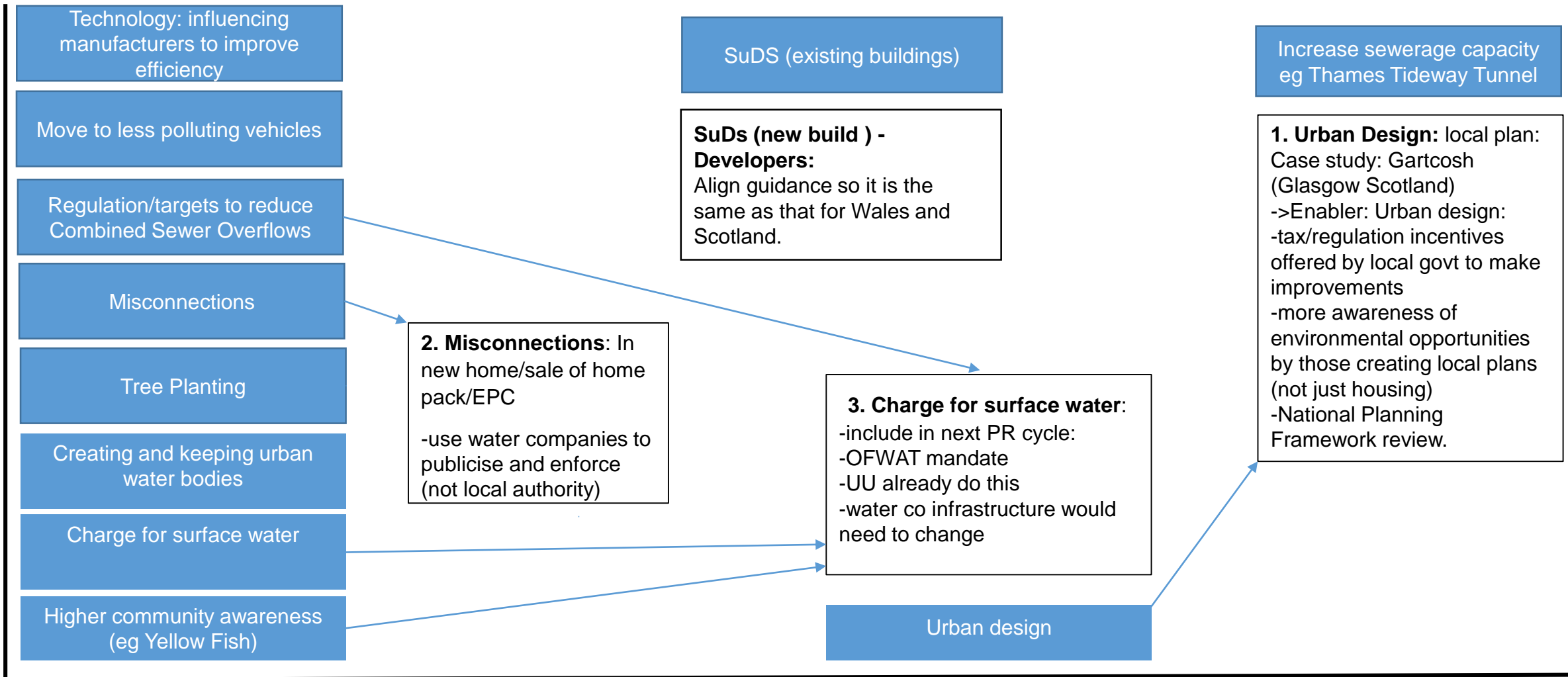


Relative cost and effectiveness of existing measures to tackle urban pressures

Key: Existing measure Potential Measure

Relative cost



- Technology: influencing manufacturers to improve efficiency
- Move to less polluting vehicles
- Regulation/targets to reduce Combined Sewer Overflows
- Misconnections
- Tree Planting
- Creating and keeping urban water bodies
- Charge for surface water
- Higher community awareness (eg Yellow Fish)

SuDS (existing buildings)

SuDS (new build) - Developers:
Align guidance so it is the same as that for Wales and Scotland.

Increase sewerage capacity eg Thames Tideway Tunnel

1. Urban Design: local plan:
Case study: Gartcosh (Glasgow Scotland)
->Enabler: Urban design:
-tax/regulation incentives offered by local govt to make improvements
-more awareness of environmental opportunities by those creating local plans (not just housing)
-National Planning Framework review.

2. Misconnections: In new home/sale of home pack/EPC

-use water companies to publicise and enforce (not local authority)

3. Charge for surface water:
-include in next PR cycle:
-OFWAT mandate
-UU already do this
-water co infrastructure would need to change

Urban design

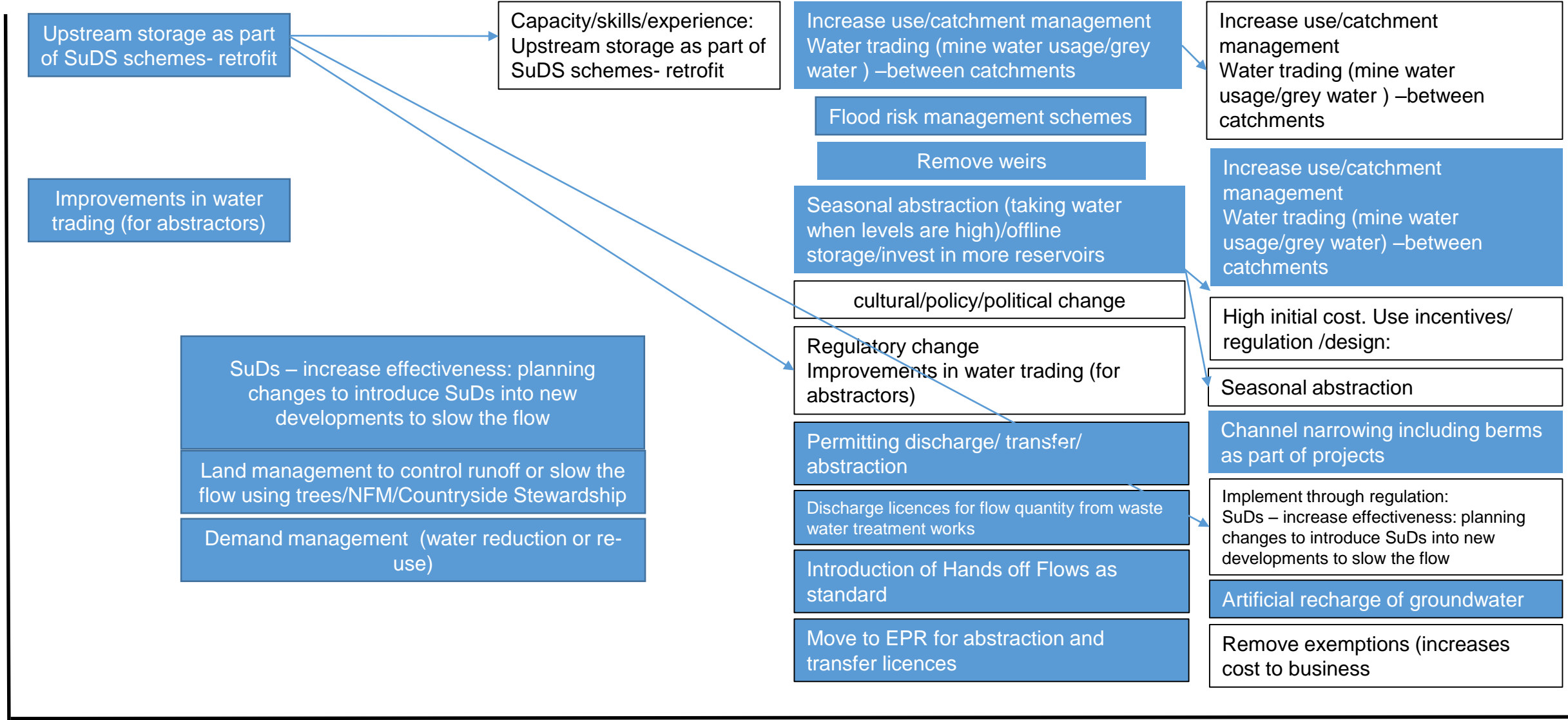
Relative effectiveness

Relative cost and effectiveness of existing measures to tackle flow pressures

Key: Existing measure Potential Measure

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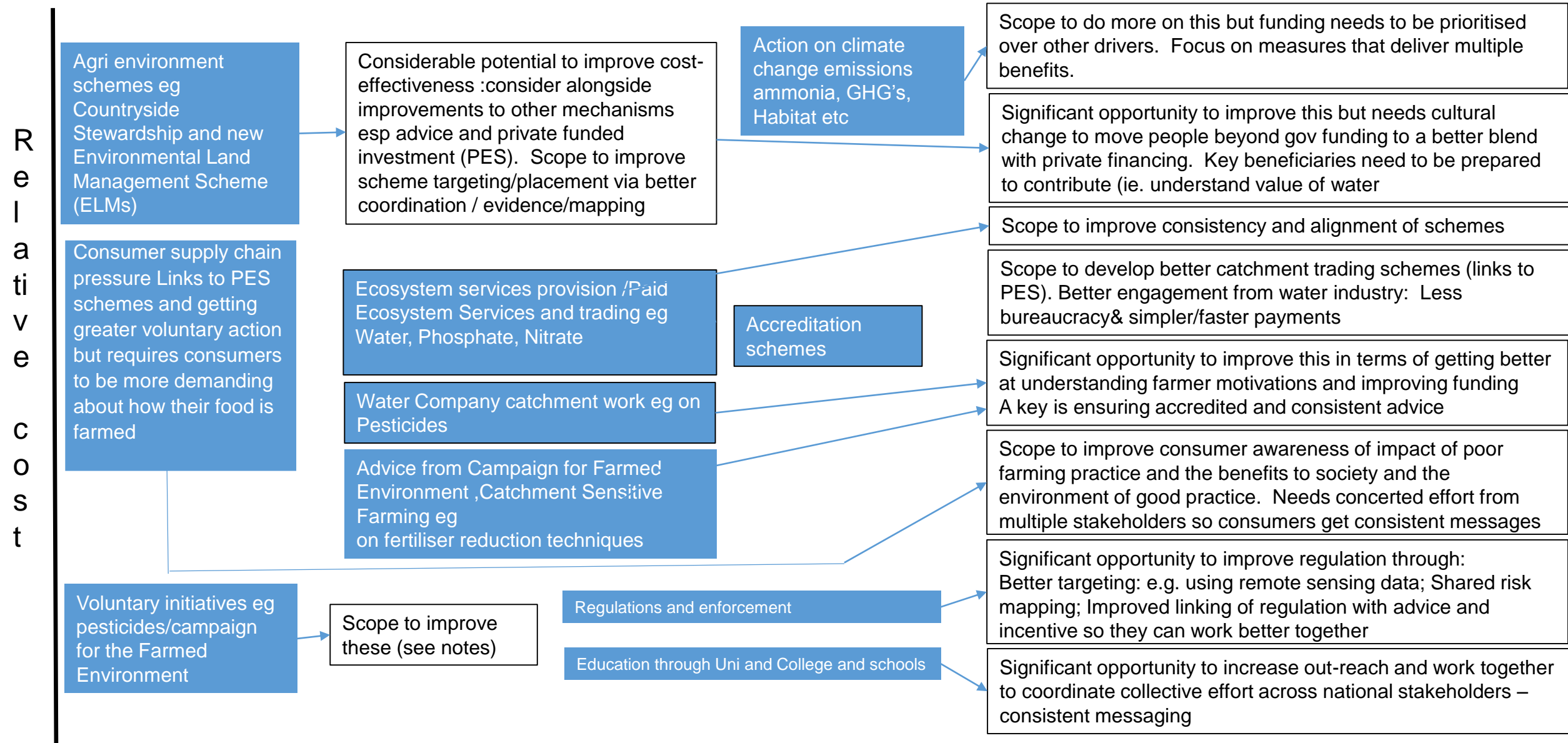


Relative effectiveness

Relative cost and effectiveness of existing measures to tackle rural pressures

Note: A and B were seen as key enablers to improve existing mechanisms.
 A = Holistic/coordinated and consistent policy (i.e. we can't develop individual mechanisms in isolation of one another) B = shared/consistent outcomes to link different policy mechanisms to deliver common goals (e.g. protecting and improving natural capital to benefit people, livelihoods and wildlife)

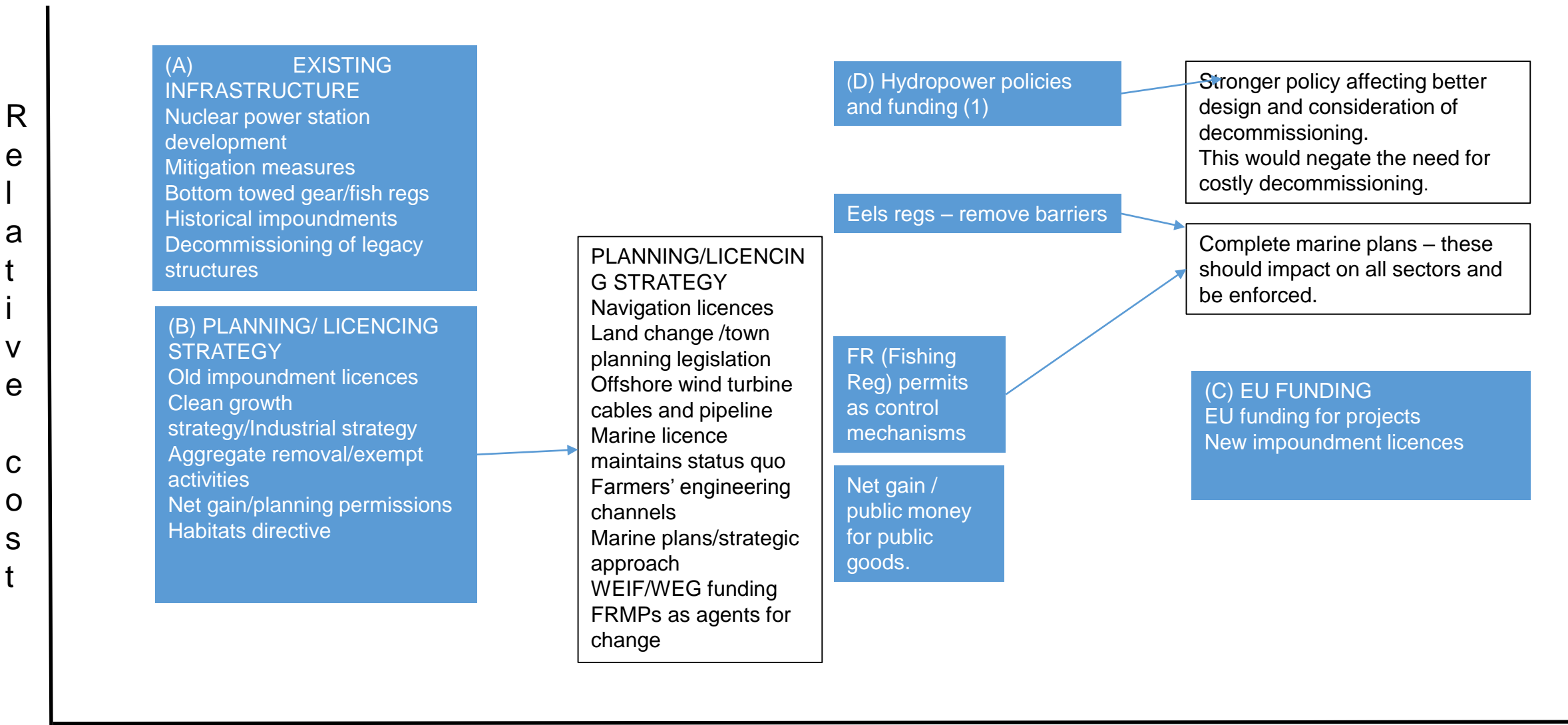
Key: Existing measure Potential Measure



Relative effectiveness

Relative cost and effectiveness of existing measures to tackle physical modification pressures

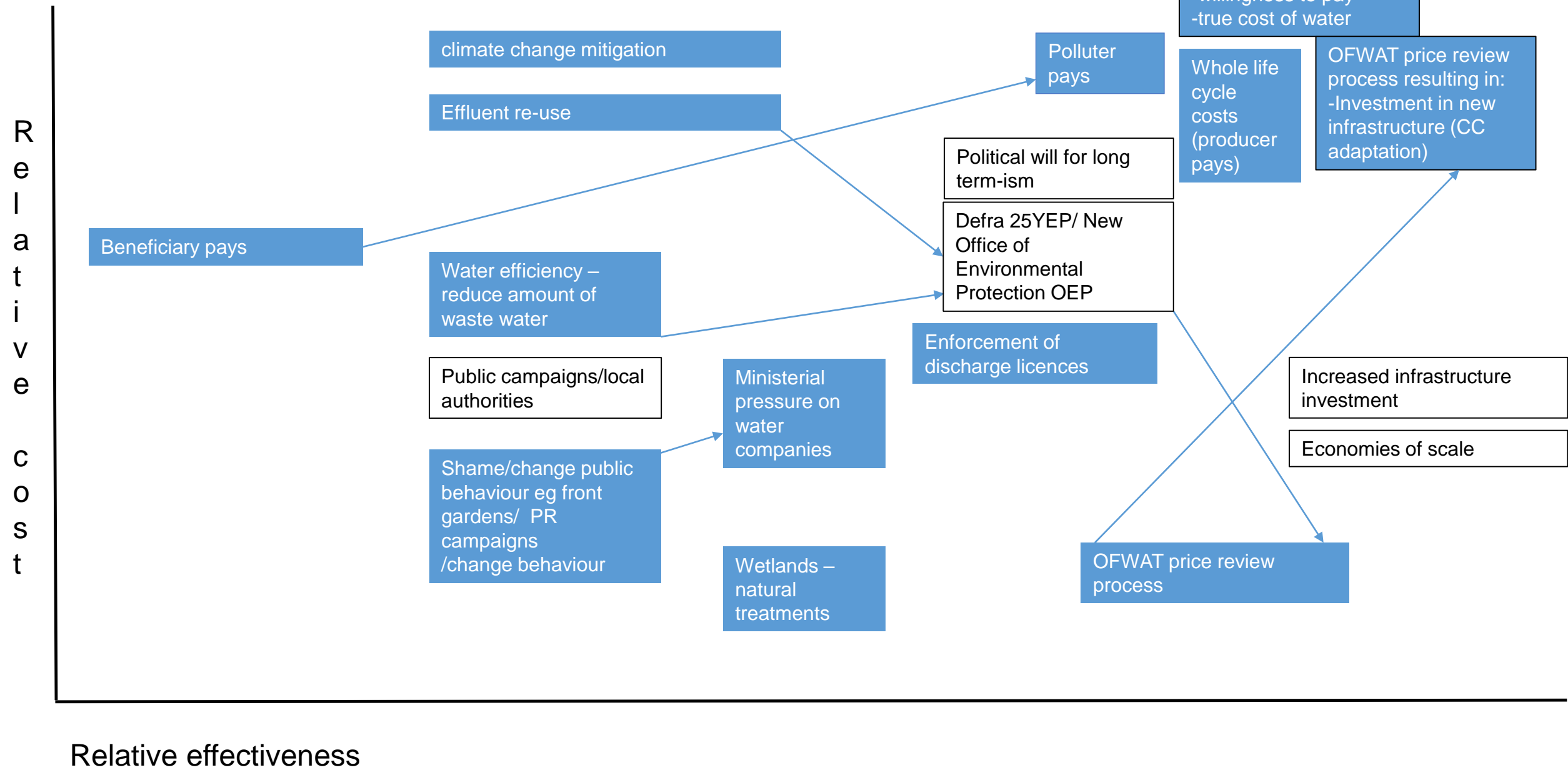
Key: Existing measure Potential Measure



Relative effectiveness

Relative cost and effectiveness of existing measures to tackle waste water pressures

Key: Existing measure Potential Measure



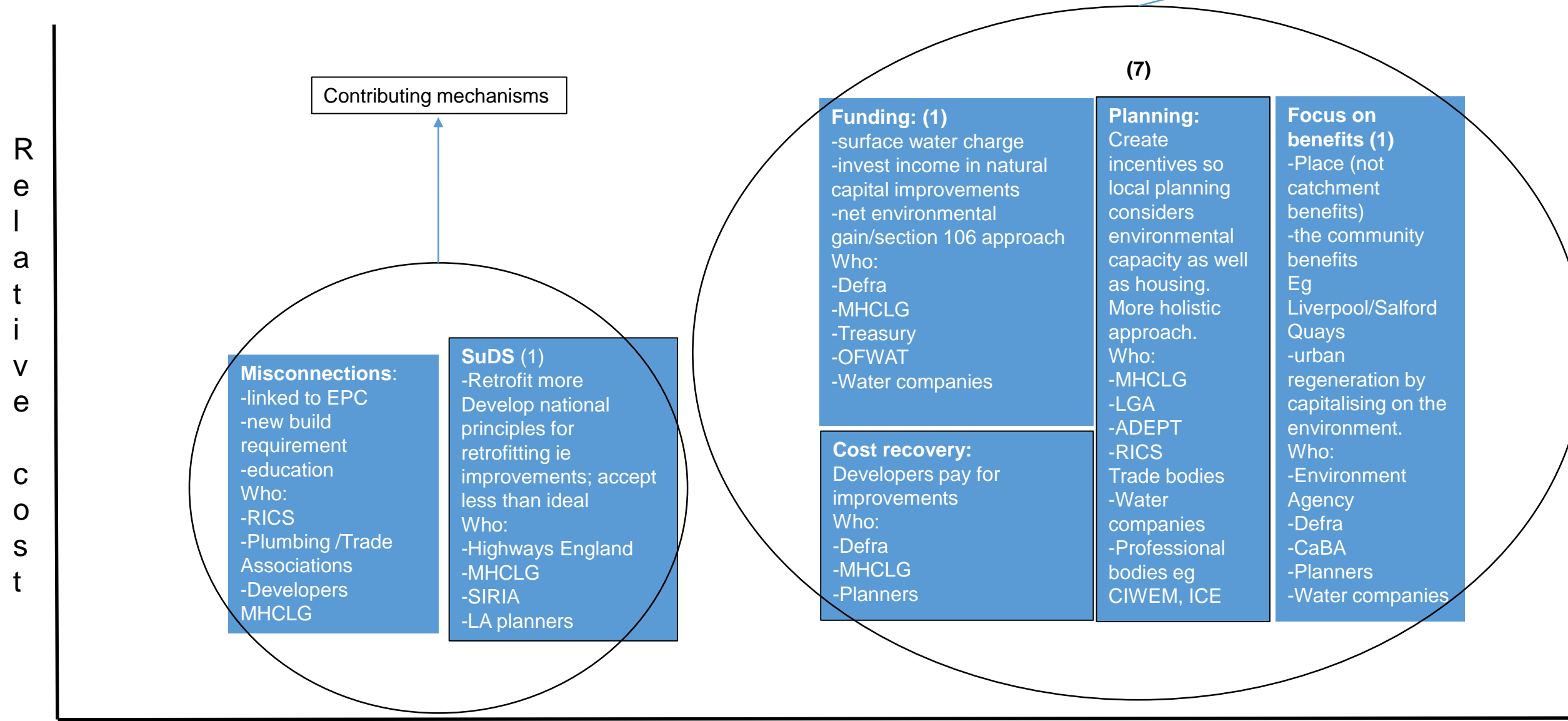
Relative effectiveness

Outline summary of existing measures with most potential to tackle pressures

Urban	Flow	Rural	Physical Modification	Waste Water
Urban design: need for enhanced knowledge of environmental policy capability in local planners	Regulation (EPR) for water transfer and Hands Off Flows (HOF) as standard. Risk would be minimised through this mechanism	Regulation and advice can deliver better outcomes The two (regulation and advice) need to go hand in hand for both to improve their efficiency	System approach not organisational roles and responsibilities	Invest in infrastructure
Misconnections: checks to be incorporated in EPC when a house is sold.	Retrofitting SuDS is expensive – but less so if part of new development	Agri-environment schemes (including Countryside Steward Scheme and ELMS) have great potential	Clear policy, not about balance but improving	Consider whole lifecycle costs.
SuDs and surface water management – incentives for companies would increase uptake	Natural Flood Management (NFM) and Countryside Stewardship will result in slowing the flow of water from catchments	Paid Ecosystem Services trading/market approaches (including the whole food/retail supply chain)	Cross-remit; environmental gain not just biodiversity	Use the ‘polluter pays’ principle
		Need joined-up coordinated policy across all of these mechanisms – Regulations, Advice, Public and Private Funded Incentive.	Stronger policy on whole-life assets	Enablers: long-term political will; 25 Year Environment Plan; Payment for Ecosystems Services (PES); nature-based solutions(NBS); multipurpose-multifunctional green-blue-grey infrastructure.
			Lots of issues outside of regulation	
			Need to replace EU funding	

Relative cost and effectiveness of NEW measures to tackle urban pressures

Key: Measure (x) Score



Shift to System Approach

Contributing mechanisms

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Misconnections:
 -linked to EPC
 -new build requirement
 -education
 Who:
 -RICS
 -Plumbing /Trade Associations
 -Developers
 MHCLG

SuDS (1)
 -Retrofit more
 Develop national principles for retrofitting ie improvements; accept less than ideal
 Who:
 -Highways England
 -MHCLG
 -SIRIA
 -LA planners

Funding: (1)
 -surface water charge
 -invest income in natural capital improvements
 -net environmental gain/section 106 approach
 Who:
 -Defra
 -MHCLG
 -Treasury
 -OFWAT
 -Water companies

Cost recovery:
 Developers pay for improvements
 Who:
 -Defra
 -MHCLG
 -Planners

Planning:
 Create incentives so local planning considers environmental capacity as well as housing. More holistic approach.
 Who:
 -MHCLG
 -LGA
 -ADEPT
 -RICS
 Trade bodies
 -Water companies
 -Professional bodies eg CIWEM, ICE

Focus on benefits (1)
 -Place (not catchment benefits)
 -the community benefits
 Eg Liverpool/Salford Quays
 -urban regeneration by capitalising on the environment.
 Who:
 -Environment Agency
 -Defra
 -CaBA
 -Planners
 -Water companies

(7)

Relative effectiveness

Relative cost and effectiveness of NEW measures to tackle flow pressures

Key: Measure (x) Score

Relative cost

Increasing the water available:
 cloud seeding/desalinisation
 -who
 Water companies
 -catchment based?
 -government driven: Defra and other agencies
 -technology driven: based on need rather than finance based

Governance:
 Govt /Defra, water companies, Environment Agency, CaBA, Local govt; co-ordination between departments
 -nationalise water companies

Policy and regulation (2)
 -SuDs adoption and maintenance – make it mandatory. EUETS for water
 -restrict use – business, public
 -change WQ policy to restrict/slow pattern
 -SuDs in small developments
 -similar to carbon reduction – incentives to business
 -increase cost of abstraction

Make better use of what we have (1)
 Who:
 Government and multiple depts.
 -businesses – optimise use
 Developers including local planning authorities

 Use of aquifers/groundwater for storage and use seasonally
 -water transportation grid
 -Grey water – optimise re-use
 -water discharges directed where needed

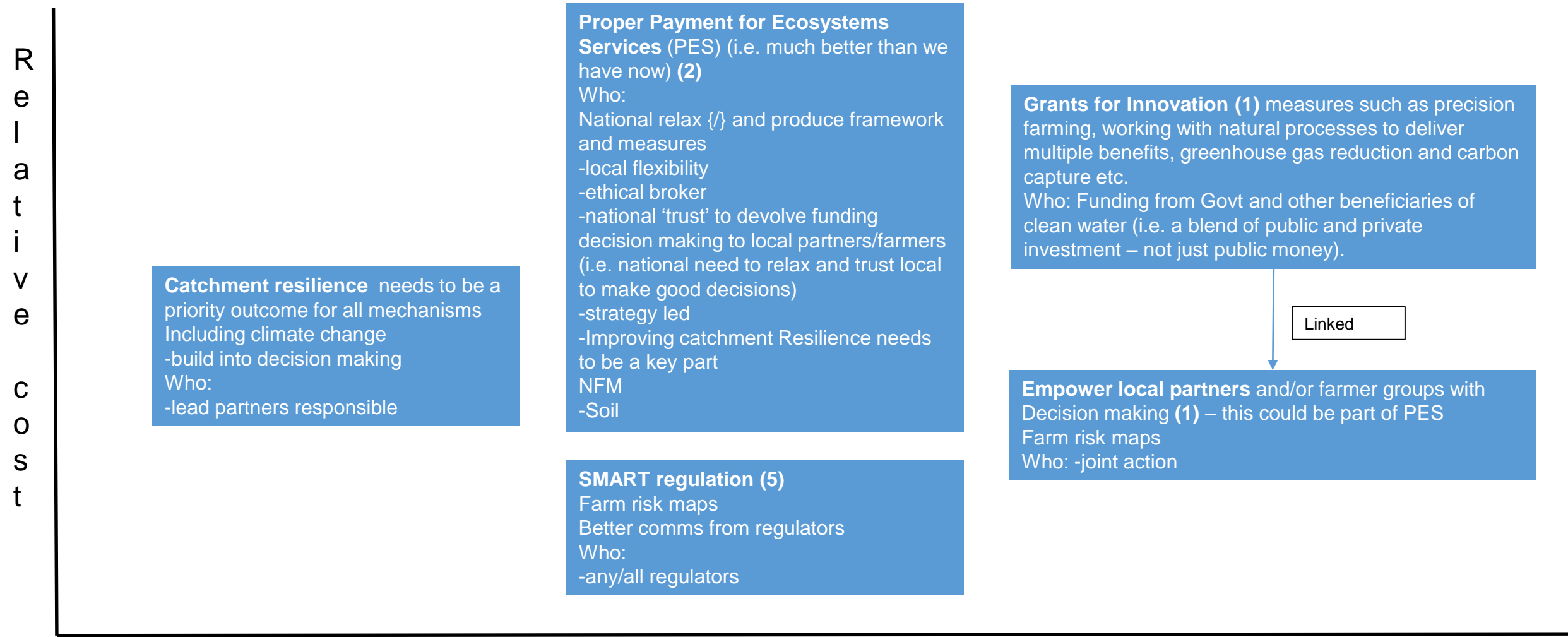
Changing attitude: (3)
 Increasing perceived value of water:
 Who
 Govt; Environment Agency; local government; public health; peer pressure (schools); shock tactics – in X years this will happen...

Moving the boundaries. What is normal or natural or essential – redefine.
 Think about the worst case and plan for this now rather than later and as mainstream rather than emerging.
 Defra to lead – all to be consulted:
 -EA, Water companies, communities, agriculture, business, fisheries, IDB's, OFWAT

Relative effectiveness

Relative cost and effectiveness of NEW measures to tackle rural pressures

Key: Measure (x) Score



Relative effectiveness

Relative cost and effectiveness of NEW measures to tackle physical modification pressures

Key: Measure (x) Score

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Existing Planning and Regulation (1):
 -regulations for geomorphology change
 eg farmers straightening channels and dredging

Review role of statutory undertakers with associated funding mechanisms (6)
 -government and review roles
 -consultations
 -public goods for public money

Systems approach to planning (3):
 -government needs to provide direction /policy from the xx to local plans
 -accept local place based plans will be different dependent on catchment
 -understand different plans
 -understand cross-department plans better

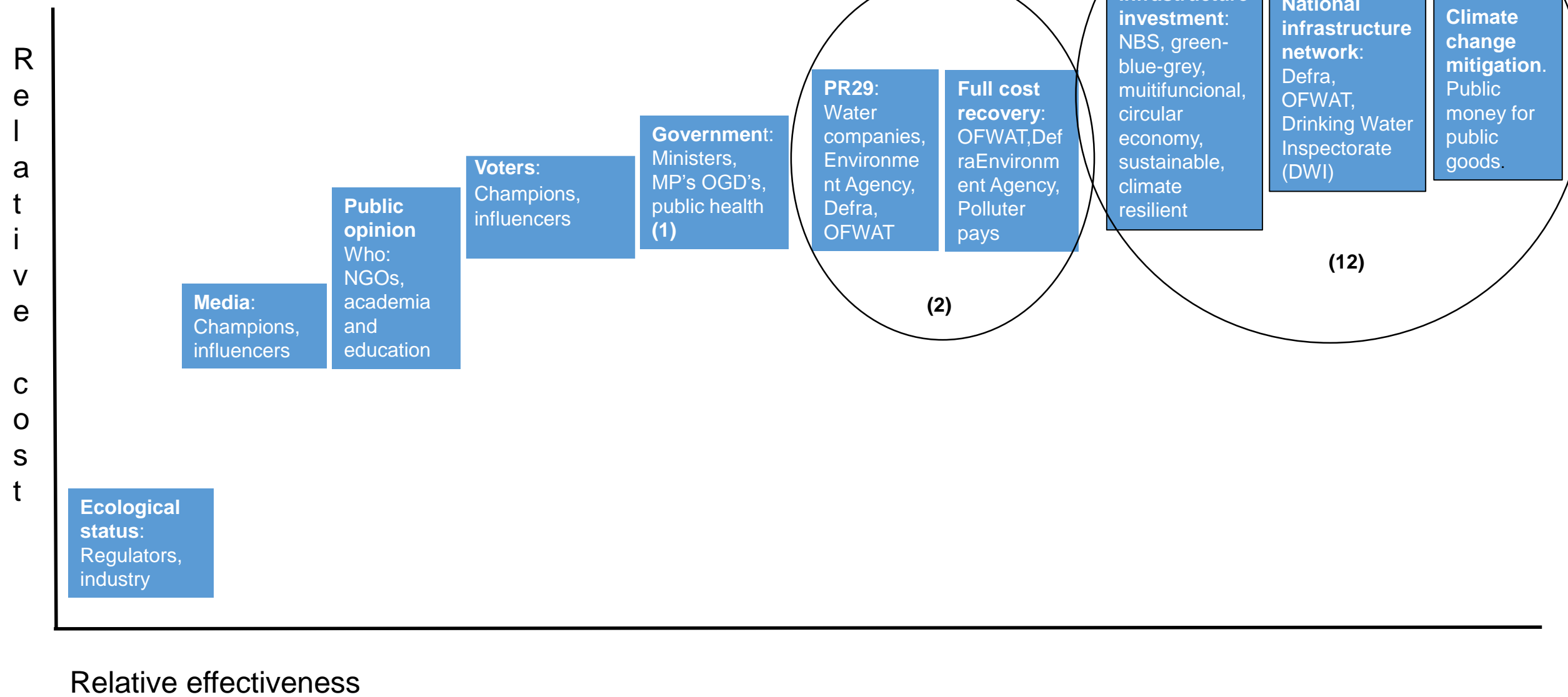
Funding the measures we want and need.
 Post –EU Exit (2):
 -appropriate funding mechanisms.
 Replacement for the proposals that were EU regulations
 Mix of:
 -public money for public goods
 -beneficiary pays
 -manage public expectations around no longer getting EU funds
 -demonstrate services provided
 -sustainable funding
 -systemic programmes resource to drive improvements required.

Think about Heavily Modified Water Bodies (HMWB) in a more positive way (5):
 -mitigate impacts plus
 -biological benefits
 -benefits driven approach
 -biodiversity net gain
 -Ecological element
 -Appropriate targets based on the nature of the water body
 -classification of HMWB

Relative effectiveness

Relative cost and effectiveness of NEW measures to tackle waste water pressures

Key: Measure (x) Score



Relative effectiveness

Outline summary of new measures with most potential to tackle pressures

Urban	Flow	Rural	Physical Modification	Waste Water
Systems shift for: -planning -focus on benefits and opportunities -funding mechanisms: joint funding on Natural Capital.	Make better use of existing water resources: -grey water -water transfer -discharges are managed alongside abstraction impact	We need much better approaches to Payment for Ecosystems Services	Funding for the measures and mechanisms we actually want and need: -public money for public goods -manage public expectations.	Full cost recovery
SuD on existing builds to achieve some (if limited) improvements	Policy and regulation change: -better co-ordination of departments and policy -carbon/water reduction schemes -increase costs for abstraction	Smarter regulation and shared risk mapping.	Move from negative to positive view of benefits associated with Heavily Modified Water Bodies: a more benefit-led approach.	Increased investment in nature based solutions for more sustainable multifunctional (green-blue-grey) infrastructure
Misconnections: quick win: requirement to check connections as part of house sale EPC pack		Grants for innovation	Systems approach at all levels, but in particular local place-based plans.	A climate resilient national infrastructure network.
		Focus on catchment resilience	Review those with statutory undertakings.	
		We assume ELMS will deliver more effective Agri-env.so we also need to focus on the point above...	Payment for public good, for example the Water Companies.	