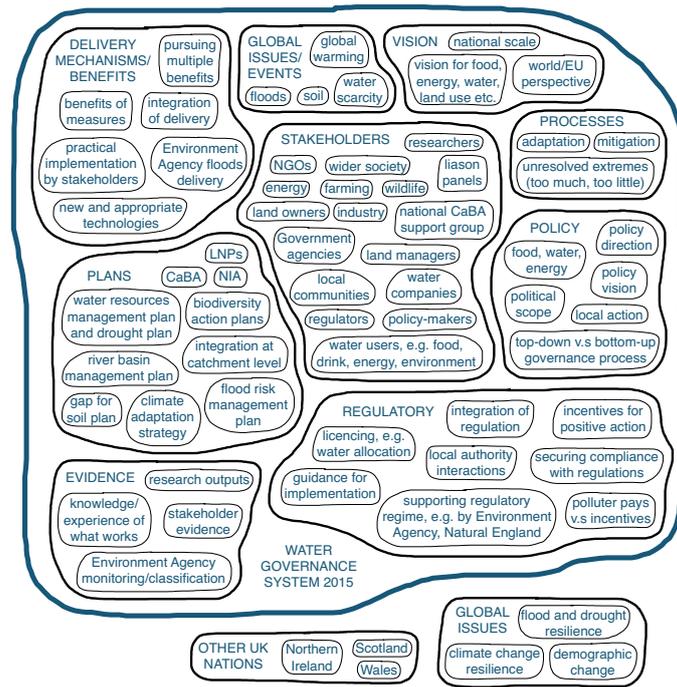


Supplementary Materials: Water Governance in England: Improving Understandings and Practices through Systemic Co-Inquiry

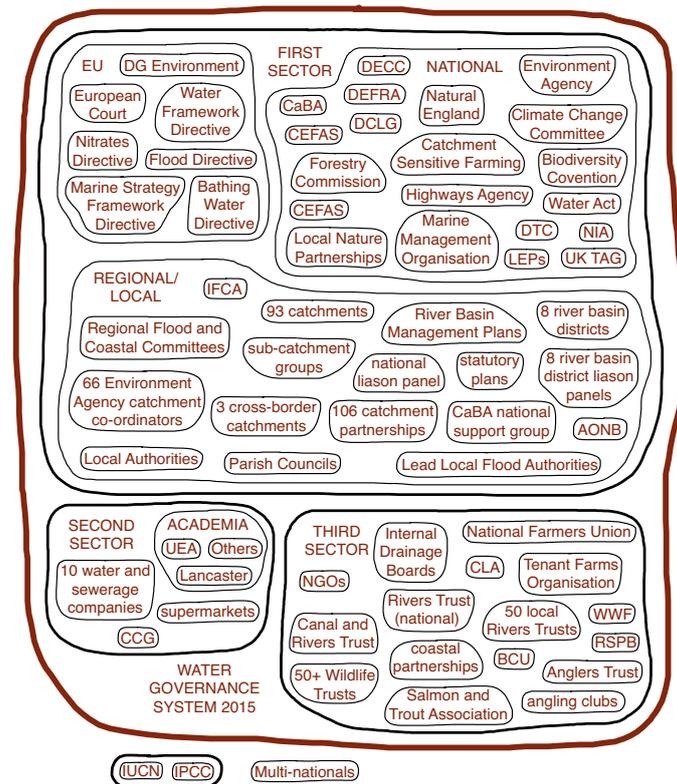
Natalie Foster, Kevin Collins, Ray Ison and Chris Blackmore

Table S1. Workshop participants.

Stakeholder Group	Organisation	Name	Workshop 1	Workshop 2
CADWAGO researchers	Open University	Chris Blackmore	✓	✓
		Kevin Collins	✓	✓
		Natalie Foster	✓	✓
		Ray Ison	✓	✓
Government bodies	yellow ^{DEFRA}	Richard Cole	✓	✓
		Ashley Holt	✓	✓
	Environment Agency	Damian Crilly	✓	
		Clare Johnstone	✓	
	Natural England	James Grischeff	✓	
Consultants	Cascade Consulting	Kieran Conlan	✓	
	WRc	Jennifer Horn	✓	✓
	Independent consultants	Chris Ryder	✓	
		Alex Inman	✓	
		John Colvin		✓
NGOs	The Rivers Trust	Arlin Rickard	✓	✓
	NFU	Paul Hammett	✓	✓
	Water UK	Sarah Mukherjee		✓
	RSPB	Mark Robins		✓
Academics	Sheffield University	Bob Harris	✓	
	Middlesex University	Paula Micou		✓



(b)



(c)

Figure S2. Systems maps of the current water governance situation in England constructed by the workshop participants (redrawn from the versions created at the workshop) [1]. (a) Group 1; (b) Group 2; (c) Group 3.

Table S2. BATWOVE and root definition applied to the current water governance situation in England by the workshop participants (redrawn from the versions created at the workshop) [1].

Group 1	
Beneficiaries	Politicians, ministers, bill payers, fish and shellfish industry, water users/consumers, some ecosystems, recreational users, irrigators
Actors	Press (media), academics, teachers, farmers, NGOs and other third sector volunteers, water and sewerage companies, Environment Agency, Natural England, OFWAT
Transformation	Public water supplied and waste water treated
Worldview	Provide goods and services to society, provide clean drinking water, natural capital under-valued
Owners	Property owners, water and sewerage companies, Government, voters, regulators, EU Parliament and Council
Victims	Ecosystems, current citizens, future generations
Environment	Climate change, capitalism dominates, risk aversion
Root definition	A disconnected and opaque system, nominally owned by everyone but managed by EU, Government and water companies, to provide goods and services by delivering public water supply and waste water treatment using inefficient high energy, engineering, top-down regulatory approaches in order to support economic growth and welfare
Group 2	
Beneficiaries	People—consumers of drinking water and food, anglers, canoeists, water companies
Actors	Consumers, water companies, policy-makers, regulators, farmers, food producers, NGOs, spatial planners
Transformation	Supply potable water to society as part of an integrated approach
Worldview	We need to find a better balance between water for people and the environment
Owners	DEFRA, Environment Agency and ?
Victims	People—farmers, people experiencing our water footprint outside the UK, those who can't afford to pay bills, water companies, swimming pool owners, garden lawns; and environment—flora and fauna
Environment	Regulatory regime favours drinking water, public supply favours drinking water in water scarcity, limitations in abilities to respond to drought (e.g., hosepipe bans)
Root definition	A system that privileges the needs of consumers of drinking water over the needs of farmers and water exporters in times of drought to avoid civil unrest through the extensive regulatory regime that we sustain
Group 3	
Beneficiaries	Supermarkets, consumers, water companies, agro-chemical companies, current and future generations
Actors	Farmers, supply chain managers, catchment communities, catchment citizens
Transformation	Trade and processing, supermarket selling environment, distribution of food security, science and technology, enlightenment, responsibility for government not taken → responsibility taken
Worldview	Cheap food trumps everything, water is 'common'
Owners	Shareholders, customers, society
Victims	Ecosystem services, farmers livelihoods in the long-term, future generations, biodiversity
Environment	Ignorance, adversarial, conspiratorial, dis-functional institutional arrangements, need for an environment of transparency
Root definition	A system to position the current water governance system to a citizen-based 'commons management' mode in order to act responsibly in the interests of future generations

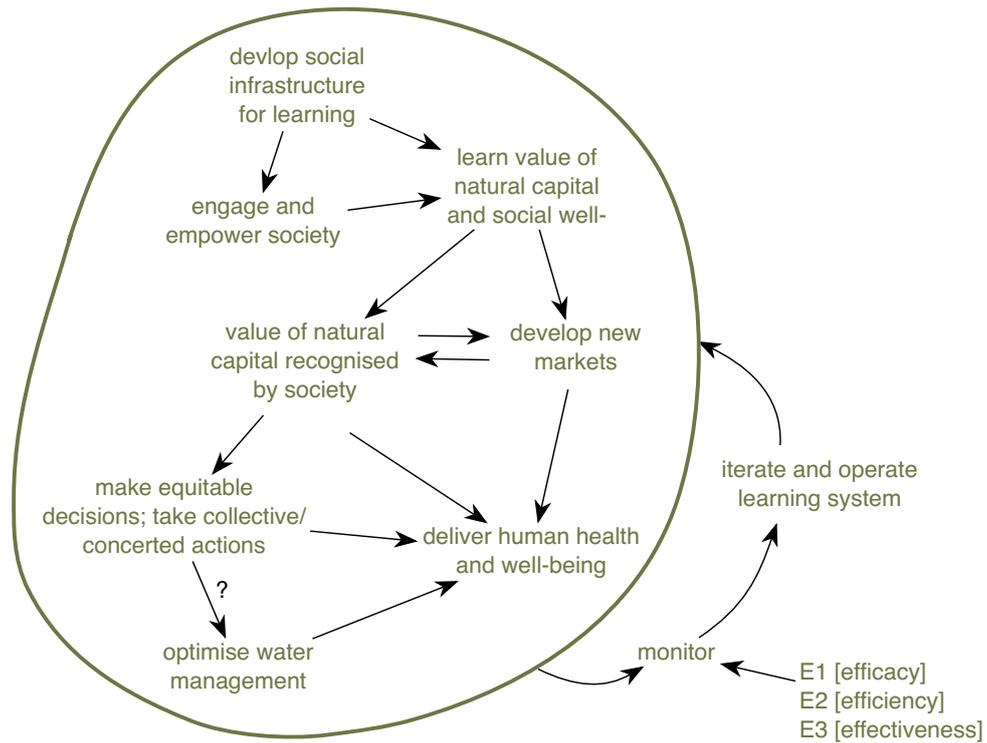


(c)

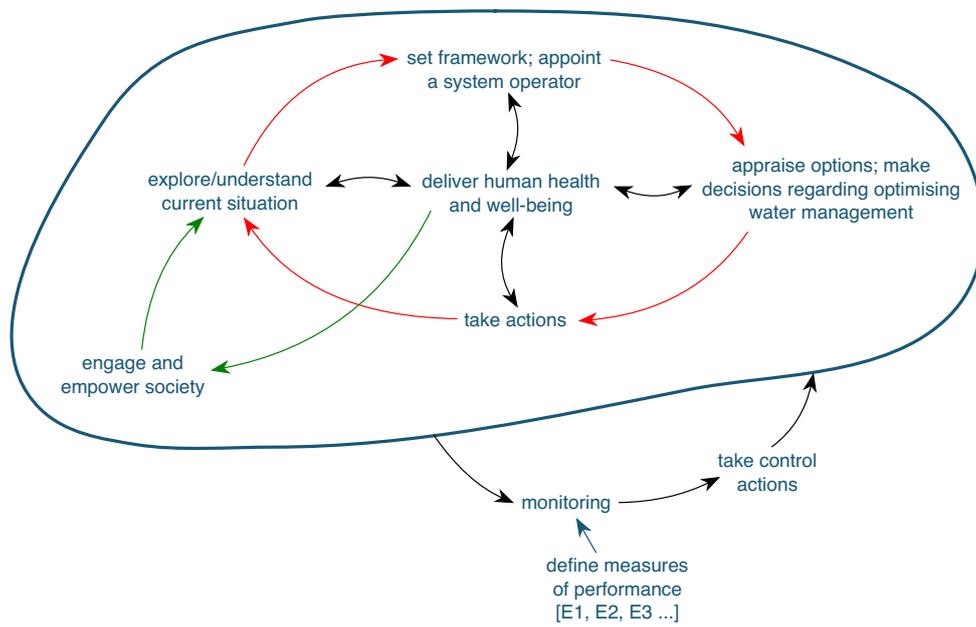
Figure S3. Rich pictures of an ‘ideal’ water governance situation in England drawn by the workshop participants (redrawn from the versions created at the workshop) [1]. (a) Group 1; (b) Group 2; (c) Group 3.

Table S3. BATWOVE and root definition applied to the ‘ideal’ water governance situation in England by the workshop participants (redrawn from the versions created at the workshop) [1].

Group 1	
Beneficiaries	Citizens, serving industries, new entrepreneurs, water companies, Government, farmers, natural environment
Actors	Citizens, serving industries, new entrepreneurs, water companies, Government, farmers, natural environment, educational apparatus
Transformation	Knowledge and services not flowing → knowledge and services flowing
Worldview	It is desirable to move from a vicious to a virtuous circle between quality of life, economic activity and natural capital
Owners	Citizens, serving industries, new entrepreneurs, water companies, Government, farmers, natural environment
Victims	People stuck in the old ways (status quo)
Environment	20th century capitalism dominates; biased regulatory regime; aversion to risk and innovation; fear of radical reframing
Root definition	A system of governance to enable knowledge and science flows by: community self-organisation and representation; investing and developing a social infrastructure for learning the value of natural capital and social well-being; developing new market mechanisms; and continuing to evolve and adapt in order to enable a growing virtuous circle between quality of life, economic activity and natural capital
Group 2	
Beneficiaries	Citizens (people) and the environment upon which the depend
Actors	Society (with multiple/specific roles)
Transformation	Optimize the management of water in all its forms
Worldview	Human health and well-being
Owners	Everyone
Victims	People whose current granted rights/interests will be adversely affected by the ‘ideal’ governance system, e.g., water abstractors
Environment	social, environmental and economic capital
Root definition	An iterative learning system operated by a ‘system operator’ on behalf of everyone and within a set framework, to optimise the management of water in all its forms by engaging and empowering society to make equitable decisions and take collective/concerted actions, in order to deliver human health and well-being (with recognition that health and well-being depends upon a healthy, functioning natural environment) within the constraints of social, environmental and economic capital
Group 3	
Beneficiaries	Citizens, consumers, entrepreneurs, places
Actors	CaBA, DEFRA, key NGOs, artists and dramaturgists, landowners, local community groups, champion/key individuals
Transformation	Conditions not created → conditions created
Worldview	Citizen-led leadership and choice will deliver adaptive governance
Owners	Citizens, facilitators, civil society organisations
Victims	?
Environment	Political elite, "Establishment", non-reflexive researchers and professionals, economists? citizens not part of the key ... in governing,
Root definition	A system to create the conditions for orchestrated, citizen-led leadership and choice in adaptive catchment governing, which is experienced as empowering and innovative



(a)



(b)

Figure S4. Cont.

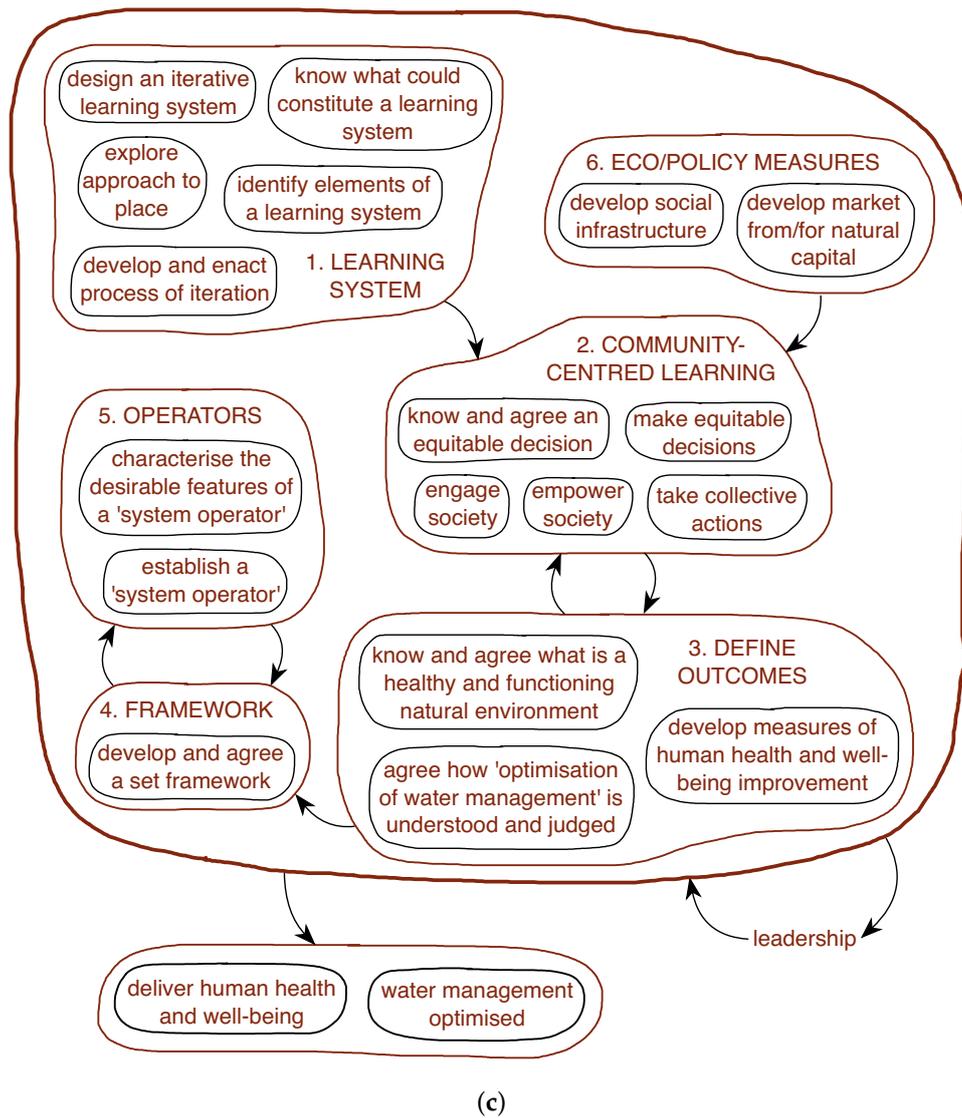


Figure S4. Conceptual models of an 'ideal' water governance situation in England constructed by the workshop participants (redrawn from the versions created at the workshop) [1]. (a) Group 1; (b) Group 2; (c) Group 3.

References

1. Foster, N.; Collins, K.; Ison, R.; Blackmore, C. *Water Governance in England. Improving Understandings and Practices through Systemic Co-Inquiry*; Workshop Report; The Open University: Milton Keynes, UK, 2015.