

# Behavioural economics in regulated utilities : Anglian Water's experience

UKCN Consumer Remedies Workshop, June 2017

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LOVE EVERY DROP. PUT WATER AT THE HEART  
OF A WHOLE NEW WAY OF LIVING.



## Summary of presentation

Alex Plant is the Regulation Director at Anglian Water Services. Previously, as Programme Director of the Market Reform and Head of Policy & Regulatory Strategy, he supported the opening up of the retail market for business customers, developing regulatory and competition policy approaches to upstream competition, liaising with Ofwat and the water industry.

This presentation was given by Alex at the fourth workshop of the UKCN Consumer Remedies project held at the CMA on 22 June 2017. The second half of this workshop was focussed on working with regulated companies.

# Outline



- Anglian Water Case Studies:
  - *Keep it Clear : broad customer base*
  - *Slug it Out: targeted sectorial approach*
  - *Bad Debt: targeted customer base*
  - *Reducing water use: making the most of smart meters*
  - The role of regulatory incentives



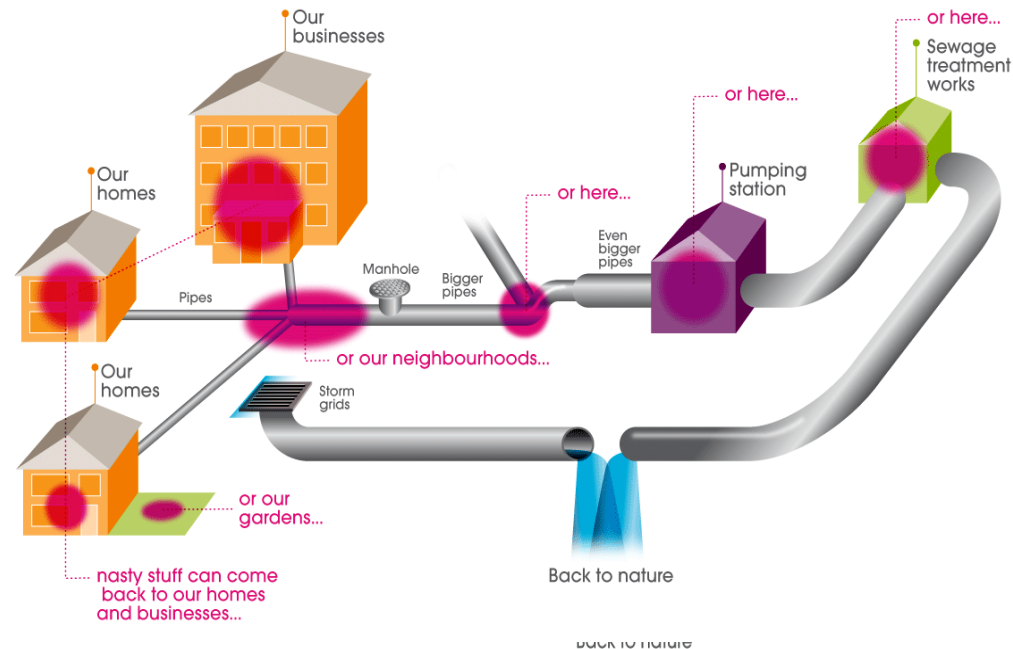
# Keep it Clear: reducing blockages



- 30,000 blockages a year in our sewer network: risks serious environmental pollution and sewer flooding in homes and neighbourhoods

## Effects of blocked arteries

- 80% avoidable: caused by un-flushable items & fats, oils and grease
- Majority of all pumping station failures are the result of blocked pumps (not mechanical failure)
- Cost to prevent blockages before they occur is £4m+ a year in the region. Extra costs of dealing with blockages once they occur and resulting sewer flooding and pollutions
- All contributes to cost of water bills
- Average cost of call out for private drainage clearance is between £60 and £240



**The sewer network plays a key role in protection of public health but it is in need of some protection itself.**

# How we used to do it

## All blocked up

Your toilet is not a rubbish bin.



### Don't flush these down the loo:



Using the toilet as a bin will damage your environment.

### PENALTIES

If you do not produce the Waste Transfer Note when asked to do so, you may be issued with a £300 Fixed Penalty Notice. If you breach your trade waste duty of care, transfer your waste to an unregistered waste carrier or carry waste without authorisation you may be prosecuted and subject to a fine of up to £5,000. The maximum penalty for fly-tipping is a fine of up to £50,000 and five years imprisonment.

## stop and think - not down the sink

Toilet and sewers are becoming clogged up with fat and grease (FOG). Build up of FOG is unpleasant - it causes odour and can attract vermin.

Anglian Water is urging all restaurants and takeaways to help take care of the environment by disposing of fats, oils and greases from kitchens responsibly.

When it causes a blockage this results in sewage flooding and pollution and can be distressing for those whose properties are affected.

When FOG builds up it can be dispersed with jetting equipment. In busy town centres this is often an expensive and difficult activity that in the long term takes its toll on the sewers themselves. FOG can also become rock hard so that it becomes very difficult to remove without specialist equipment.

Pollution can be devastating for the environment as a small amount can cause a lot of harm to wildlife.

Businesses also risk blocking their own drainage system, which could result in loss of income due to clean-up costs.

### Who is responsible for the sewerage system?



Want to know more about Anglian Water? Visit [www.anglianwater.co.uk](http://www.anglianwater.co.uk) to see the full range of our services.

The network of sewers and drains which takes wastewater away from your property are public and are privately owned.

You may share certain areas with one or more of your neighbours, in which case responsibility for maintenance is shared between you.

The large sewers, normally found under roads or pavements, are in most cases owned by Anglian Water. We maintain them and are responsible for clearing blockages and repairing them or replacing them.

In contrast, for example, housing estates or in other parts of towns and villages, the whole network of sewers and drains is private and the responsibility for

Most drains or sewers which wastewater and rainwater from your property to the public discharge network are the responsibility to maintain them.

### Who's responsible?



Consult your local council for more information.

### Sewers and drains

The network of sewers and drains taking wastewater away from your home is not designed for waste bins, oil and grease (FOG) poured down the sink.

Here are our affordable options, which help to reduce pollution should you be blocked down the toilet because their storage capacity can hold rubbish.

### Stop and think - not down the sink!

On average, 15,000 tonnes of FOG is flushed down the sink or down every year by households across the UK.

If a major blockage occurs partially blocked, you can use our Bio-Blocker. Bio-Blocker is a natural product that can be used in the kitchen and bathroom. It never a block enter your home, especially during periods of heavy rainfall.

Not only does it not damage the pipes, it also helps to keep the pipes clean.

For the sewer system, you can use our Bio-Blocker. Bio-Blocker is a natural product that can be used in the kitchen and bathroom. It never a block enter your home, especially during periods of heavy rainfall.

Don't pour fat, oily, grease and food waste down the sink. It can cause a blockage in the sewer.

• Always use the bin and never a block enter your home, especially during periods of heavy rainfall.

• Take a shower that is not leaking and is designed to prevent water from entering the sewer.

• Check that you have the correct size of bin for your property. If you have a large bin, it may be that you need a larger bin.

### Practical advice on how to avoid blocked sewers and drains and what to do if you need help from Anglian Water



### Your toilet is not a rubbish bin!

We understand that even the most well-meaning people can be blocked up.

It is an easy mistake to make. It is an easy mistake to make. It is an easy mistake to make. It is an easy mistake to make.

Don't do this! Don't do this! Don't do this! Don't do this!

• For the water in the bin, a blocked sewer that results in sewage flooding can be a serious problem.

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# Keep It Clear: social marketing



## 1. Understand the context

- evidence review and operative interviews to analyse causes, identify local hotspots and learn from others



The problem isn't the avoidable sewer blockages...

...it's the behaviour that leads to the avoidable blockage

## 2. Understand the audience and behaviour

- profile target groups using TGI
- qualitative research to understand motivations, benefits / barriers and define behavioural goals



## 3. Develop strategy and pilot interventions

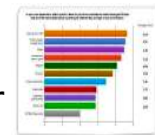
- identify key messages and channels, create materials



The Keep it Clear campaign originates from the belief that **you fix the cause, not the symptom.**

## 4. Evaluate impact

- quantitative pre and post survey to measure changes in awareness, attitudes and behaviour
- analyse blockage data



## 5. Refine and roll out

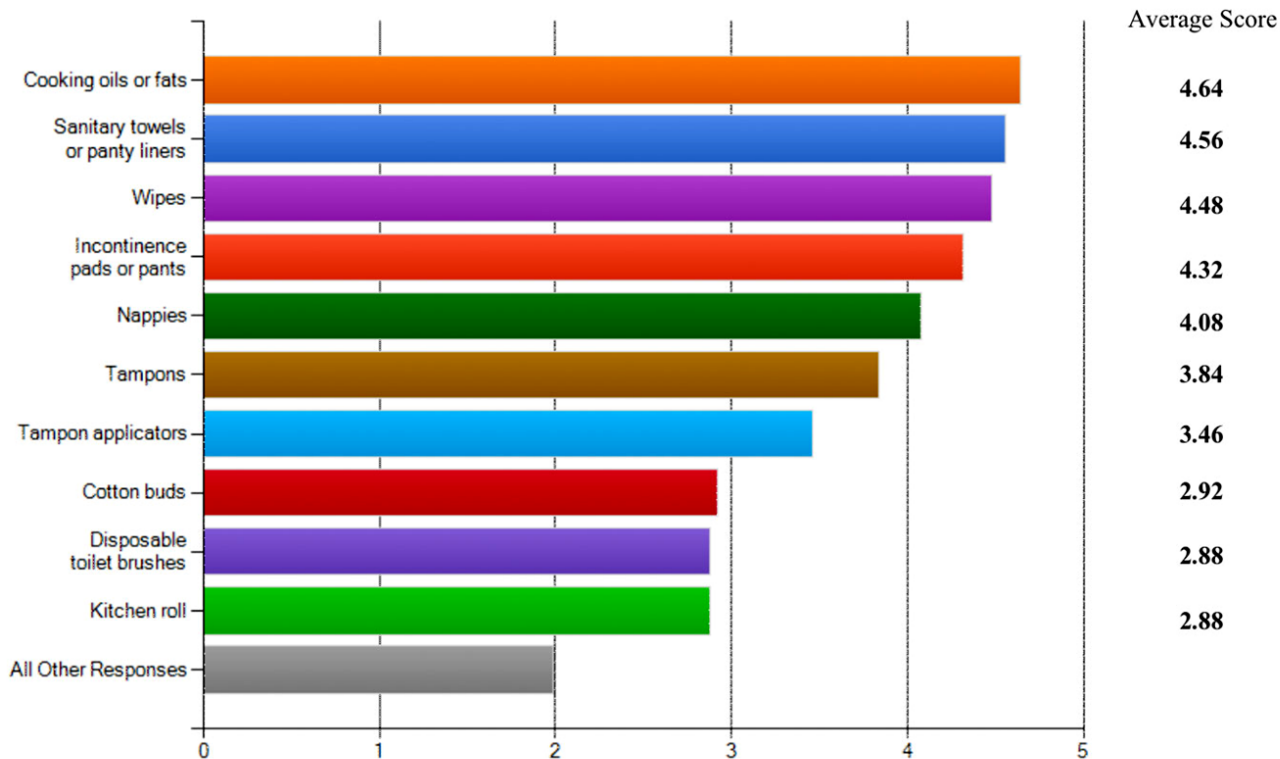
- learn from what has worked well and roll out regionally



# We identified the views of collection managers



In your own experience, which specific items do you think contribute to sewer blockages? Please rate all of the items listed below according to whether they are high or low contributors:



- Analysing average scores by blockage contributor type
- Cooking oils and fats, sanitary waste and wipes are the top contributors



# Rated high impact material streams against these criteria



- Evidence of **impact**
- Backed up by **sewer worker experience**
- High audience inclination and **ability to act**
- Resources required to **succeed**
- Probability of **success**

{ Total impact  
 { Total probability of change

## Fats, oils, greases and non-flushables

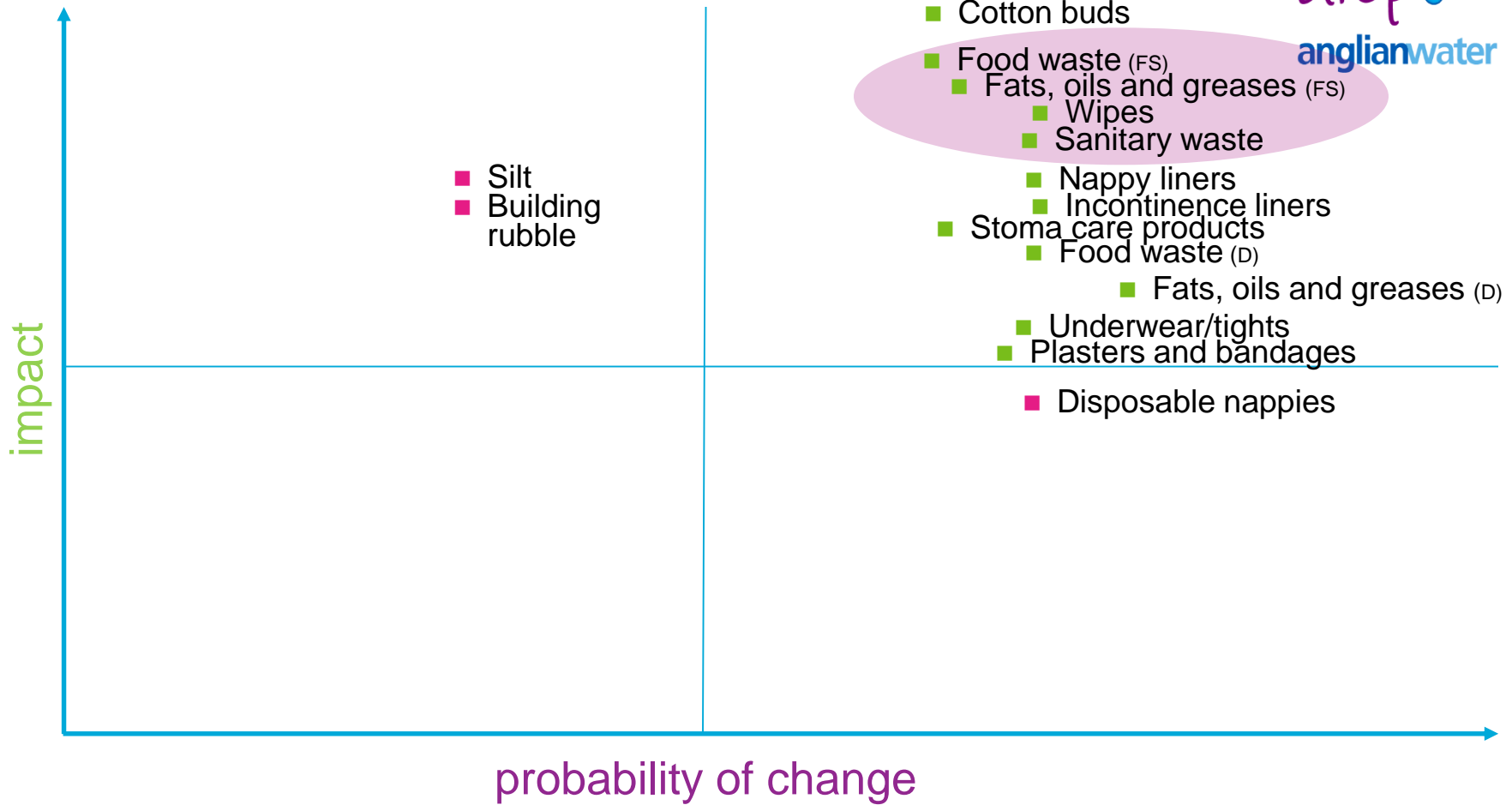
Issue analysis, Anglian Water, September 2010

Issue	Audiences	A Evidence of impact	B Backed up by sewer worker experience	C High audience inclination and ability to act	D Resources required to succeed	E Probability of success	Totals Impact (A+B)	Totals Probability of change (C+D+E)
1 Wipes	Domestic homes for the elderly Institutional cleaners	6	9	10	7	8	15	25
2 Sanitary waste	Women of menstruating age	6	9	5	7	5	15	17
3 Nappy liners	Mum using real nappies Older people	2			7	8	5	11

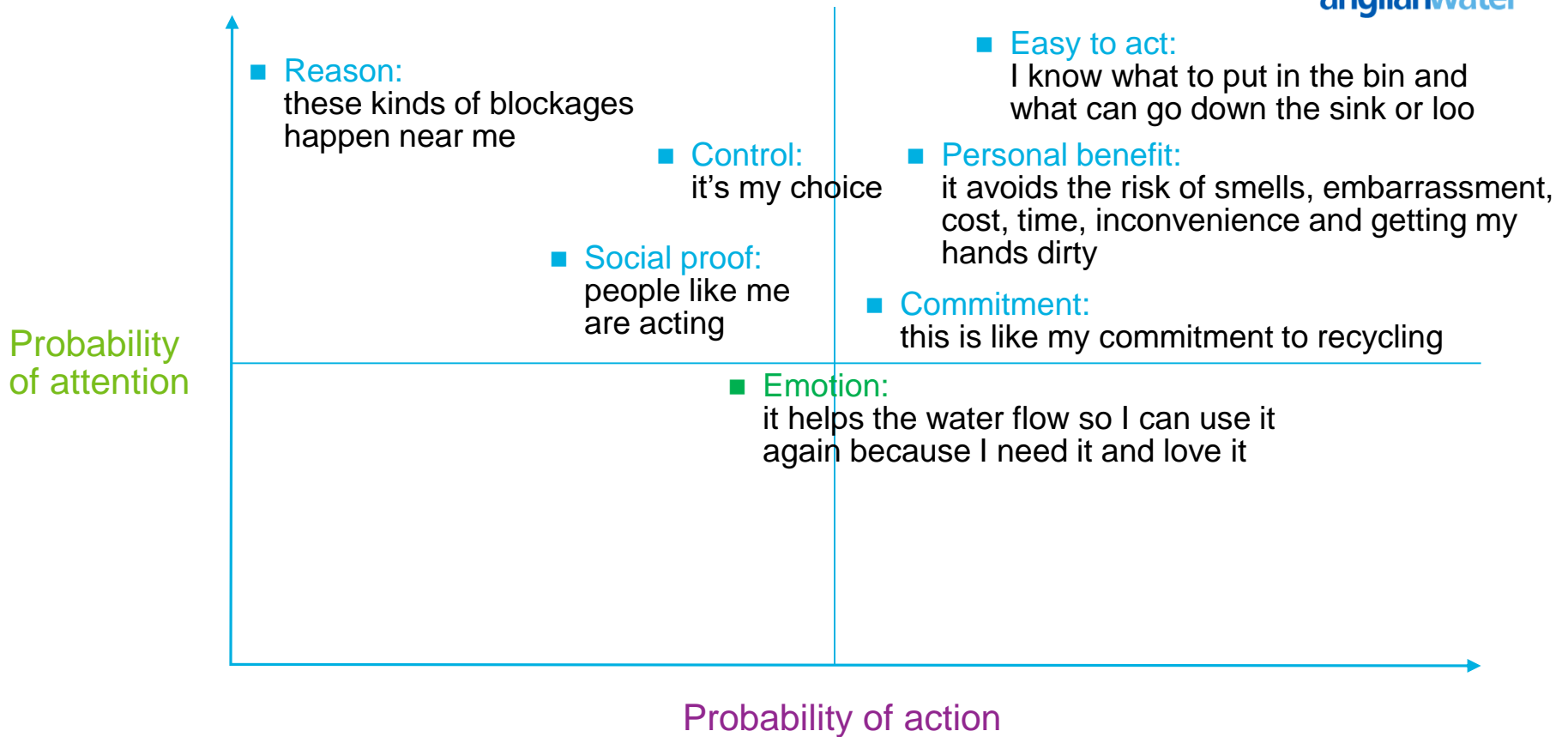
# Grid of priorities



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# Consumer motivation analysis



# Outcomes to date

- KIC rolled out to **25 locations** including coastal KIC working with holiday resort providers focusing on holidaymakers - **20% average reduction in blockages on transferred network vs 47% increase in blockages in non-KIC towns**
- **Personalised mailers** to homes. Field Techs carry KIC packs
- **Food serving establishments** visits offering advice and Chartered institute of environmental Health FSE packs
- More than 35,000 children and adults engaged with through Keep it Clear's Mad Science shows
- **8 formal partnerships** with community voluntary organisations cover **17 KIC areas**
- **Customised material** for different audiences
- Keep it Clear **media coverage** in all areas of the campaign
- **ISO/WIS flushability test guidelines** being produced with water companies, manufacturers and retailers
- **Partnerships** with NGOs, retailers, manufacturers and local authorities - EHO, waste and enforcement teams
- Using Word of Mouth techniques to discuss sanitary item disposal options with women.

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# KIC : key points



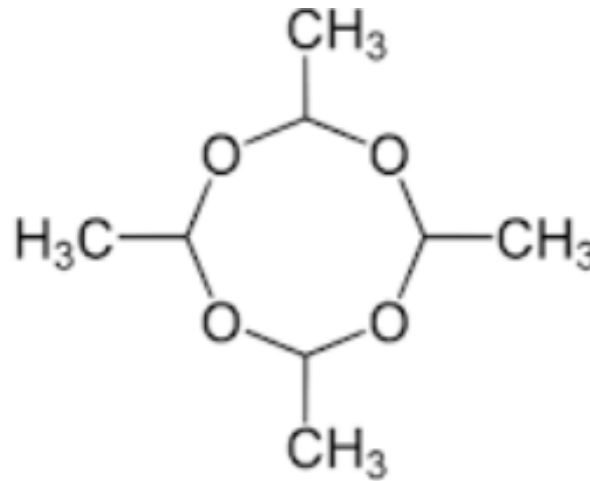
- Reframed language so it is meaningful for customers
- Responsibility deal with manufacturers and retailers
- Use community outreach programme to make the most of local, trusted, influential voices
- Provide prompts and advice at the time of an incident i.e. loss of toilet facility (grab attention)
- Communications approach that makes it easy to act. including the use of prompts at time of disposal
- Wider communications programme to raise awareness of the world beneath our feet
- Created a web hub to allow anyone to post ideas to help achieve our goal of reducing waste to sewers
- Media engagement programme and developed evidence base on disposal of waste to sewers

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**slug**  
**it out**  
healthy crops, healthy water



# Slug It Out: Metaldehyde

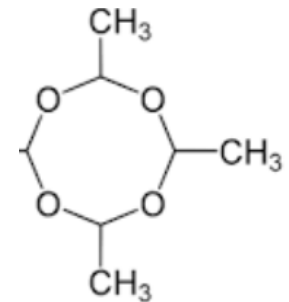
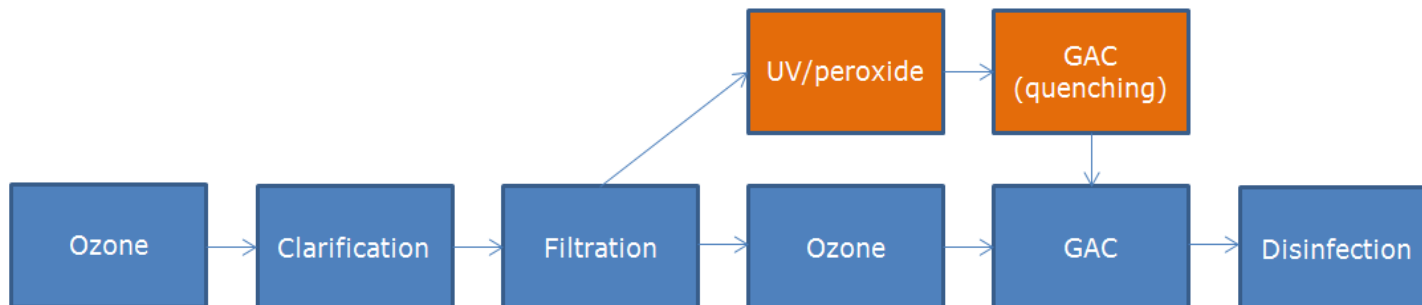


- Active ingredient in slug pellets
- Particular issue in the East : intensive agriculture
- Conventional water treatments cannot remove
- End of pipe solutions very high cost
- Alternative product (ferric) available to farmers
- Ferric does not create same problems for water

# The cost of treatment

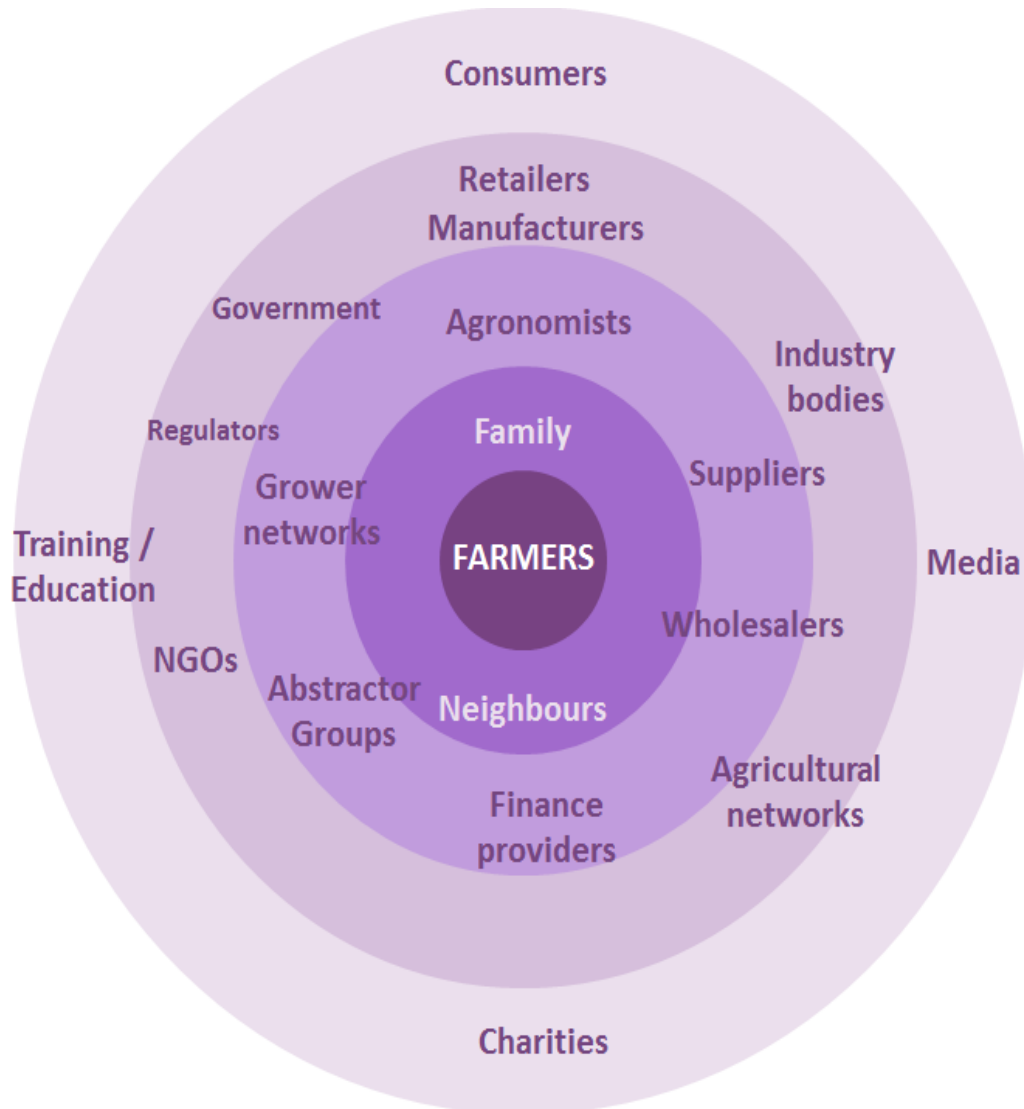


Surface water sites	Total costs Unit Costs £/Ml	Power costs Unit Costs £/Ml	Chemicals costs Unit Costs £/Ml
ALTON WTW	<b>100.41</b>	53.38	<b>11.87</b>
GRAFHAM WTW	68.95	45.01	10.85
MORCOTT WTW	80.79	<b>58.32</b>	9.96
PITSFORD WTW	77.32	34.58	8.84
WING WTW	82.98	56.35	8.49
<b>Overall surface water sites</b>	<b>78.67</b>	<b>45.72</b>	<b>10.32</b>
<b>HALL WTW</b>	<b>277.23</b>	<b>101.67</b>	<b>16.65 plus 97.33 for new GAC</b>



# Preventing pollution at source

## Catchment Management



- People game
- Right people, right place
- Accountability
- Adequate resources critical in AMP 7

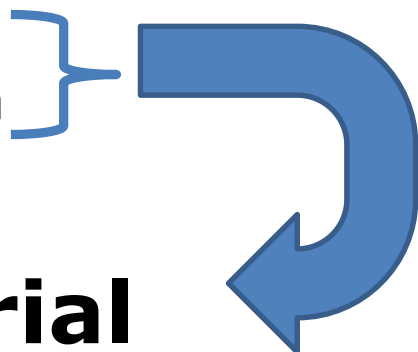
# Natural catchments



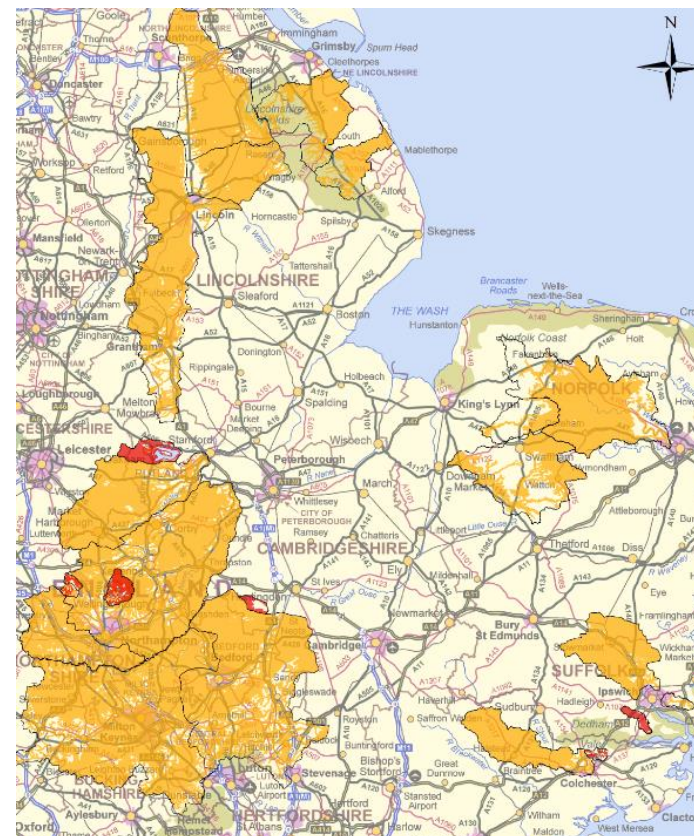
- Ferric phosphate use survey

Key feedback:

- **Efficacy**
- **Cost**
- Knowledge
- Information
- Habit



- **Pilot trial**
- Product substitution in natural catchments
- Hosting Payment – Cost Difference – Water Quality Bonus





# Results

- 100% engagement
- Connect farm to reservoir
- Market influence (new ferric product and more use)
- Issues with pumped catchment scale as visible connectivity lost
- Your problem not ours
- £90M spent in AMP 7
  - Monitoring
  - Advisors
  - Substitution costs
- **Voluntary ≠ success**
  - **£ isn't always a driver**
  - **Paying the polluter?**







# Using BE to address bad debt



- Discussions with Ofwat CEO led to contact with academics at Oxford University
- This led to taking forward work with those academics and the Behaviouralist to develop new approaches to managing bad debt
- Pilot experiment with the aim to :
  - Test if experimental communications increase compliance rates ;
  - Provide insight into how each letter affects different risk profile groups;
  - Increase potential revenue & reduce customer harm

# Conducting the experiment



- AW's domestic debt process assigns customers risk scores based on their likeliness to comply.
- A combination of letters, SMS and telephone communication, dependent upon risk score, are used at each stage to remind customers of late payments/debt level.
- The experiment will test two treatments; **omission bias** and **social norms bias** by changing **five letter designs** at different points in the debt process.

# Experiment conditions



- Pilot for 6-8 weeks
- Within-group randomised controlled trial
- Customers in each risk group randomly assigned to either the control group, treatment 1 or treatment 2
- Randomisation based on postcode & debt level
- Letters sent based on randomisation and customer's point in debt process
- Analysis at each stage in the experiment and regression analysis completed after the pilot
- Customer profiling information will be shared to analyse trends in compliance

# Interventions



- All treatment letters will test the following: [anglianwater](#)
  - the **messenger effect**, which test the impact of the letter being sent by a person of perceived authority;
  - the **Hawthorne effect**, which tests the effect of being observed, and;
  - the **salience effect**, which tests the effect of drawing attention to the situation the person is in

# Treatment communications



- ***Treatment 1 – Omission Bias***

We will also include an omission bias statement:

*"We are treating your lack of payment as an oversight. If you do not respond, we will treat it as an active choice not to pay your bill".*

- ***Treatment 2 – Social Norms Bias***

And a social norms bias statement:

*"Over 95% of people pay their bills on time. You are in the small minority who have not yet arranged payment".*

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# Water efficiency



- Climate change & population growth key challenges for the sector with risk to resilience
- Particularly in the East/South East of England where those factors are particularly acute
- AW has good track record of demand management to help water scarcity (we put the same amount of water into supply now as 30 years ago, despite 30% growth)
- But need to do more on demand management as part of multi-pronged approach to resilience

# Reducing water use experiments



*We carried out three qualitative experiments on financial reward/penalty:*

## **1. Penalty Charge**

*Incentive upfront : penalty for overuse. We give customers a fixed water allowance of 100L/pp/day and everyday they go over the allowance we penalise them by deducting £5.*

## **2. The Water Lottery**

*If they stick to their allowance for the duration of the experiment, customers are entered into a raffle. In with a chance to be entered into a raffle to win £100 if they stick to a water allowance of 100L/day.*

## **3. The Value of Water**

*We translate their water usage into monetary value, showing benefits of savings.*

*By translating the water that they save into money we will be educating customers on how they can save and encouraging them to become more water efficient.*

# Reducing water use experiments



*And three qualitative experiments on leadership and competition:*

## **1. The Rules**

*We provide the customer with short list of areas where they could make savings and clear direction on what they should be doing to successfully complete the experiment. They will have a fixed water allowance of 80L/pp/day and it is their responsibility to stick to it.*

## **2. The Big Competition**

*We create an imaginary competition between towns and villages in the Newmarket area to find the best water savers. Tell the customer that Newmarket is in with a chance of becoming the champions of saving water. They are representing their community and have to save as much water as they can.*

## **3. The Super Saver**

*We create an imaginary competition between households in the Newmarket area to find the ultimate water saving champion, who will help us develop a water efficiency programme for the community. Customer told they are in with a chance of becoming the water saving champion in their community and will be hailed as an expert savvy water user. They need to save as much water as possible.*

# Regulatory incentives



- Some closing thoughts
- Ofgem approach vs Ofwat
- Outcome Delivery Incentives
- Customer Engagement
- Penalty and Reward
- Make it hard to stay still