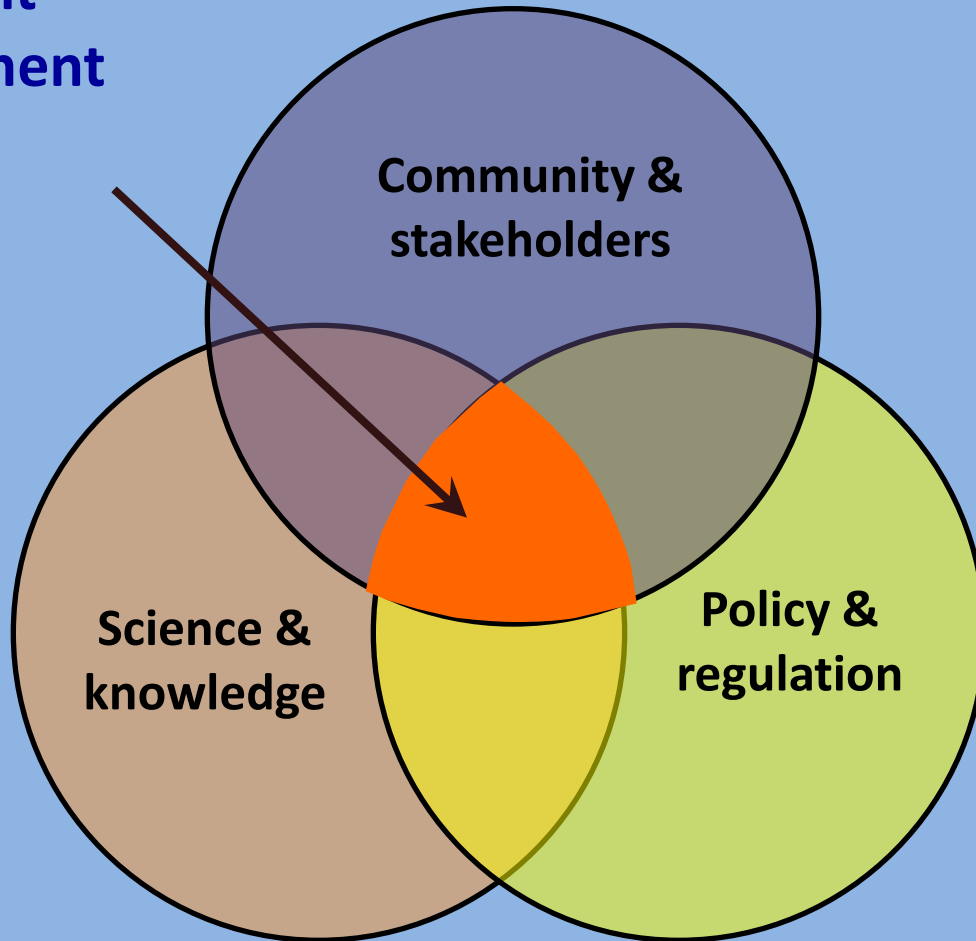
Their decisions on the use of land, water and other environmental resources are made by considering the effect of that use on all those resources and on all people within the catchment”

Division of Water, Environment & Forestry Technology, CSIR, South Africa

“...recognises the need to integrate all environmental, economic and social issues within (or related to) a river basin into an overall management philosophy, process and strategy or plan.

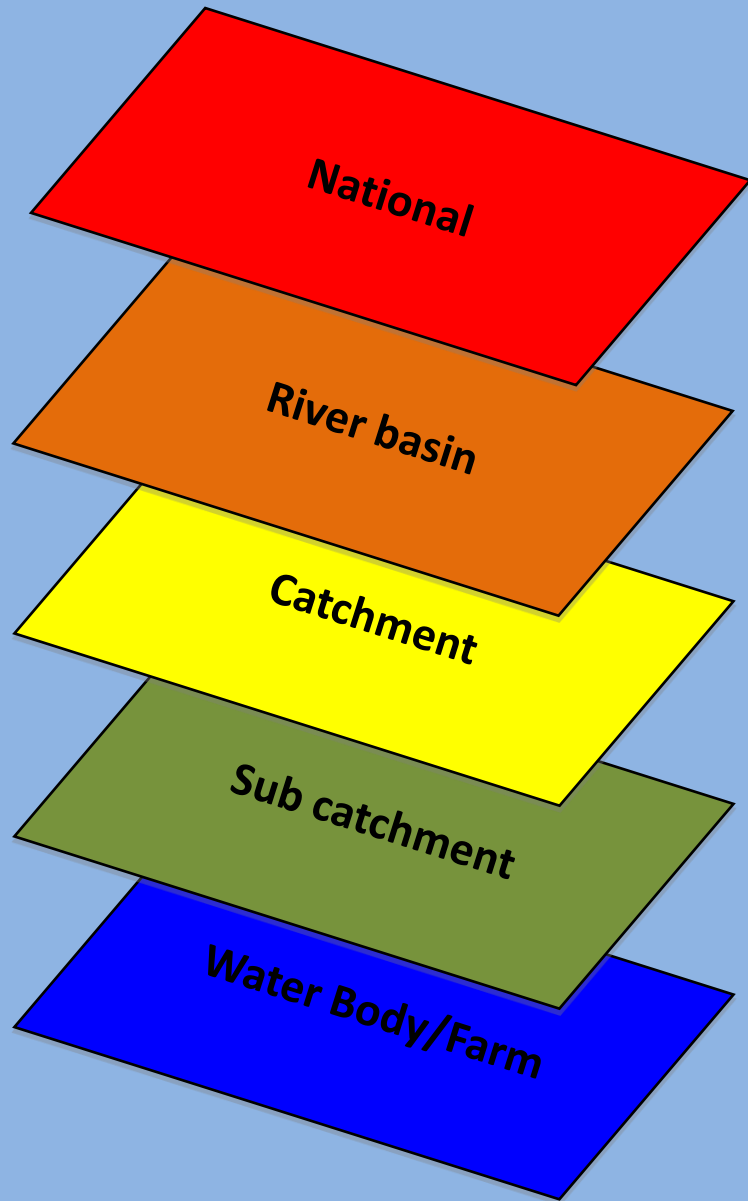
ICM is aimed at deriving the greatest possible mix of sustainable benefits for future generations and the communities in the area whilst protecting the natural resources upon which these communities rely”

Integrated Catchment Management



after Bowden 1999

Different scales for different activities



National policy & co-ordination

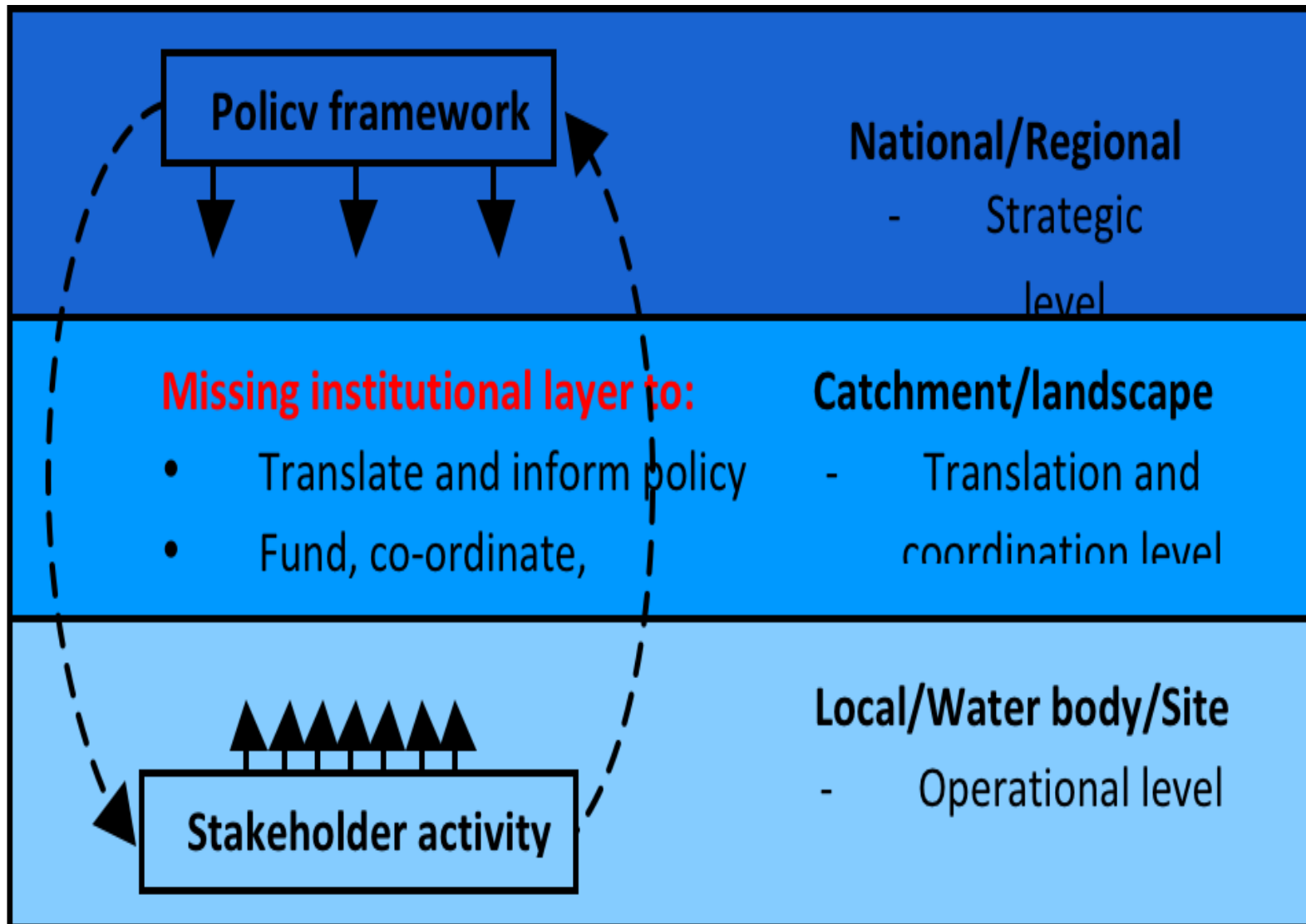
RB Planning requirement

Landscape and local authority connection

Collaborative action scale

Individuals/Groups

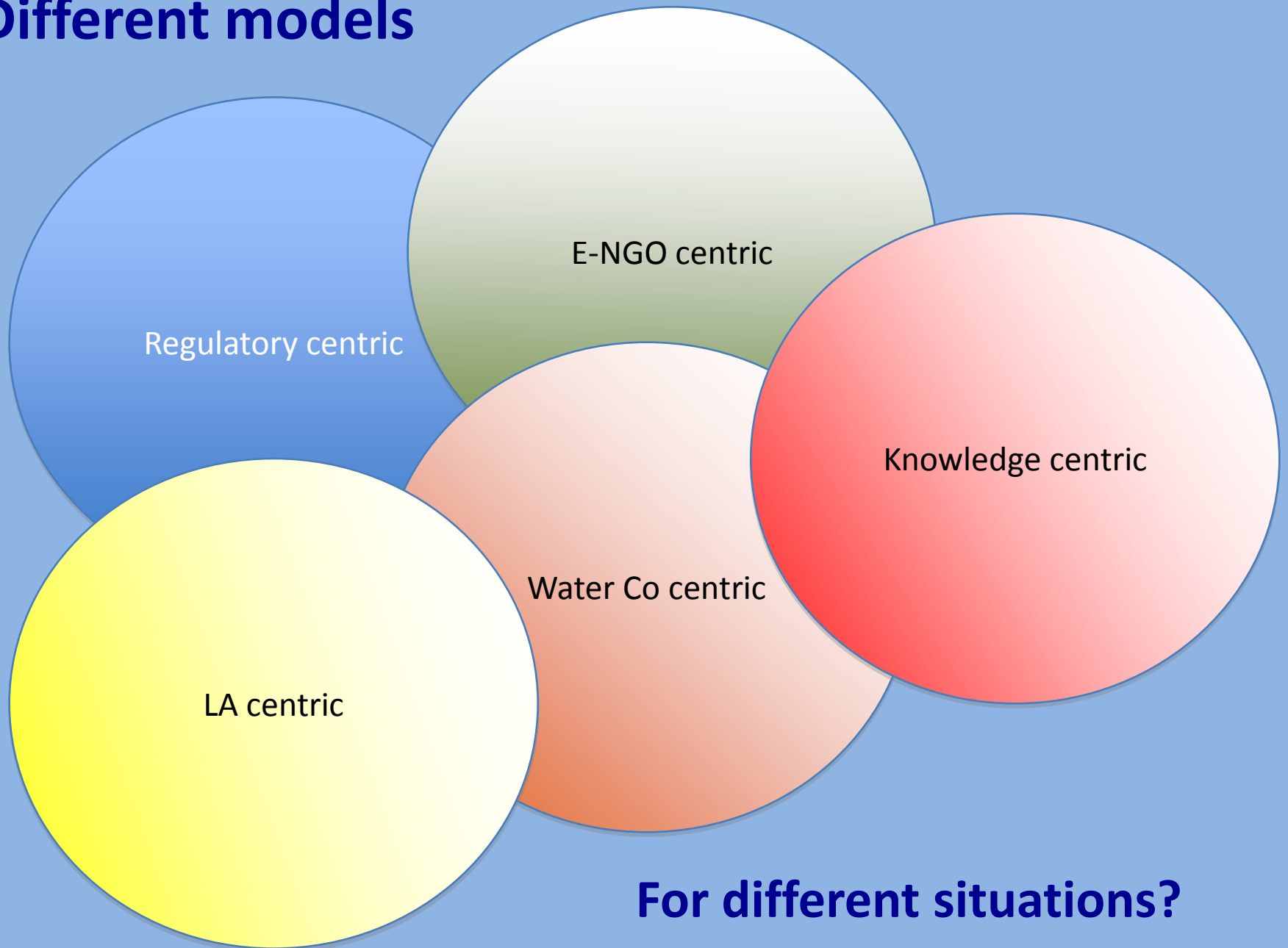
The Missing Institutional Layer



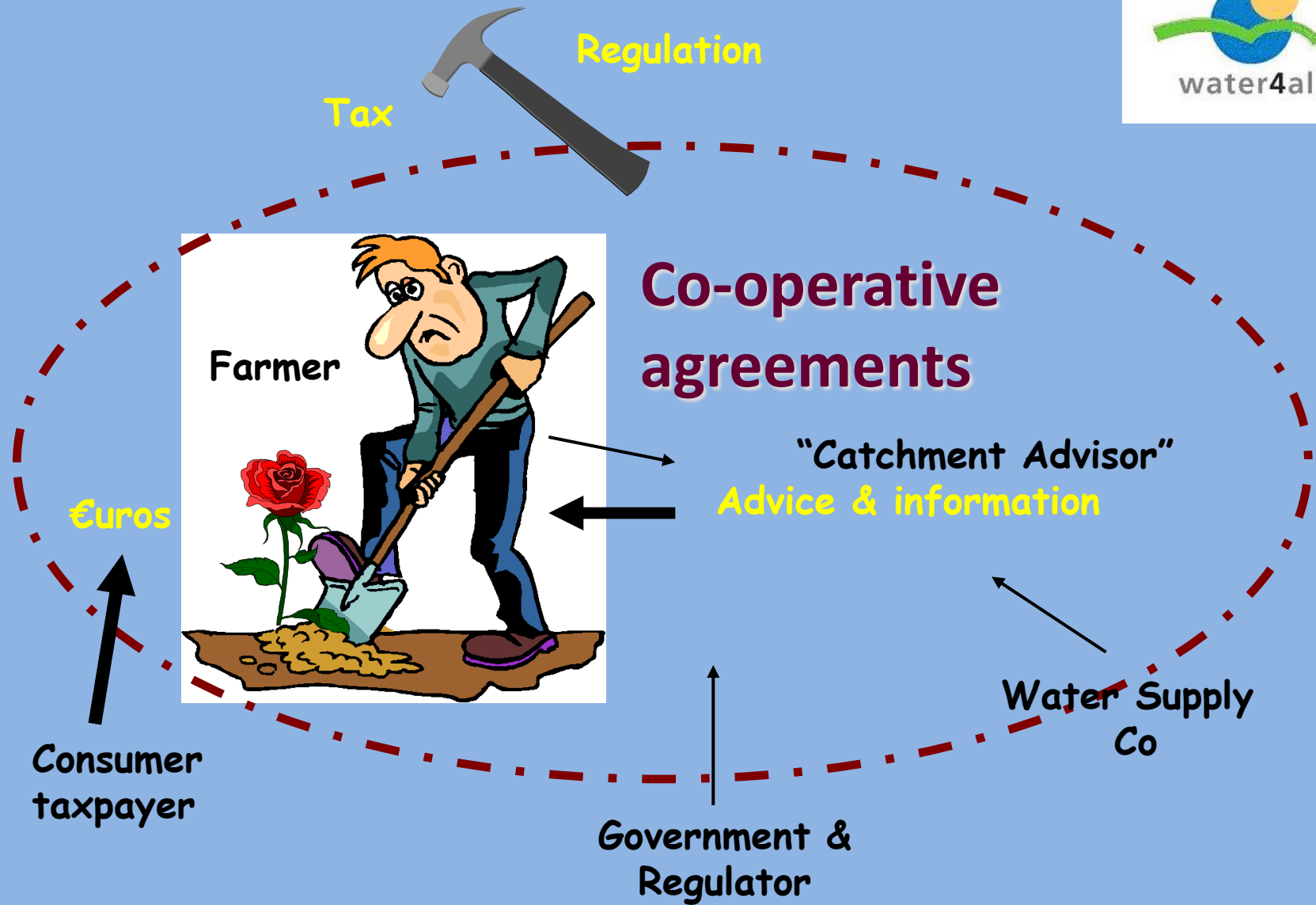
This level has several key roles to play

- translating national or regional policy and guidance to the operational level.
- co-ordinating local activity to help achieve the goals established at the higher river basin, regional or national scale.
- prioritising and distributing funding for local activity.
- transferring information back to regional and national scales, ensuring that local-scale activities inform the development of new policy.
- linking to spatial planning.
- Consolidating knowledge related to the integrated system.

Different models



For different situations?



Some Learning from Others

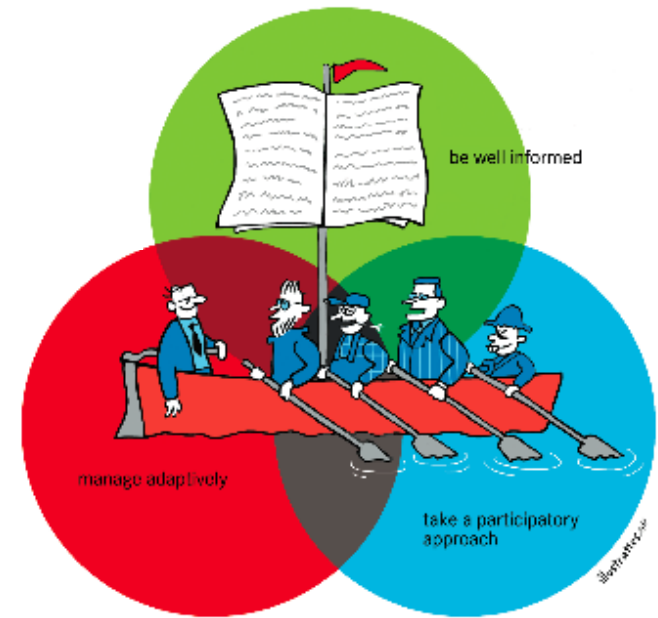
- Have to work at the **catchment scale** and below;
- Modelling the socio-economic issues need to be undertaken at a larger scale;
- **Local knowledge and local community involvement is essential/critical** – invest in partnerships rather than worry about the transaction costs;
- Stakeholders/decision-makers must **use best available science**
- **Use models** but they must be “demystified”;
- A **shared conceptual understanding** of the catchment amongst stakeholders is essential;
- Water and the **water environment/ecosystem has to be valued** by the stakeholding community;
- “If you can’t measure it you can’t manage it” – **data is important**;
- **There has to be institutional support.**

Guiding principles promoted by the US EPA with regards to their “Watershed Approach”

- ***Geographic Focus (Scale)*** – Activities directed within specific geographic areas, typically the areas that drain to surface water bodies or that recharge groundwater.
- ***Partnerships*** - Those people most affected by management decisions involved throughout and shape key decisions to ensure that environmental objectives are well integrated with those relating to economic stability and other social and cultural goals.
- ***Sound Management Techniques based on Strong Science and Data*** - Collectively, watershed stakeholders employ sound scientific data, tools, and techniques in an iterative decision making process.

Learning from Europe

- **Be well informed**
 - Have a sound understanding of the functioning of the soil-water system and its interaction with the socio-economic system
- **Manage Adaptively**
 - “Learn to manage by managing to learn” as a way of addressing uncertainties in the system
- **Take a participatory approach**
 - Learn and manage together to develop “win-wins”



10 Principles emerging from the RELU project:

*Developing a
Catchment
Management Template
For the Protection of
Water Resources:
Exploiting Experience
from the UK, Eastern
USA and Nearby Europe*

- Holistic
- Twin-track
- Adaptive
- Informed
- Catchment based
- Co-ordinated
- Locally led
- Trusted
- Legitimate
- Funded

Maitland River Watershed, Ontario

There is a sequence that should be followed for any given place

- Understand the issues
- Build capacity to deal with the problems
- Build collaboration between the stakeholders
- Improve water quality/hydromorphology
- Improve the ecosystem goods and services

This of course should be iterative in nature and a monitoring/verification strategy should be built in

We've been here before!

Mersey Basin Campaign

www.merseybasin.org.uk



1985-2010

25 years of inspiration.

We've been here before!

Parrett Catchment Project

www.parrettcatchment.info



THE PARRETT CATCHMENT PROJECT

"A future when it rains"

The Importance of Institutional Support

“the PCP does illustrate the problem of the non-existence of the necessary political, financial and legislative power needed to encourage and maintain such an initiative. The person who was the main instigator of PCP was knowledgeable about water management, visionary, and in a position of power within the County Council. He then moved on, there were changes of management at different levels, decline in understanding and support - not to mention fading memories about the flooding - and it became an easy target for budget cutting.”

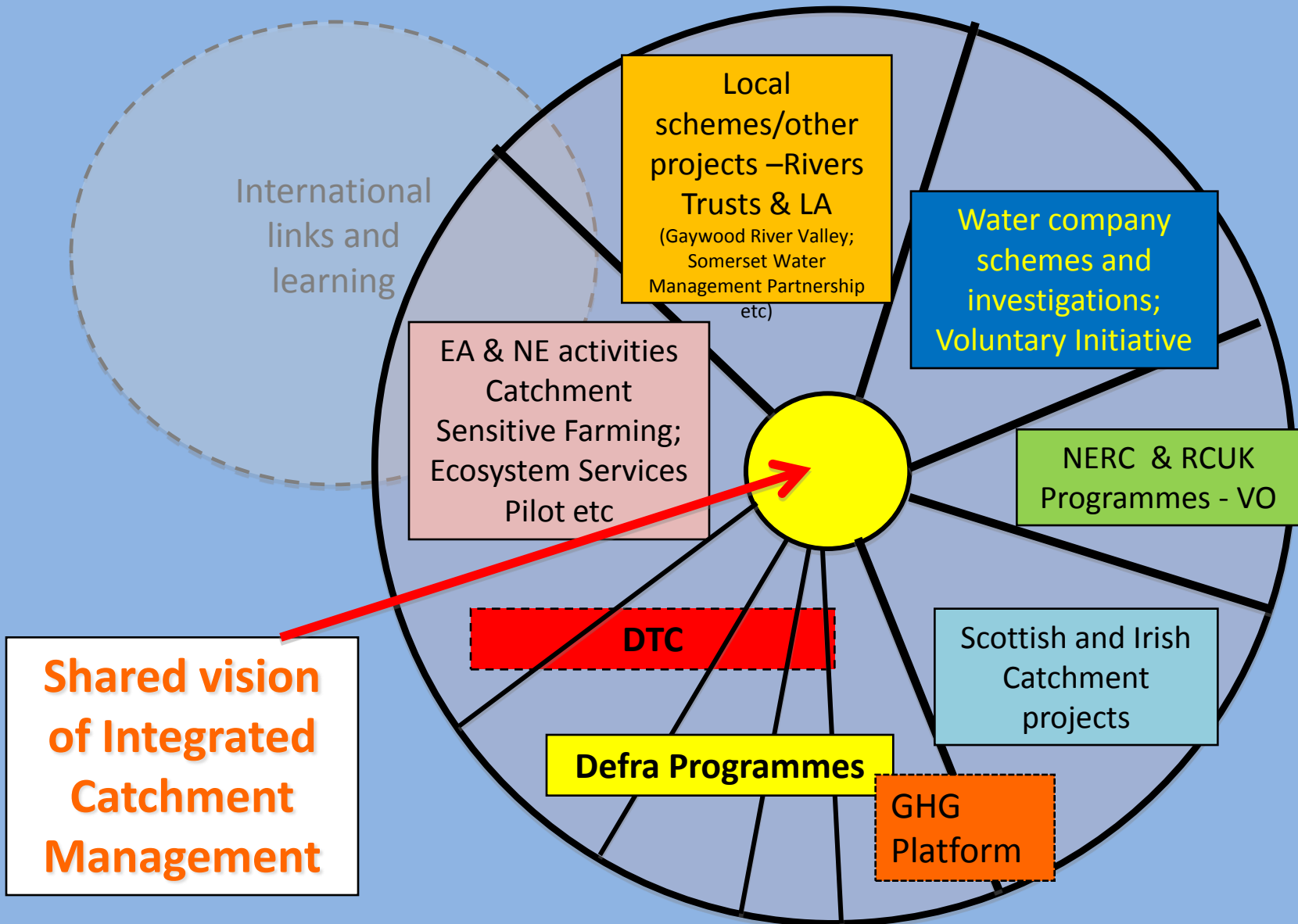
ICM as a process - the challenges in the UK

- Water and river ecosystems have little identifiable “value” in our society;
- We have lost the connectivity of people to their (environmental) surroundings - who knows where “their” catchment is and how they relate to or influence it?
- We like to work a top-down system; so no institutional support
- Our river basins do not lend themselves to large scale joined-up planning - geographically and institutionally;
- Science/research is not involved in “the process”.

So what do we do?

- The River Basin Planning process is a type of ICM, but in E&W it's not embracing the principles and concepts through a lack of vision;
- We're at the wrong scale. It needs a bottom-up involvement combined with top-down buy-in/encouragement;
- To reap any benefits we need to rethink the consequences of WFD implementation.... not in terms of a job to do, but as a new start; a new and more efficient approach to land use and resource planning.

a “family” of projects involving integrated catchment management united through.....?



Grasping the Opportunity

- The “**Big Society**”;
- The **Natural Environment & Water White Papers**;
- The current **economic situation**
- The developing “**ecosystems approach**”;
- 100+ **water company catchment management schemes & investigation**;
- LWEC proposal for a UK **water research & innovation strategy**.
- **NERC’s pilot Virtual Observatory**
- etc; etc