



REGIONAL WORKSHOP

CIRCULAR ECONOMY

Whilst there are already several initiatives across the water industry...



- **Re-use of heat** – Anglian Water uses closed loop heat pumps to transfer the by-product from the water recycling process to large greenhouses in Fornham and Norwich that grow hydroponically local produce.
- **Mitigate pollution** – United Utilities provides financial incentives to farmers to mitigate pollution (e.g. remove metaldehyde in favour of ferric phosphate) and rewards interventions that help to slow/filter the flow of water before it enters a reservoir or support retrofitting sustainable drainage solutions and attenuate flows that enter the combined system. This also contributes to biodiversity.
- **Recovery from treatment processes** – Scottish Water has trialled recycling of grit that enters the wastewater system from road runoff and is collected during the filtration process into kerbstones for construction use. Other ongoing trials involve upcycling alum sludge from drinking water production as construction material.
- **Sludge re-use** – Northumbrian Water, Wessex Water and Scottish Water recycle biosolids from the treatment process and produce methane rich biogas through anaerobic digestion. This can be used as a renewable energy source to power the treatment works; biosolids are sold to farmers as fertiliser. Scottish Water Nigg's WWT also trialled co-digestion of residues from distilleries and breweries in the area.



...beyond individual projects what should be the overall contribution of the water industry to circular economy?
How will we judge success? What role can economic regulation play?

This requires to...

1. Define the level of ambition and industry objectives:

- What needs to be achieved?
- When should it be achieved by?
- What is the contribution to the wider societal/environmental outcome?

Policy focus

2. Ensure the industry is appropriately funded to achieve its objectives:

- Are the costs and funding implications properly understood and quantified?
- Do the proposed interventions deliver value for money?
- Have solutions been appropriately appraised?
- Are outputs defined and measurable?
- Is their contribution towards the outcomes appropriately understood?

Regulatory focus

3. Monitor delivery:

- Is the water industry on track with delivery against its commitments?
- Is delivery within budget and timescales? Is it to the required standard?
- Are the approaches identified still the most cost effective in light of new information?



Each one of these steps requires robust information!

Regulation can play an important facilitatory role...

- How do we ensure there is proper stewardship of the current and future assets base?
 - How do ensure appropriate focus on pro-active maintenance?
 - Are the consequences of today's choices on serviceability and risk levels properly understood?
 - What are the current and future consequences of not provisioning in line with the full economic depreciation of assets?
- How do we encourage the industry to consider more innovative solutions?
 - How do we create the conditions for effective collaboration across key stakeholders (water companies, regulators, developers, supply chain, businesses and local communities)? Are we working towards shared objectives?
 - Are there clear accountabilities for delivery against those objectives?
 - Is the industry encouraged to take a properly integrated and system-wide approach (e.g. holistic catchment-based approach rather than piecemeal)?
- Is the industry sufficiently and sustainably funded to tackle climate change and support circular economy objectives?
 - Is the difference between funding and financing properly understood?
 - Can the industry transition to a sustainable position as the reliance on external grants (e.g. EU) reduces?
 - Have the funding implications been properly communicated to customers?
- How do we improve the information that is required to cost and appraise alternative options effectively?
 - Are they based on robust information?
 - Are they made on a whole life costing basis?
 - Do they incorporate externalities? Or are they based simply on the lowest financial cost?

This takes time... there are several stages in developing a well-defined, robust and comprehensive information framework for the water industry...

Basic

- Financial information.
- Operating information (population, loads volumes).
- Operating expenditure.
- Priority areas for investment.
- Income by customer type.
- Drinking water quality, consent levels.

More advanced

- Cost across value chain and detailed activity based costing.
- Performance serviceability indicators.
- Detailed asset inventory (age, design, performance).
- Asset condition register.
- Regulatory Accounting Rules.
- Detailed investment returns (with interim milestones).
- Cost base and econometrics.

Comprehensive

- Detailed asset condition, risk and failure modes.
- Information on carbon emissions (operational and embodied), and natural and social capital.
- Full integration of customer, service, finance and asset systems.
- Asset management that incorporates research on customers' preferences and service experience.
- Geographical breakdown of direct and indirect costs across WSZs and segment of the value chain.

What information would be required?

What does this allow for?

- Develop robust information systems (SCADA and telemetry and geographical systems).
- Assess funding requirements and cost the investment programme.
- Implement charging policy and industry objectives.
- Financial sustainability and credit worthiness to lenders.
- Monitoring compliance with international and local standards and Government objectives.

- Information for greater level of lending/project finance.
- Cost benchmarking and assess scope for efficiency.
- Robust performance assessment of service levels.
- Asset management plans (with a good understanding of risks).
- Improved procurement.

- Improved long term planning and resilience.
- Optimised asset replacement.
- Better investment appraisal.
- More targeted capital expenditure.
- Performance against carbon targets.

Level of maturity



Information is critical in ensuring the water industry can achieve and demonstrate progress against its wider societal and environmental objectives. There are several levels...

Information should be an immediate focus of Government and its counterparties. It has to evidence compliance.

Additional information required to allow start of significant inward investment to the sector.

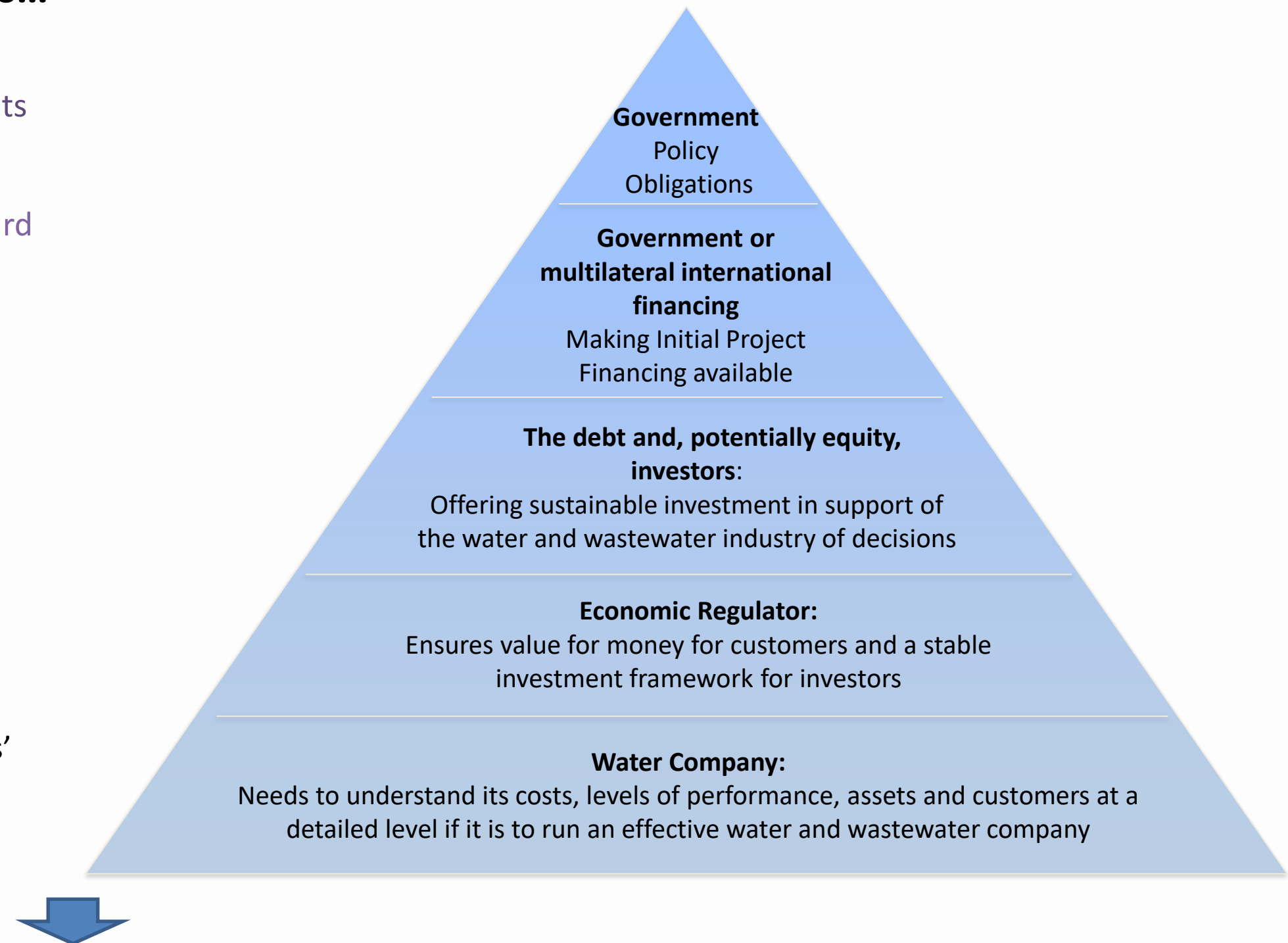
Much more detailed information is required for sustainable investment into the water and wastewater sector.

Regulatory information allows customers to be confident that they are receiving a value for money service.

The regulator uses this information to:

- establish appropriate rates of return for investors.
- agree the funding that should be committed to an operator's capital programme and set tariffs.

Helps companies improve the operational knowledge of companies' asset base and brings increased accountability of performance...



ANRSC has taken an important step in this direction with its request to develop Business Plans

THANK YOU

CIRCULAR ECONOMY