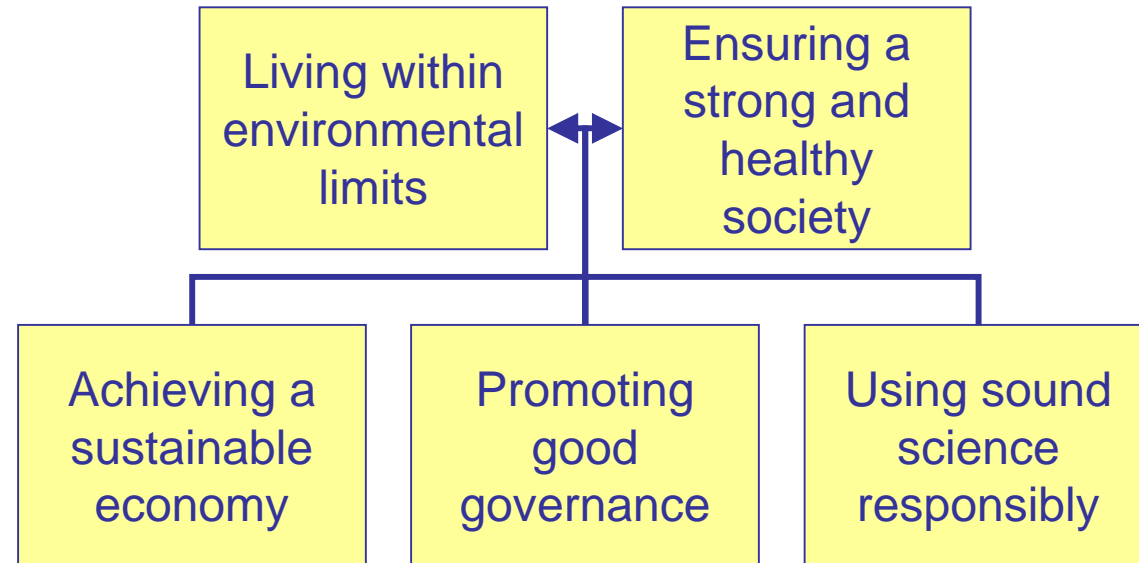


**CIWEM PR09 Conference
16 November 2006**

**Funding for
sustainable development**

Adrian Johnson (MWH)

UK sustainable development strategy provides strong framework



- Priority areas:
 - Sustainable consumption and production
 - Climate change and energy
 - Natural resource protection
 - Sustainable communities

A vision of a sustainable water industry provides direction for PR09

Selected features:

- Efficient water use to conserve resources
- Low-carbon or carbon neutral operation
- Adaptation to climate change impacts
- High levels of local stakeholder interest
- Pricing to reflect economic value of water
- Integrated solutions

Enabled by:

- Delivery of WFD outcomes
- Decisions based on sustainability assessment

PR09 funding and metrics should *enable* rather than *hinder* progress towards this vision.

Focus for
this
presentation

Efficient water use to conserve resources

- Pressure on water resources set to increase due to:
 - climate change
 - population increases and regional migration
 - rising per capita consumption
 - habitat protection/ecological status
- So ... deliver quantity/quality appropriate to need
- PR09 issues:
 - more widespread metering to promote water savings
 - pricing to help customers minimise water consumption
 - review methods for AISC and ELL to take better account of environment
 - rainwater harvesting, greywater and effluent reuse

Efficient water use to conserve resources

- Effluent reuse could be promoted in PR09:
 - Highlighted in ICE State of the Nation Report
 - Indirect reuse is practiced extensively
 - UK lags behind other countries ... we need standards for different end uses

E&SW Langford recycling plant treats up to 40 MI/d of sewage effluent and returns it 3km upstream of abstraction point on River Chelmer



Move to low carbon or carbon neutral operation



Increased pollution control:

E.g. Biological treatment uses aeration to oxidise organic matter, but leads to increased energy use

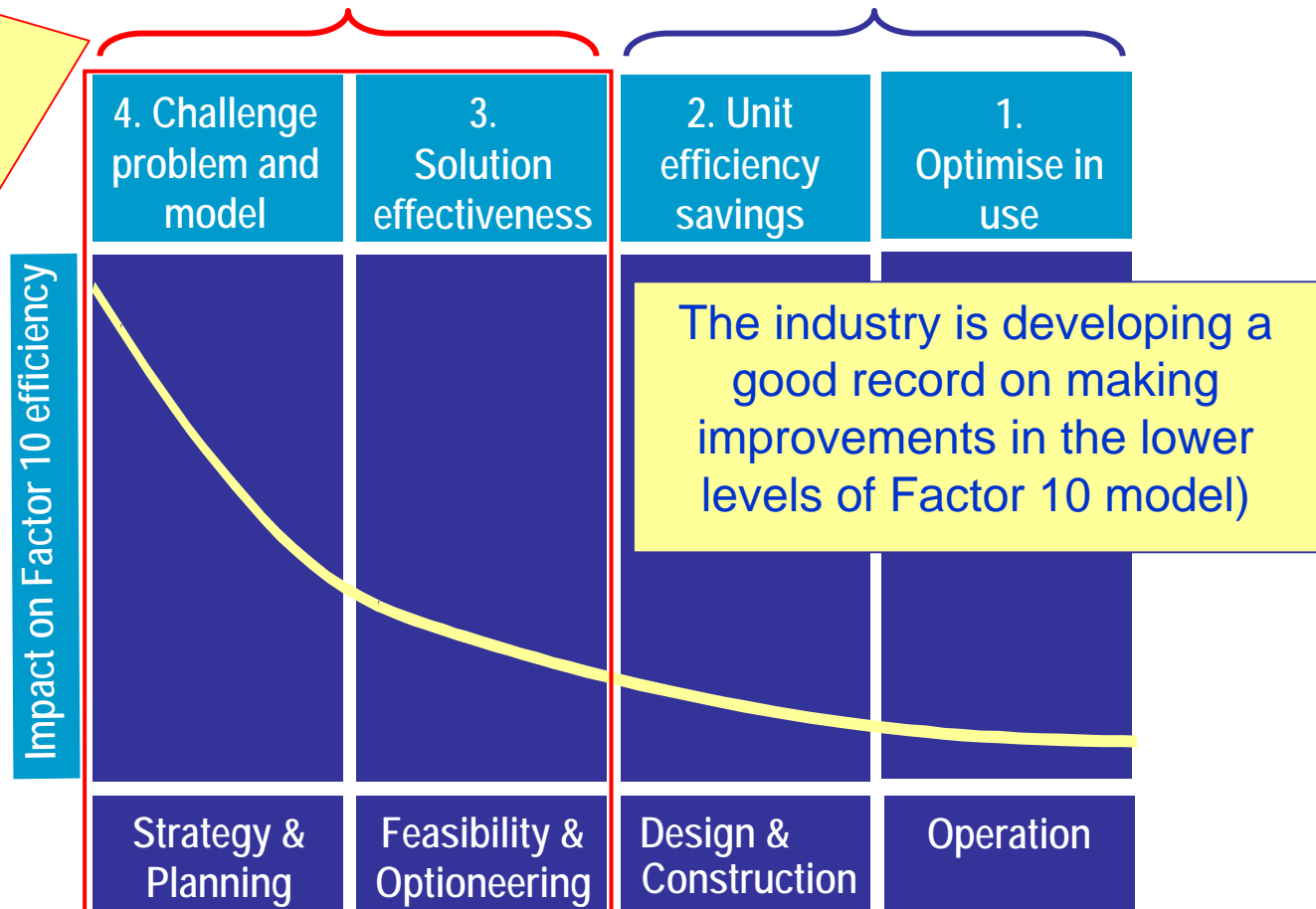
- Efforts to clean up water environment have led to increased GHG emissions

PR09 issues:

- Develop inventories of GHG emissions
- Set up GHG emissions as a new comparative efficiency measure and set targets
- Incentives to make investments for emissions reduction.

Pursue a “Factor 10” increase in carbon efficiency

But the major opportunity in PR09 is to tackle the higher levels of the Factor 10 model ... to move from a output-driven (product) model to an outcome-driven (service) model



Increase solution effectiveness

- In feasibility/optioneering:
 - Use wider range of 'sustainability' criteria - evaluate and account for carbon independently
 - Include consideration of more radical 'sustainable benchmark' options
 - Water companies and quality regulators to work closely to enable testing of low carbon solutions
- Choose some remaining AMP4 projects as pilot cases to build evidence to secure funding for PR09

Challenge the problem

■ Cryptosporidium protection project:

- protection of spring source rather than membrane plant
- 70% less CAPEX than treatment plant estimate
- near zero OPEX
- residual risks shown to be acceptable and manageable
- ... and near zero CO₂ emissions.



The spring basin, as it was before refurbishment



The former spring basin, being reformed as a natural stream

Adaptation to climate change

- Climate change is already occurring
- Likely effects include:
 - Changes in availability/quality of water resources
 - Increased flood risk
 - Increased demand
- Some water companies carrying out strategic risk assessments
- Will preparation of climate change adaptation plans be a PR09 requirement?

Adaptation to climate change

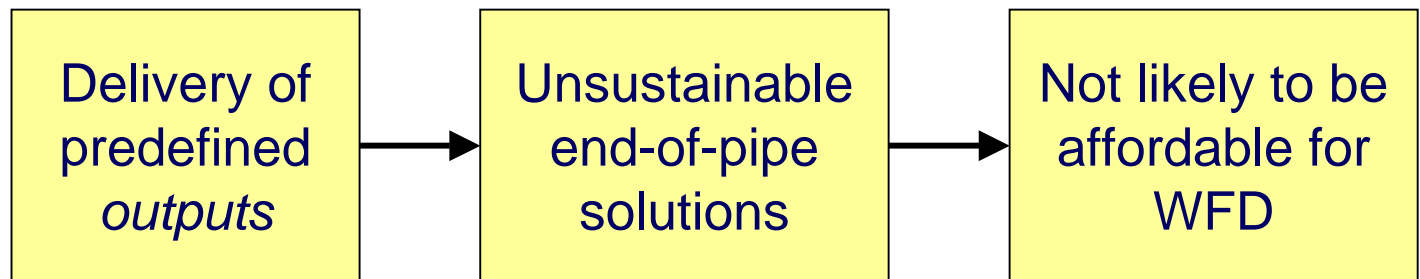
- New approaches for managing flood risk
 - “Making Space for Water”
- Flood water managed above ground - reduced use of combined sewers
- PR09 issues:
 - review policy on protection by event probability
 - source control of stormwater
 - manage water quality and flood risk together



CIRIA 635
Designing for
exceedence

Deliver WFD outcomes

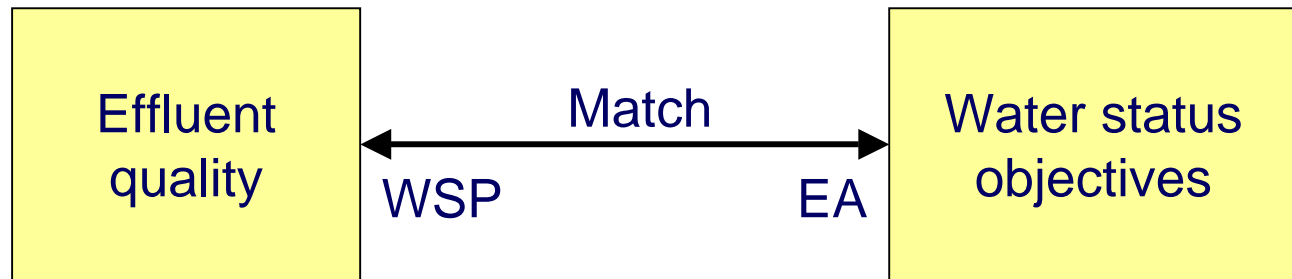
- Progress on delivering WFD objectives is about achieving water status *outcomes*



- A focus on WFD outcomes provides opportunity for a sustainable approach, if
 - Problems addressed in most cost-effective way
 - Proper account taken of *non-water* costs

Deliver WFD outcomes

- So need innovative and collaborative approaches to deliver outcomes

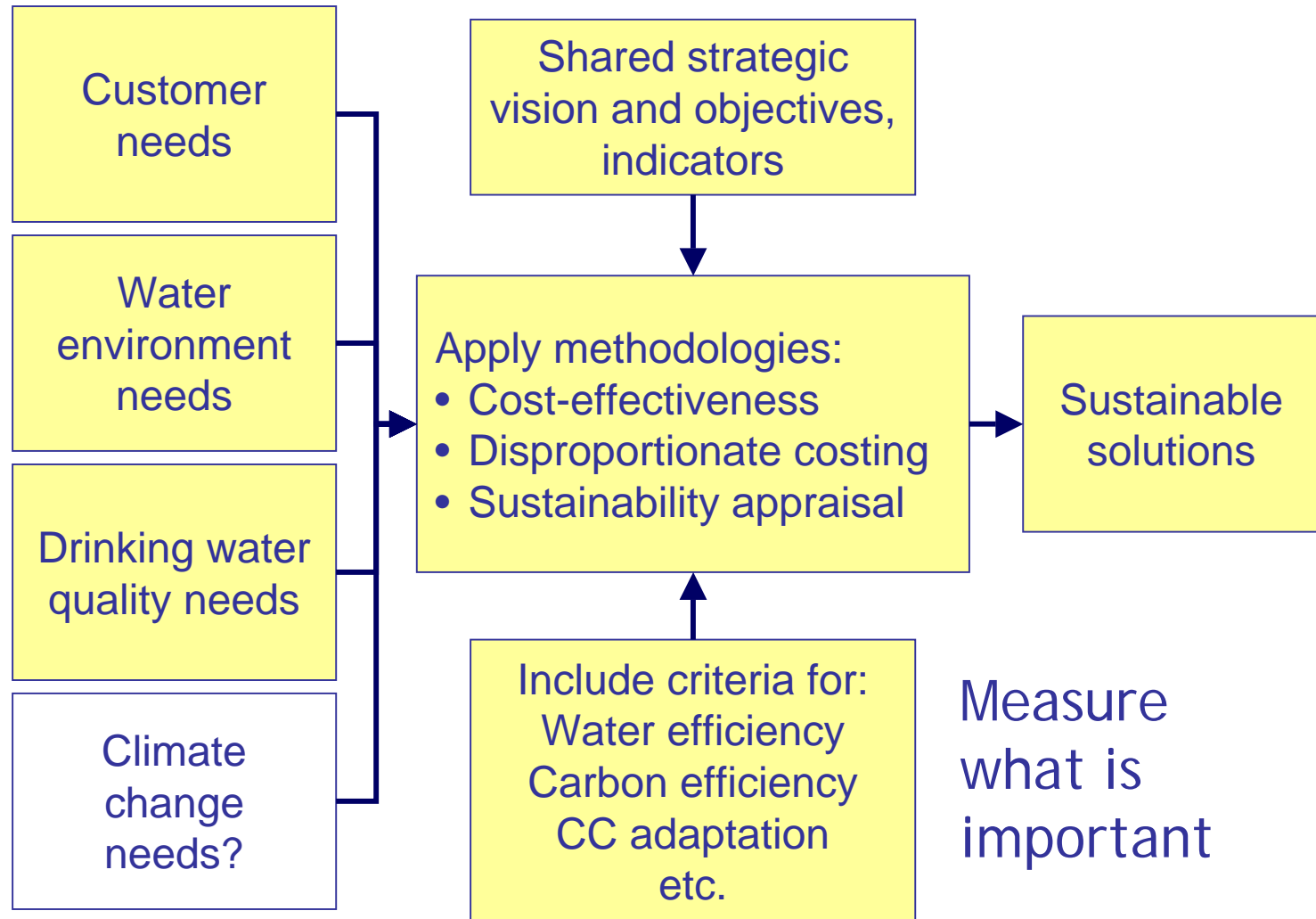


- What about water quality trading?

- Key PR09 issues:

- Establish 'shared vision' for delivering outcomes
- Move away from output-based targets
- Provide incentives for long-term, adaptable solutions
- Establish new performance metrics

Sustainability assessment



Effective progress towards sustainability requires action in PR09

- A focus on
 - Delivery of WFD outcomes
 - Decisions based on sustainability assessment
- will help to deliver ...
 - Efficient water use to conserve resources
 - Low-carbon operation
 - Adaptation to climate change impacts
- New performance metrics reflecting a shared vision will provide evidence of progress towards sustainable water industry

- Spare slides

Components of the sustainable water vision mapped to UK priorities

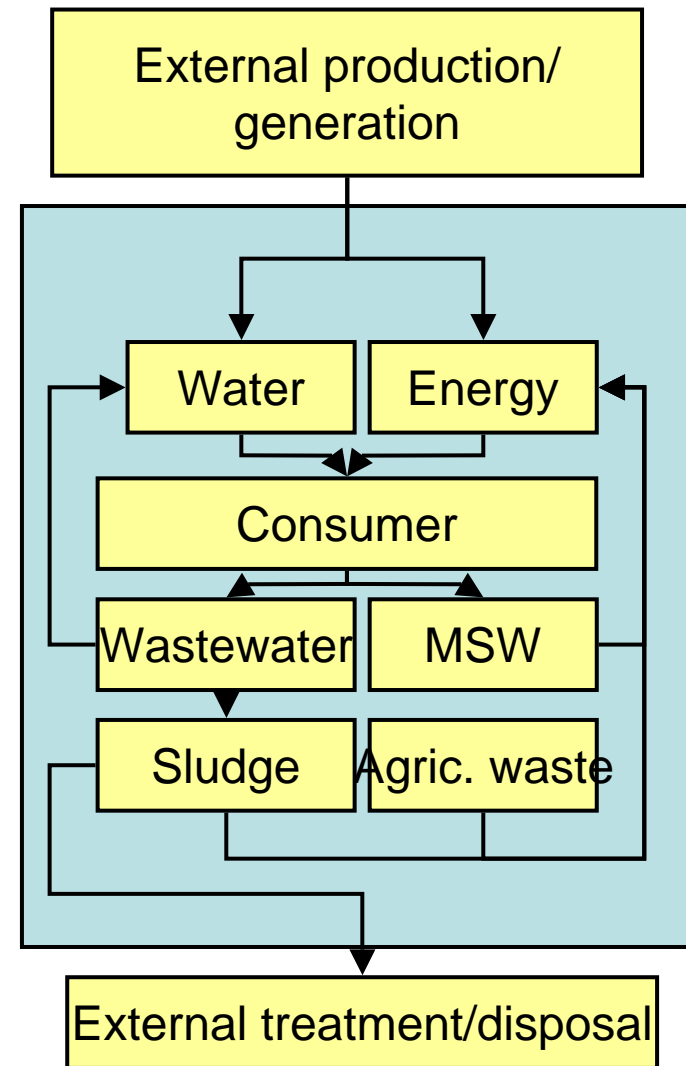
	Sustainable consumption and production	Climate change and energy	Natural resource protection	Sustainable communities
Water conservation	●		●	
Low-carbon operation		●		
Adaptation to climate change		●		●
Stakeholder interest				●
Pricing to reflect economic value	●			●
Integrated solutions	●	●		

Promote integrated 'economy of scope' solutions

- Integrate water and wastewater with agriculture and municipal waste handling to minimise water use, maximise sludge reuse and provide carbon-neutral energy

Requires:

- Collaborative partnerships with other providers
- Incentives for water companies to move away from increasing levels of centralisation (treatment and sludge handling)



Minimise flows across boundary¹⁸