

## Footprints in water

The challenging opportunity for the UK water sector to understand and become low carbon

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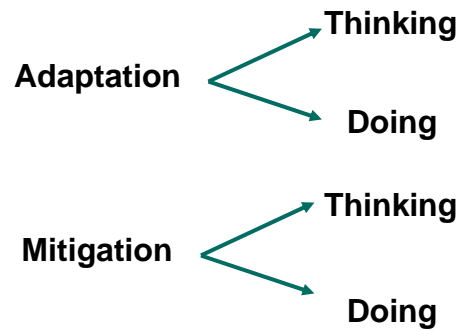
## The sustainability question

- **Will asset development in the UK water sector lead to:**
  - an increase in greenhouse gas emissions
  - a decrease in greenhouse gas emissions
  - no change
- **Is this a question we can answer?**
- **Is this a sustainable position?**

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## Climate change and the water industry



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## Adapting to climate change

### Taking the example of Water Resources

- There has been a great deal of research
  - UKWIR
  - Defra
  - Individual water companies
- Research has been focused on the practical
- It is delivering action
- The water industry leads on understanding climate change impacts and adaptation
- It can be argued that this action is not as a result of regulation

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## Comprehensive approach to adaptation?

- Most research has focused upon the impacts of climate and adaptation is through planning, and possible development of further assets

**BUT....**

- How much is being done to change customer expectations and behaviour?
- How is adaptation itself contributing to climate change and increasing the mitigation challenge?

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## Technology cannot be enough

- Behavioural change is essential. The current demands and expectations of consumers are unsustainable
- In many parts of England there is less water per person than in most Mediterranean countries
- Parts of the South East have less water per person than the Sudan or Syria
- Given current and projected growth in consumption a technological solution cannot be sustainable.

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## A Sustainable Industry – the Running Water Campaign

- Sustainability practice within the water sector is well ahead of most other sectors
- The sector needs to focus on material sustainability issues: climate change, diffuse pollution, demand management, affordability and water efficiency
- Sector-wide reporting is important, but only with sector-wide ownership
- Both continued regulation and a strong voluntary push are required to push the sustainability agenda forward

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## The impact of climate change in carbon consumption

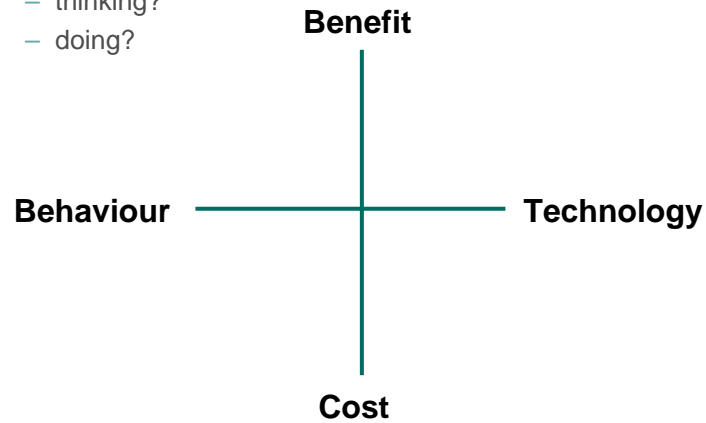
- **Flood**
  - additional storage
  - increased pumping
  - increased volumes requiring treatment
  - increased energy consumption
- **Low flows**
  - additional pumping from stored water
  - additional treatment to maintain water quality
  - increased energy consumption

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## Mitigation within the water industry

- **Mitigation**
  - thinking?
  - doing?



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## A mitigation strategy?

- Are emissions set to increase, decrease or stay the same with in the industry?
- To answer this questions requires understanding of the industries carbon footprint
- How well are the components which make up the carbon footprint understood?

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## How much of the sectors carbon footprint do we understand?

- **Type of carbon emissions**

- direct
- indirect
- embedded

- **Greenhouse gas**

- carbon dioxide, CO<sub>2</sub>
- methane, CH<sub>4</sub>
- nitrous oxide, N<sub>2</sub>O

- **Process**

- clean water
- waste water
- sludge treatment



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## Estimating the Carbon Footprint

- **4 million tonnes CO<sub>2</sub>e a year, operational carbon**

- CO<sub>2</sub> from electricity ( 75%)
- 3% of UK total electricity consumption
- CH<sub>4</sub> and N<sub>2</sub>O from sludge (25% but poorly defined)

- **Carbon used to support sector in supply chain**

- Undefined but can be estimated
- Will be very large – cement, chemicals etc,

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## Is the water industry sustainable?

- Is the impact of adaptation on the industries carbon footprint understood?
- The only part of the footprint which is well understood is operational energy consumption. until the rest of the footprint is well determined how can a strategy for reduction be effective?
- A carbon neutral industry is a possibility. Sludge could be a significant carbon asset.
- A sustainable industry is possible but adaptation needs to be considered in the light of it's impact on emissions, customer expectations must be managed and current emissions must be well understood.

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