E056

WReN

Water Resources North Customer Engagement Report June 2021

Contents

1. WReN Context

Water resources planning has, for several decades, been carried out by individual water companies within a framework that is set by Government, through legislation and Defra. The output of this framework is the water resources management plan (WRMP) which is regulated by the Environment Agency (EA). All water companies in England and Wales must prepare, maintain, and deliver a WRMP.

The primary objective of a WRMP is to ensure that future public water supplies are secure and resilient in the face of challenges such as a growing population, the climate crisis, and the need to protect our valuable water environment.

This approach to planning at individual water company level has served many parts of the country well, notably where companies – such as Yorkshire Water and Northumbrian Water – cover large geographical areas and so, are able to plan water resources, and mitigate drought risk, at scale. However, the same can't be said in other parts of the country, such as in the South East, where a relatively high number of water companies cover a smaller spatial area. Here, planning at company level could lead to potentially sub-optimal solutions, and the first regional groups were formed to combat this. However, without a coherent regional planning process at national level until now, the potential to fully explore water resources and transfers coherently across regions and multiple company areas has been inhibited.

The limitations of companies planning water supplies individually, accelerating climate change, population growth, increased awareness of the fragility of ecosystems and consideration for all users of water, calls for a new approach to planning water resources for the future. In its 25-year environment plan, the UK Government pledged that 'we would be the first generation to leave the environment in a better condition than we found it'. To help meet this pledge and tackle the other challenges, the EA created a Water Resources National Framework (WRNF).

The WRNF has been developed in collaboration with Ofwat, the Drinking Water Inspectorate (DWI), EA and Defra, as well as a wide range of stakeholders represented through a senior steering group comprising of around 40 representatives from the water industry, other water users, environmental NGOs and Government & regulators from England and Wales.

The WRNF is part of the water resources planning cycle, and it sets the challenge for regional groups to work collaboratively to develop ambitious regional water resources plans that provide resilient and efficient water supplies into the future and have environmental protection at their core. Five regional groups have been set up that cover England. Each regional group has been tasked with pulling together a regional plan. Hence the creation of Water Resources North (WReN).

WReN is formed, and funded, by Yorkshire Water, Northumbrian Water and Hartlepool Water. It is designed to oversee water resources planning for Yorkshire and the North East of England. The WReN plan will include strategic and regional solutions and will then be translated into the next Water Resources Management Plans (WRMPs) for each of the companies - Yorkshire Water, Northumbrian Water and Hartlepool Water.

Another key aim of WReN is to facilitate sustainable growth across Yorkshire, the Humber, and the North East of England, in support of the ambition of the Northern Powerhouse. WReN will ensure that the region has a sustainable, long-term plan for water resources that protects the region's resilience in the face of challenges such as climate change and population growth. Supporting other regions across the country to secure a holistic approach to the countries water supply is also part of WReN.

WReN is working with water dependent sectors of the economy, other stakeholders such as environmental groups and regulators, to shape a long-term plan for managing water resources in the region. Part of this approach will be a consultation of the region's largest stakeholder group, and the largest consumers of water – our customers (bill payers) and citizens (non-bill payers). It is vital, in the development of regional plans to engage with our customers and citizens about their thoughts on the region's approach to securing future water supplies and their priorities and preferences for doing so, now and into the future.

WReN Consultation Considerations

In their guidance on constructing plans (both regional and company specific), several factors have been outlined to consider as follows:-

Environmental Destination:

The guidance outlines the need for both local and regional plans to develop a long-term 'environmental destination'. They state that this must be done by delivering long-term sustainability and environmental resilience. The EA suggest that the 'environmental destination' should:

- be ambitious.
- deliver enhanced protection for the environment.
- not be restricted to current environmental obligations.
- consider timings of delivery and the impact this might have on the wider environment and on customer affordability.
- support nature recovery and achieve sustainable abstraction across the planning period.

The guidelines recommend that, regarding abstraction and the environmental destination, plans should demonstrate that abstraction is sustainable now and over the long-term. The EA believe this is essential to support healthy ecology and the natural resilience of rivers, wetlands and aquifers. Plans should protect and improve the environment, for example, by providing greater protection to sensitive habitats and vulnerable rivers, such as chalk rivers.

Best Value Plan:

In addition to their guidance mentioned above, around creating regional plans and supporting national water needs, Defra and the EA put a 'best value' plan at the crux of its guidance for water companies in its July 2020 Water Resources Planning Guidelines consultation. They state that a 'best value plan' (BVP) is one which considers factors alongside economic cost and seeks to increase the overall net benefit to customers and citizens, the environment and society. In compiling the best

value plan, the guidance recommends that plan considerations take account of the most appropriate solutions regionally and nationally, where appropriate, to secure water supplies for the future.

Unlike past WRMPs, the best value plan may not be the cheapest plan (that may simply address a supply-demand deficit, without taking into account broader considerations of value). In addition, water companies are expected to work in regional groups to meet the challenge and together develop a cohesive set of plans. Regional plans should identify the best options to meet the challenges faced, delivering best value for the environment and society. A key requirement is for the planning process to identify suitable descriptors of best-value (i.e. metrics) and understand the relative priorities or weightings of those descriptors for decision-making.

Water Trading:

This is another area outlined for consideration in the guidance. Splitting the country in to five regional water groups supports the approach to water trading, allowing a focus on the strategic options for trading between companies and regions (prior to the development of company level WRMPs). Ofwat believe water trading has many benefits, namely:

- For customers and citizens - it can improve resilience of supply and allow more expensive investment in developing new resources within a water company's area to be deferred, reducing future upward pressure on bills.
- For the environment, it ensures water is supplied to where it is scarce and there are existing environmental pressures, instead of developing new resources or using unsustainable abstractions.
- For the water sector - it enables water companies to share in cost savings from trading instead of investing and provides opportunities for companies to profit and innovate from trades.

The WReN area is seen as a donor area viewed through a national lens, albeit that does not mean that options will not need to be developed to offset water exported from the region.

Plan Alignment:

Another consideration for WRMP development is the guidance outlining that water and sewerage companies (WaSCs) ensure that their long-term planning for water supply and wastewater are considered in final plan submissions. Therefore, Drainage Water Management Plans (DWMP's) should be considered alongside WRMP's.

2. Project Background

Given the new dimension of WReN and a national approach to securing future water supplies across company regions, there will be many factors to consider in the development of companies' plans.

In the first instance it is important to explore customers', citizens', and stakeholders' thoughts on the development of regional water groups. Do customers and citizens see these as beneficial and something WReN should be spending their time on versus individual water company's independently planning?

It is important to understand expectations of WRMPs and WReN plans. How far in the future do customers and citizens want WReN to try and plan, and how soon do they want to see improvements?

In addition and linked to the need to defining what constitutes a 'best value plan', WReN has created a set of objectives they ultimately want to meet. The objectives are derived from regulatory expectations and work to date on regional needs. Research is required to understand if these objectives meet customers', citizens', and stakeholders' needs and expectations for WReN planning, and if customers and citizens/stakeholders can build on these.

Other key areas of exploration for the WReN consultation were as follows:-

Environmental Destination

Explore and prioritise customers' and citizens' ambitions around the environment generally (not in a water context at first) and their expected timescales for achieving them. Which organisations/companies are leading in improving the environment? How do they know this? How do WReN companies compare to these?

Inform customers and citizens of statutory requirements in this area, what are customers' and citizens' thoughts on this? Is this timely enough and/or stretching enough? Is there any desire to go further than this? If so, how much further? Are customers and citizens aware that pushing further or faster may have cost implications? Would customers and citizens pay more to go further or go faster? How much more (this was placed in the context of how much of customers and citizens current bill is spent on water resources)?

Inform customers and citizens on aspects WReN could influence/control, e.g. abstractions, and the impact of these on Sites of Special Scientific Interest (SSSI's), chalk streams and salmon rivers, as well as reducing the impact or frequency of drought permits or orders. Then explore to what extent customers and citizens want WReN to influence/control these aspects (e.g. bare minimum to meet regulations and legal duties or above and beyond).

Best Value Plan:

An exploration of thoughts on the best value plan approach; are customers and citizens comfortable with this given it is unlikely to be the cheapest option?

What do customers and citizens see as being best value? What would their best value plan ultimately include? Would they pay more for this? How much more? (This was put in context of water customers' and citizens spend on water resources currently and how much more would they pay to achieve a best value plan).

Deduce from a list of metrics, understanding how customers and citizens rank these in order of priority and thus which are most important.

Water Trading:

Understand what customers' and citizens' thoughts are on water trading? What do they view as the pros and cons? What do they value about current water supplies?

In addition, an exploration of any 'conditions' that would need to be met before customers and citizens would agree to trading water from the region. For example, explore a scenario where the water company invest £Xm to reduce leakage, this in turn creates surplus water as it is not being leaked, would customers and citizens want to trade that away? What aspects do they 'value' that plans should aim to protect, under a water trading situation?

Plan alignment with other plans such as DWMP and Drought Plans:

WRMP's need to be placed in context of other plans created by water and sewerage companies, namely: Drought Plans, DWMPs and Price Review Plans (5-year business plans). It is important customers and citizens have the full picture with regards to plans, and to be conscious that bill impacts may occur.

However, given the early stage in the process, well in advance of PR24, this particular research project has a strong water resource focus, a willingness to pay type study will be conducted at a later date.

Exploring Metrics (descriptors of a best-value plan):

For water companies to assess their current and future needs, part of the process of developing plans involves a supply/demand forecast. To ensure water supply will meet demand in the future, water companies will forecast the volume of water they can supply and the potential demand for water for the next 25 years and beyond to determine if there is a risk they could fail to meet demand; this will be undertaken by each water company. A least cost plan might not consider wider things of value to customers and citizens and the environment.

To develop a best value plan, WReN needs to understand what elements customers and citizens see as most important and understand their relative priorities. There is a predominant need to understand how customers and citizens measure or weigh up what is important to them. When customers and citizens are making decisions on options or faster environmental improvement, what is it driving their preferences?

Could this be any of the potential 'metrics'? The preferred 'metrics' chosen by customers and citizens should drive the options customers and citizens potentially choose. Understanding the preference of metrics in isolation (from the type of options) will help us to define what is 'best value' to customers and citizens and critically, in terms of relative importance / weightings, how they compare / rank so WReN can consider this when defining our best value plan (which may be formed of a range of contributing options or solutions).

Option Preferences:

If a deficit is identified in supply-demand forecasts, there are numerous options available to remove the risk, one of these being water trading with neighbouring companies. Each option (and ultimately, sets of options, i.e. plan solutions) will be scored according to the metrics above, to define the best-value plan. WReN would also like to explore if customers and citizens generally prefer certain types of options more generally (noting that this relative preference supports one of the potential metrics, which is option type).

It is important to understand which of the potential options is most important to customers, citizens and stakeholders and what is driving this choice.

3. Research Aims and Objectives

The overall aim is to assess customers', citizens' and stakeholders' views of what a 'best value' plan would look like including the drivers of investment and how this should be prioritised to ensure a lasting supply of water long into the future.

The specific principal research objectives that needed to be explored were:

Water Supply:

- To explore customers' and citizens' understanding of water scarcity and security of supply.
- Are customers and citizens aware of the issues facing water companies (climate change and population growth)?
- To explore customers' and citizens' thoughts on the WReN principles and what the EA has created. Are customers and citizens in support of this why? Why not?
- To inform customers and citizens of the relatively healthy position WReN are in with regards to water and future supplies, how do they feel about this? What should WReN do with any surplus water, considering other regions will experience a deficit?
- For Yorkshire Water customers and citizens only, as a company Yorkshire Water are facing a deficit, do customers and citizens support paying more to address a deficit now to realise longer term best value? To a lesser extent, this also applies specifically to Northumbrian Water customers and citizens who live in the Berwick water resources zone.

WReN Regional Plan Objectives:

- To explore customers' and citizens' thoughts on the WReN regional plan objectives, are the objectives acceptable in the eyes of customers and citizens, is there anything missing?

WReN Metrics:

- To explore and determine customers and citizens preference for overarching 'metrics' which drive 'best value' choices for the plan. Which is the most appealing at an overall level and why? Are choices driven by any particular metrics? Are customers and citizens more in support of options which have positive environmental metrics or options which cost less, for example?
- To explore the appeal of all metrics and their position against one another; what is the ranking order and how far apart are they from one another? Is there one important outlier - a non-negotiable which must be delivered?
- To understand motivations for metrics selected and what is driving this.
- To explore customers' and citizens' preference for options to address the supply demand balance, how do they rank against one another?
- What is driving choices (are specific metrics potentially driving choices)?

Environmental Ambition:

- To explore customers' and citizens' thoughts on environmental ambition and its requirements, with focus particularly on abstraction and protecting SSSI's, chalk streams and salmon rivers.
- Do customers and citizens want WReN to commit to their statutory requirements only or go further? Why? How far? How fast? What is driving this opinion?
- To explore how often and to what extent customers and citizens want to be consulted on our environmental ambitions going forward.

Water Trading:

- To delve deeper with customers and citizens on water trading.
- Spontaneous thoughts on water trading.
- How much support is there for this option (both receiving and giving of supply), what factors are at play for support/lack of support? What would companies need to put in place to secure support for water trading in future?
- How well do customers and citizens understand the need for water trading to address water scarcity and ensure security of supply at national level?
- What are the perceived challenges/issues (environmental, financial, etc) regarding water trading?
- Understand whether customers' and citizens' support for water trading would increase if offered a bill reduction.

Affordability and Willingness to Pay:

- To understand the affordability of options selected and customers and citizens understanding of inter-generational affordability.
- What feels fair? Are customers and citizens prepared to pay more now or push costs out to future generations?

Other Considerations:-

Exploration of DWMP options:

To explore and understand if customers and citizens agree with the DWMP priorities developed following earlier engagement with customers and citizens.

To explore the most important options whether that be water, wastewater, or environment ambitions. Once pitched against each other, at an overall level, where water resource and drainage / wastewater issues are seen in comparison to each other.

4. Sample and Methodology

Water resource themes are often complex, and the regional plans must contend with emphasis on a number of new areas of focus. For example, defining a best-value plan requires an exploration and understanding of customer priorities beyond the traditionally narrower supply-demand focus.

With this in mind, WReN undertook reconvened deliberative research across 16 groups (meeting twice over a period of a week), comprising a mix of household customers, future customers and citizens, as well as range of non-household customers. The non-household sessions were held with a mixture of water dependent businesses (e.g. farmers) and non-water dependent businesses. Whilst this type of approach typically engages a lower number of customers than quantitative survey approaches, it benefits from a much greater dialogue and opportunity for those involved to really understand the nuances of water resources management, allowing for a more educated decision on their priorities for future plans.

Each workshop was conducted using Microsoft Teams. Reconvening workshops allowed for a more in-depth discussion with respondents who became more informed as the workshops progressed.

As part of the process Customer challenge Groups's(CCG's) were engaged in the research and process, all materials, including discussion guides, were developed in conjunction with the WReN companies and the opportunity was given for feedback from the internal stakeholders, such as CCGs, on these materials. Equally, the Client and internal stakeholders were invited to view the research workshops and opportunity to ask questions was given at the end of each session.

A total of 16 workshops were conducted across the usual demographics within the three water regions Yorkshire Water (YW), Northumbrian Water (NW) and Hartlepool Water (HW).

Workshops were constructed based on the following criteria:

- Demographics:
    - Age.
        - Pre-family 18-35 years
        - Family 30-45 years
        - Post family 45+ years
        - State Pensioner
        - Citizens 16-17 years, Citizens 18-20 years, Citizens 21-30 years
    - Marital status.
    - Gender.
    - Income (including low income).
    - Vulnerability.
    - Household and business customers and citizens.
    - Some engaged water dependent business customers with a mix of SMEs with a mix of urban and rural business locations.
    - Business customers were recruited from across a number of sectors such as agriculture, retail, service and hospitality.

Pre group and post group questionnaires were additionally utilised (appended to this report) to collect information from the groups and to explore other avenues that time didn't allow for within the sessions themselves.

Two sessions per workshop, lasting up to 1.5 hours' duration each, were undertaken.

- First session included educational information via the use of 3 films to cover the following:
  - Customer Engagement
  - Providing you with water
  - Introduction to Water Resources Planning
  - A new focus for water companies
  - Customer at the heart of plans
  - Water Trading

- The second session was used to explore WRMP and DWMP, environmental ambition, BVP and WRMP objectives.
  - Utilised films shown to educate customers and citizens on the Environmental Destination and Ambition and BVPs.

The findings from the pre and post group questionnaires are interweaved with the qualitative findings and appended to this report.

All stimulus materials are also appended to this report including scripts from films.

Research was conducted between the 7th and the 21st of June 2021.

The workshop sample was structured as follows (HH = House Hold, NHH = Non House Hold): -

Workshop 1 Mon 7th & 14th	**Workshop 2 Mon 7th & 14th**	**Workshop 3 Tuesday 8th & 15th**	**Workshop 4 Tuesday 8th & 15th**
HH Pre-family Customers and citizens 18-35 years Social Grade: A B C1 C2 D YW	HH Family Customers and citizens 30-45 years Social Grade: A B C1 C2 D YW	HH Family Customers and citizens 30-45 years Social Grade: A B C1 C2 D NW	**NHH** Non Water Dependent Business Customers and citizens NW
Workshop 5 Tuesday 8th & 15th	**Workshop 6 Tuesday 8th & 15th**	**Workshop 7 Weds 9th & 16th**	**Workshop 8 Weds 9th & 16th**
HH Pre-family Customers and citizens 18-35 years Social Grade: A B C1 C2 D NW	**NHH** Engaged Water dependent Customers and citizens (Farmers etc) NW	HH State Pensioner Customers and citizens Social Grade: E YW	**NHH** Non-water Dependent Business Customers and citizens YW
Workshop 9 Weds 9th & 16th	**Workshop 10 Weds 9th & 16th**	**Workshop 11 Thurs 10th & 17th**	**Workshop 12 Thurs 10th & 17th**
HH Citizens 16 to 17 years Social Grade: A B C1 C2 D NW	HH Post Family Customers and citizens 45+ years Social Grade: A B C1 C2 D NW	HH Citizens 18 to 20 years Social Grade: A B C1 C2 D YW	HH Vulnerable and Low-Income Family Customers and citizens Social Grade: D E YW
Workshop 13 Thurs 10th & 17th	**Workshop 14 Thurs 10th & 17th**	**Workshop 15 Mon 14th & 21st**	**Workshop 16 Mon 14th & 21st**
HH Vulnerable and Low-Income Family Customers and citizens Social Grade: D E HW	HH Post Family Customers and citizens 45+ years Social Grade: A B C1 C2 D HW	**NHH** Engaged Water dependent Customers and citizens (Farmers etc) YW	HH Citizens 21 to 30 years Social grade: A B C1 C2 D NW

5. Executive Summary

Background:

A deliberative, qualitative approach was employed to investigate household and non-household customer and citizen views upon what the core focus and priorities are for WReN WRMPs. This methodology of engagement and understanding was achieved via 16 reconvened workshops (a total of 32 workshops).

The workshops were conducted across the usual demographics within the three water regions Yorkshire Water (YW), Northumbrian Water (NW) and Hartlepool Water (HW).

The sample was structured to ensure representation across a number of criteria:

- Age.
  - Pre-family 18-35 years
  - Family 30-45 years
  - Post family 45+ years
  - State Pensioner
  - Citizens 16-17 years, Citizens 18-20 years, Citizens 21-30 years
- Marital status.
- Gender.
- Income (including low income).
- Vulnerability.
- Household and business customers and citizens.
- Some engaged water dependent business customers with a mix of SMEs with a mix of urban and rural business locations.
  - Business customers were recruited from a number of different sectors, including, agriculture, retail, services and hospitality.

Core Findings of the Research:

Consistent with other research conducted within the water industry, customers and citizens took water for granted. They rarely gave any thought about the water that came out of their taps or the wastewater that was flushed / drained away. As long as they have plentiful, fresh, clean water they do not think about it. There was no sense that water was a scarce resource, particularly in Northumbria with Kielder Reservoir. It could potentially be an issue in Yorkshire, however.

There is little concern about where the water comes from and there is no sense that the water coming out of the taps should be from local sources. This bodes well for response and support for water trading / transfers as export, as the source of water was not an issue in principle.

Water trading / transfers as exports, and the ability to lower bills by deploying market forces, has appeal since it has the potential to help customers in areas of scarce water and help protect the environment. There was low awareness or understanding of the need for water trading, but once it had been explained there was large scale support for it. The caveats were that the associated cost (transporting, pipework and treating) should be carried by the receiving water company and not the donor; and importantly, that it would not jeopardise the donors water supplies.

Leaks are seen as an important issue, and there was widespread condemnation of letting fresh water run as it was seen as wasteful and morally dubious. Customers and citizens wanted the water companies to 'get their houses in order' first as that would lead to a greater supply, before attempting to reduce Per Capita Consumption (PCC), for example, and water trading. However, water companies need to explain to customers that leaks cost far more to fix and that water companies must find the most efficient way to run a network that serves everyone at a fair price.

Environmental concerns have risen further up the agenda. Consumers are becoming more responsible across a range of goods and services. Behaviour has changed in recent years, households recycle far more than they did 10 years ago and most have got into the habit of bringing bags to the supermarket. Younger consumers, i.e. Gen Z, have an expectation for companies and brands to have an affinity with their own set of values.

However, there was little understanding of how WReN companies compared to other companies that were leading the way in improving the environment. Typically, car manufacturers and some energy companies, using renewables, were seen to be innovative in this area.

Customers and citizens wanted WReN companies to protect what they had in terms of the environment, and once that protection was in place to improve what was there through Biodiversity Net Gain. Customers and citizens in this qualitative exercise were prepared to pay a small amount more to achieve this, however this support would need further quantification.

Customers and citizens seem willing to reduce their PCC but there was a need for education and raising awareness. Moreover, it was felt that in order for the water companies to hit their PCC targets, they needed to communicate with their customers and get them onside.

Education and communication became a common theme in the research, and more was perceived to be needed in this area. It was seen to be missing from the WReN metrics.

Communication is required to explain to consumers.

- What water companies need to do
- Why it is so important
- How water companies will do it
- Why they need the help of their customers
- Targets and timescales

Customers and citizens wanted to be consulted on ambitions going forward.

There was widespread approval of the Environmental Ambition and most wanted water companies to be ambitious and deliver enhanced protection for the environment, to support nature recovery and achieve sustainable abstraction.

The top 3 metrics across the workshops were leakage, Public Water Supply (PWS) drought resilience and financial cost. Environmental considerations were ranked after this. This indicates that option type isn't so much of a consideration, rather that the plan delivers the right outcomes.

Overall Ranking of Metrics

Ranking	Metric
1.	Leakage
2.	Public Water Supply (PWS) Drought Resilience
3.	Financial Cost
4.	Per Capita Consumption (PCC)
5.	Biodiversity Net Gain
6.	Non-Drought Resilience
7.	Human and Social Wellbeing
8.	Carbon
9.	Natural Capital
10.	Customer Preferred Option Type
11.	Option Deliverability
12.	Stakeholder Preferred Option Type

Overall Weighting of Ranked Metrics

Metric	Average Points Allocated
Leakage	16.66
Public Water Supply (PWS) Drought Resilience	14.83
Financial Cost	14.22
Biodiversity Net Gain	9.57
Human and Social Wellbeing	9.38
Non-Drought Resilience	9.06
Per Capita Consumption (PCC)	8.79
Carbon	8.24
Natural Capital	7.26
Option Deliverability	5.72
Customer Preferred Option Type	5.63
Stakeholder Preferred Option Type	4.71

The weighting of metrics was achieved by asking customers and citizens to assign a number of points (totaling 100) to the various options that were important to them. The above table provides the output of this.

Leakage and **water efficiency** were the **most concerning and important WRMP options** for WReN to focus on. This held true across all regions, with both Northumbrian and Yorkshire Water placing leakage first, whilst Hartlepool Water customers placed leakage second to water efficiency.

All customers were consistent about the fact that increased abstraction came in last position and therefore they want water companies to limit this as much as possible. Within discussions, it was felt that customers desired water companies to implement options that improved the efficiency of the current 'system' and resource, rather than abstract more resource.

Overall ranking of WRMP options can be seen below. Therefore, it would seem that the type of options was seen as low importance in the broader context.

Ranking	WRMP Options
1.	Leakage
2.	Water Efficiency (providing water saving products)
3.	Meter Optants
4.	Mains Replacement
5.	Supply Pipe Renewal
6.	Commercial Water Efficiency
7.	Metering on Change of Occupancy
8.	Consumption Data
9.	Reservoir (dam or embankment raising)
10.	Extension of Existing Water Treatment Works
11.*	Water Transfers
12.*	Reservoir Desilting
13.	Desalination
14.	Increased Abstraction

Customers understood that a **Best Value Plan** was far more preferable to a 'least cost plan' because it put the environment firmly on the agenda as long as it was affordable.

The key themes that emerged from Best Value Plans were

- Reducing leakage by improving the pipework.
- PWS Drought Resilience – ensuring the public water supply.
- Reducing PCC by customer behaviour through education, and metering.
- Financial cost (keeping the bills affordable)
- The environment, protecting what is there, reducing abstractions, and Biodiversity Net Gain.
- Education to raise consumer awareness.

Customers and citizens struggled with long term timescales and targets but wanted targets to be brought forward from 2050 (which seemed too far in the future to be tangible or measurable) to 2030 and 2040. A series of targets with shorter time spans was thought to be more accountable than those that were in the far distance. The effects of climate change were thought to be pressing now and by 2050 'it would be too late'.

Some targets were harder to place on the aims than others such as education. A range of ambitious targets were given for the key objectives, such as, reduction of leakage by 10% every 5 years, 80% of population on meters in 5 – 10 years, 50% reduction in abstraction within 10 years, 10 litres less PCC in 5 years.

In terms of financial cost, most customers in this research project would accept a rise of 10-20% per annum or £3-9 per month on their bill. Many incorrectly tallied their % increases with monetary values, thus in accordance with desired transparency, any further consumer testing of willingness to pay should be couched in monetary values rather than % increases. Caveat: given the research was water resource focused, there may have been a propensity to over value, therefore further testing will be required in line with wider business plan objectives later in the process.

For some customers, a visual representation was desired within any communication regarding the plans (e.g. pie chart), to understand how money was being spent, and that targets were being hit e.g. similar to that provided for Council Tax.

6. Spontaneous Customer Knowledge Around Water Resource and Supply

6.1 Pre-Workshop Homework Task

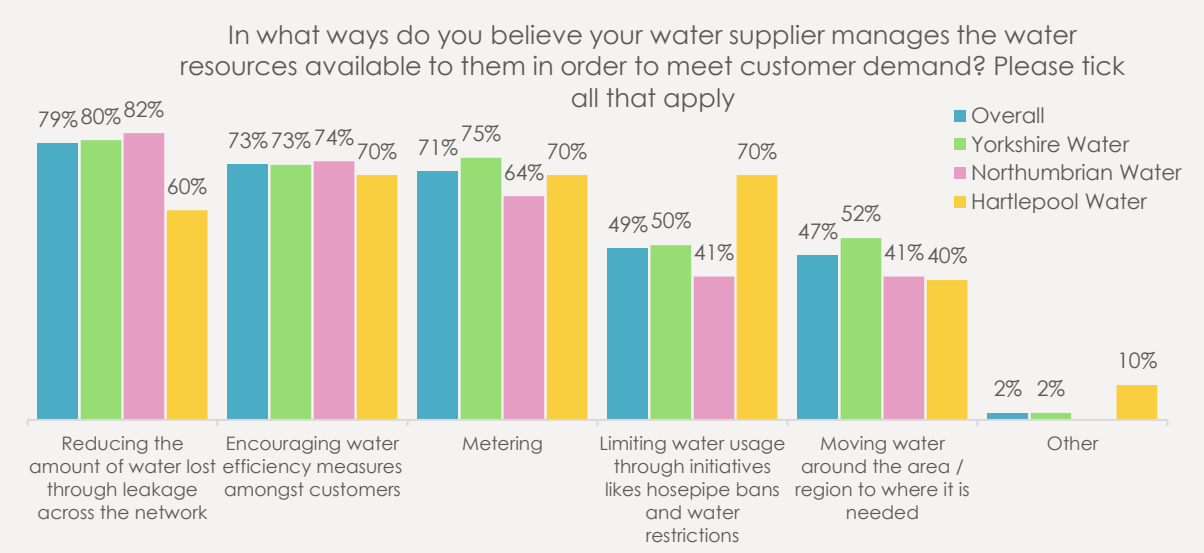
Prior to the first workshop session, a pre workshop 'homework' questionnaire was sent out to all who were attending, to understand spontaneous, unbiased knowledge and awareness of customers around the area of water supply and resource management. This was implemented to gain knowledge prior to any education provided and any potential 'group' biases within the workshop sessions.

This involved a number of questions being asked as follows:

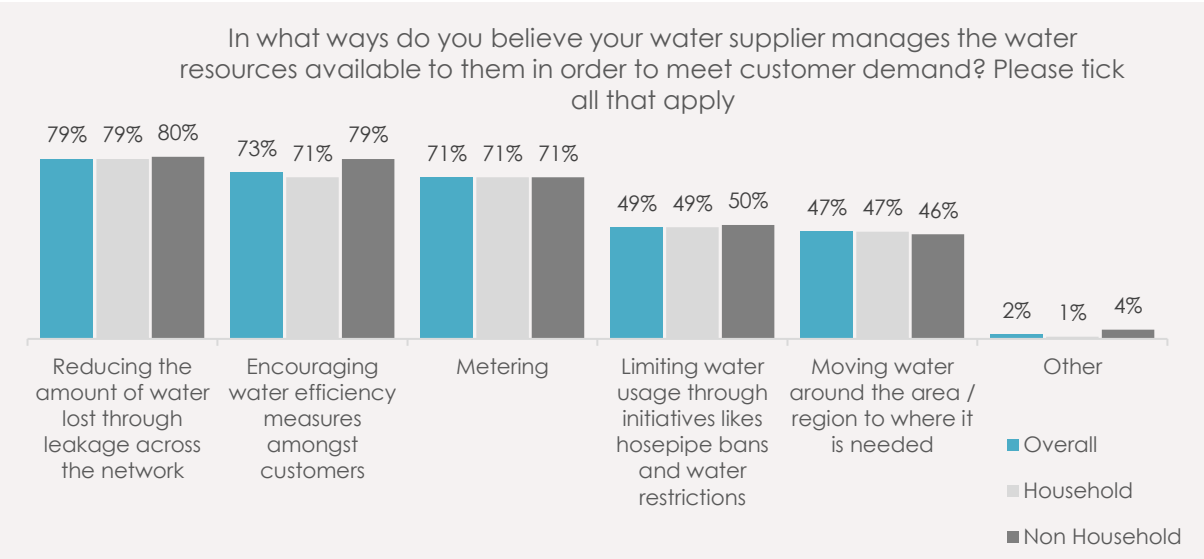
- In what ways do you believe your water supplier manages the water resources available to them in order to meet customer demand?
- What is your view on the current situation with regards water availability (e.g. water that comes out your taps) in your area / region?
- Do you believe there will be more, or less, water available in the future?
- Consider if your area / region had a surplus of water (e.g. more than they needed) whilst others had a deficit (e.g. not enough to meet customer needs / demand), which of the following do you most agree with?
- Finally, and again thinking about the water and the environment, which of the following do you think should be key areas of focus for your water company?

The following charts highlight the output from the homework task and show overall sample output and then splits by water region and household versus non-household customers.

Graph 6.1: Perceptions of how water companies manage water resources (by water region)

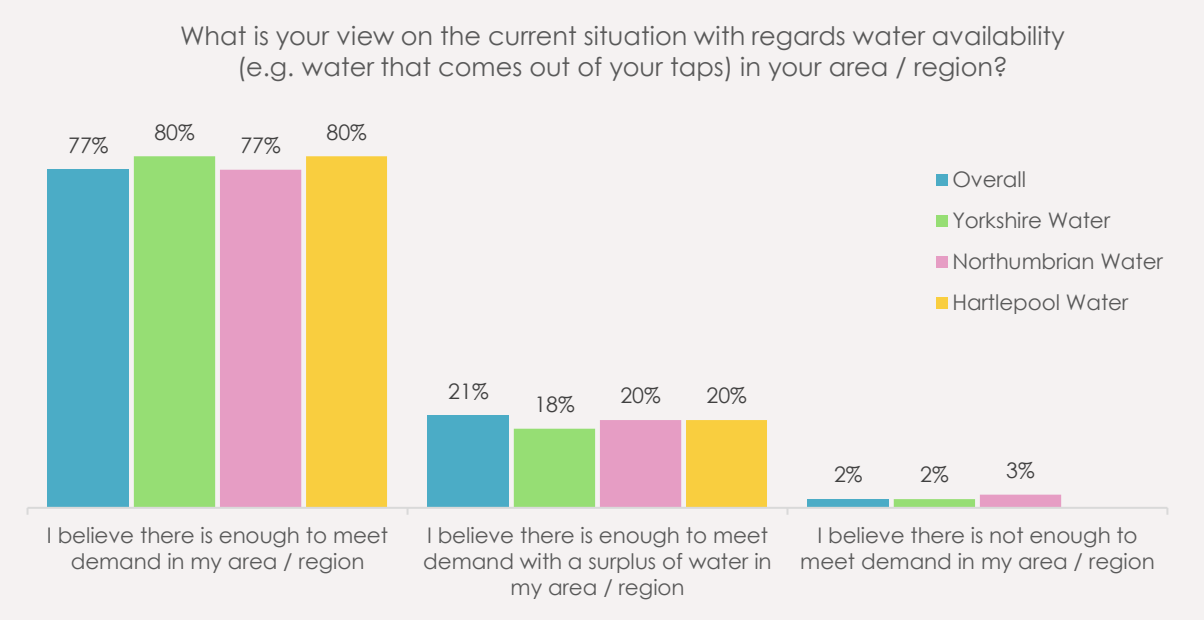


Graph 6.2: Perceptions of how water companies manage water resources (by customer type).

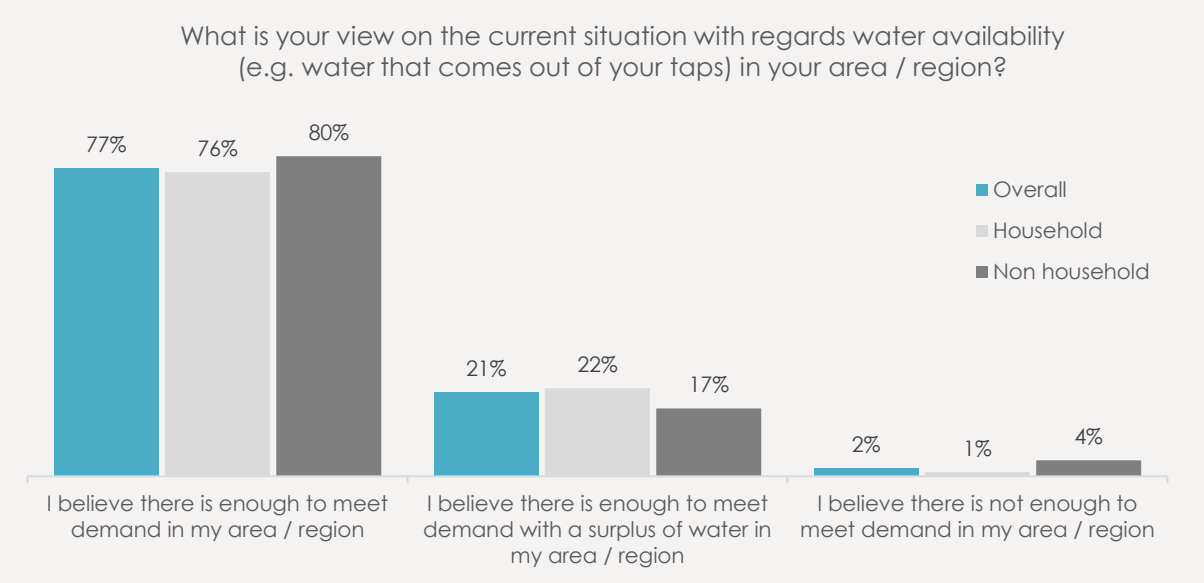


In general, customers spontaneous perceptions of resource management mainly revolve around water companies reducing leakage across the network, encouraging water efficiency measures, and metering. (caveat – this was derived from a prompted list of options and so is not a direct representation of customers spontaneous awareness of this area).

Graph 6.3: Perceptions of Current Water Availability (by water region)

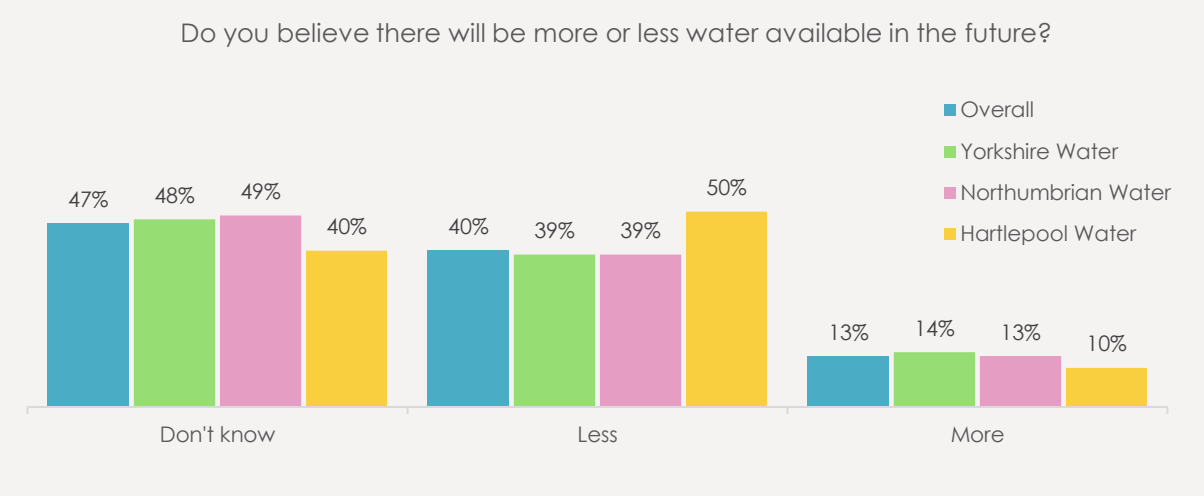


Graph 6.4: Perceptions of Current Water Availability (by customer type)

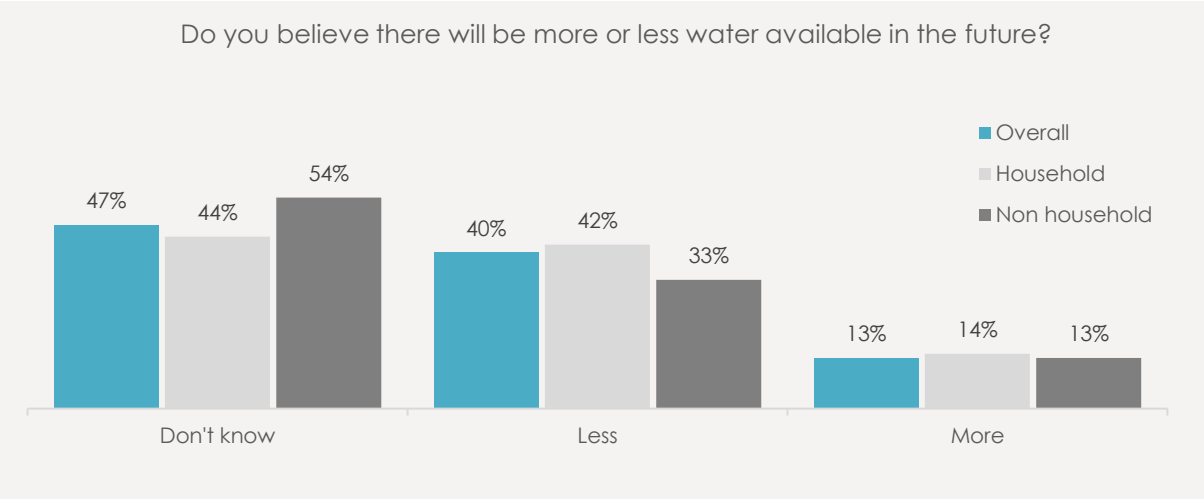


Customer's perceptions of current water availability were that there was sufficient to meet customer demand, and this was consistent across region and household and non-household customers.

Graph 6.5: Perceptions of Future Water Availability (by water region)

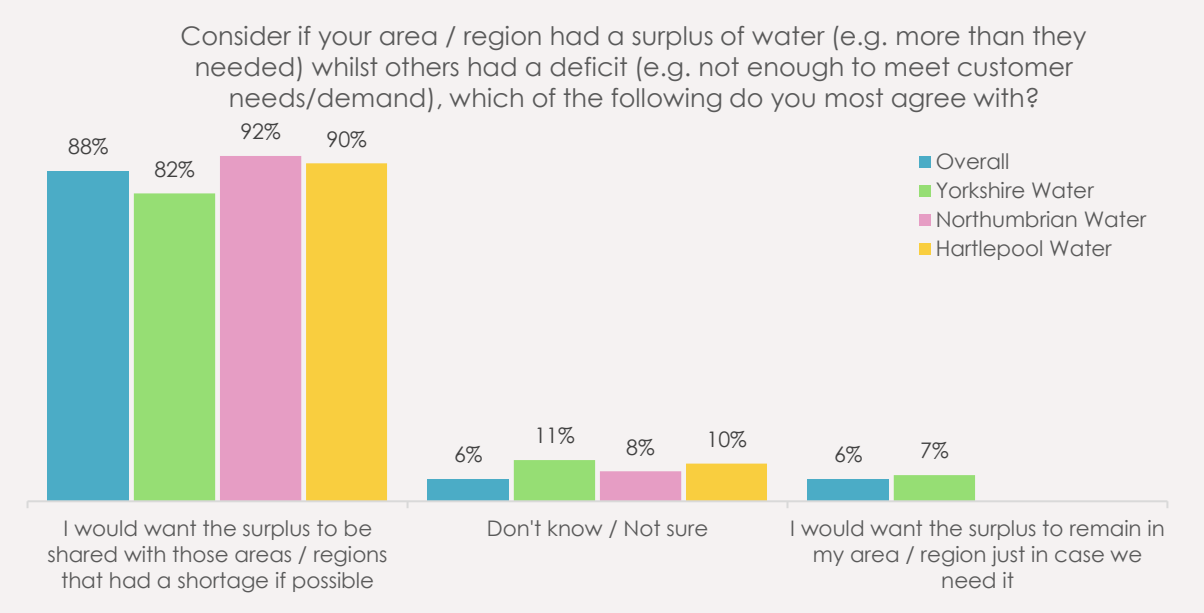


Graph 6.6: Perceptions of Future Water Availability (by customer type)

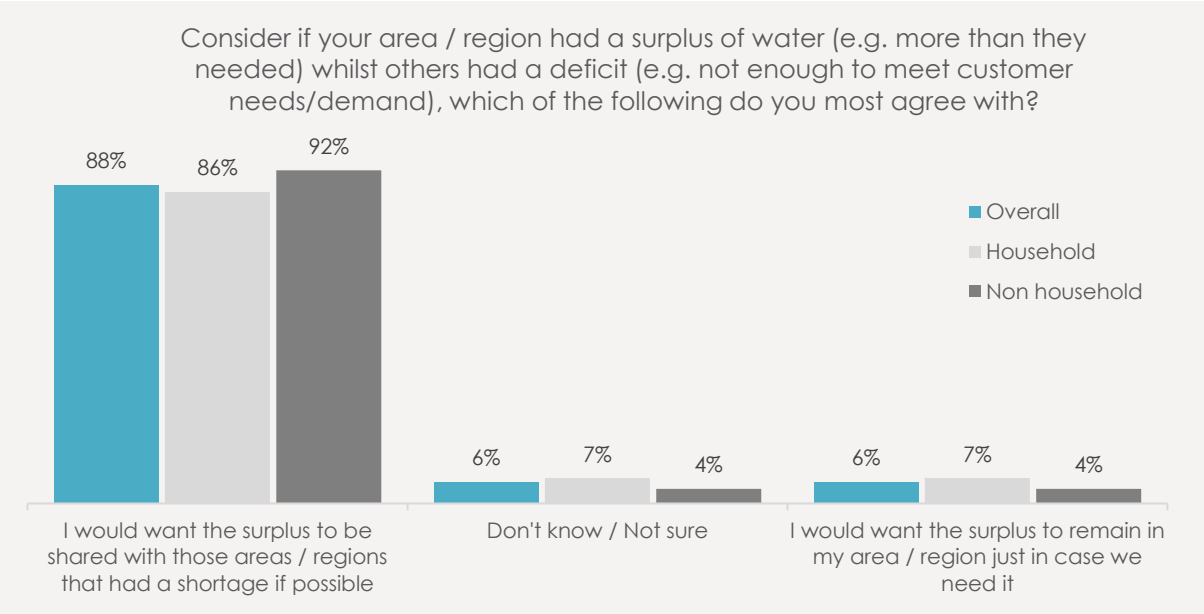


There was more uncertainty around the area of future water demand being met, with customer's either unsure of future water availability or believing there will be less water available to meet future demand. The latter was most likely to be expressed by those customers in Hartlepool Water region.

Graph 6.7: Perceptions of Water Transfer (by water region)



Graph 6.8: Perceptions of Water Transfer (by customer type)



There was consistent widespread support for water transfer of any surplus water to areas / regions that had a shortage amongst customers.

This was an area explored in more depth later in the workshops which will be seen later in the report.

Table 6.1: Desired Areas of Focus for Water Companies

Areas of Focus	Overall	NW	YW	HW	Household	Non Household
Educating customers on their water use to help them save water and for customers who have a meter to help them save money.	85%	80%	87%	90%	85%	88%
Reducing leaks from the water network.	78%	74%	84%	60%	76%	83%
Managing the impact of climate change on water supply (e.g. more severe and / or frequent droughts / flooding).	73%	74%	66%	90%	78%	58%
Protecting reservoir stocks.	71%	54%	80%	90%	68%	79%
Working in partnership with other sectors who also take water from the environment to minimise the impact on the water environment overall.	67%	59%	73%	60%	68%	63%
Continuing to maintain and protect rivers and ecosystems i.e. keeping them as they are today.	67%	64%	66%	80%	65%	71%
Improving rivers and ecosystems i.e. enhancing the water environment.	63%	56%	71%	40%	64%	58%
Working more closely with the agriculture industry to promote more sustainable farming practices (e.g. reducing fertiliser and pesticide use which impact the water in rivers and ultimately the water collected by water companies).	60%	49%	71%	50%	60%	63%
Becoming carbon neutral (achieving net zero carbon emissions).	50%	49%	52%	50%	53%	42%
Working with partners to restore bog habitats.	47%	39%	52%	40%	47%	46%
Minimising the impact of water abstraction on chalk streams.	42%	36%	46%	50%	40%	46%
Other	6%		7%	30%	7%	4%
Don't know / not sure.	3%	5%	2%		3%	4%

Key: NW = Northumbrian Water; YW = Yorkshire Water; HW = Hartlepool Water.

Overall, prior to any educational information and discussion, the above table highlights that there are a number of core areas customers desire water companies to focus on, namely: customer education on water conservation; reducing leakage; public water supply drought resilience; and protection of reservoir stocks. These are probably what are viewed as the 'heartland' area for water companies i.e. protection and resilience of public water supply.

These were the top 4 priorities for customers at this stage in the process. The report will look at how this changes, if at all, with further information and education during the workshop sessions. Environmental aspects, whilst still important, generally gained slightly less mentions.

Maintenance and protection of rivers and ecosystems gained slightly higher support than improvement of these areas at this stage. Again, this will be explored later in the report.

There were some slight differences by region and customer type, with customers in Hartlepool seemingly placing less importance on leakage at this stage.

Fewer non-household customers (compared to household) placed importance and focus on PWS Drought Resilience at this stage, but greater importance on continuing to protect and maintain rivers and ecosystems. They also more strongly desired focus on reducing leakage.

7. Spontaneous and Prompted Perceptions of Water

7.1 Background to Customers' Current Understanding

Generally, customers and citizens took water for granted. They rarely gave any thought about the water that came out of their taps or the wastewater that was flushed / drained away. On the whole, none had experienced interruptions to their supply or restrictions, in the form of hosepipe bans for example, to the amount they could use.

When asked about where drinking water comes from, most believed it was from rivers, lakes, reservoirs or underground. Some believed that there was an element of water that was recycled or processed from the sewers, however, generally, most were not aware. Amongst some, this lack of awareness did cause a sense of embarrassment in that they felt they should care, or they should know more about where their water came from. However, most were not concerned where their water came from.

There was a feeling that given household customers had no choice as to who provided their water, it was less front of mind than the other utilities such as energy that they shopped around for. Therefore, arguably competition in these other utility providers had raised conscious thought about them within customers' minds.

Water dependent business customers were slightly different as they appeared more aware of water quality issues such as water hardness, as this often directly impacted upon maintenance of equipment they might use. In addition, they were more aware of their water usage as they were trying to keep costs of the business down.

Ultimately, it did not seem to matter to people where their water came from as long as it was safe, clean and plentiful, which it always had been, and therefore there was no reason for customers or citizens to think that it wouldn't be like that in the future. Water was seen as fundamental to life and to numerous activities such as drinking, cooking, cleaning, and washing. For many, access to fresh drinking water was thought to be a human right.

As a region, WReN was perceived to have a plentiful supply of water. However, there were some slight regional differences noted in responses, most notably with those in Northumbria compared to Hartlepool and Yorkshire. It seemed that customers and citizens believed water was infinitely plentiful in Northumbria but in Hartlepool and Yorkshire it was seen more as a resource that needed to be carefully managed because of higher population densities in more cities. However, Yorkshire and Hartlepool were seen to be in a better position in terms of the amount of water they had compared to further south and the south east where water companies had imposed hose pipe bans. As far as respondents were concerned, they had never experienced a hose pipe ban themselves.

Customers and citizens did value that the water they received was clean and plentiful and good value for money. This was often more greatly appreciated when they had

been abroad or to other parts of the UK in areas where water quality was perceived as under par.

In Northumbria there was a strong sense that there had never been any shortages and that there was always ample supply of fresh, clean water. Some Northumbrians were aware of Keilder Reservoir and how it was a huge resource of water for their area; that they had more than they required. In fact, some argued that Northumbria had the best supply in England.

'When you look at Keilder it never goes down. It's always rather full and so I don't think there are any worries at all.' (HH Post Family and Citizens 45+; NW)

'It doesn't cross your mind. It's about what you can use water for not where it comes from.' (HH Vulnerable and Low Income Family; HW)

'The only thing that matters to me is if I turn the tap on and no water comes out.' (HH Post Family and Citizens 45+; HW)

'I expect Yorkshire Water to provide us with good water, that's why I pay the bills.' (NHH Water Dependent; YW)

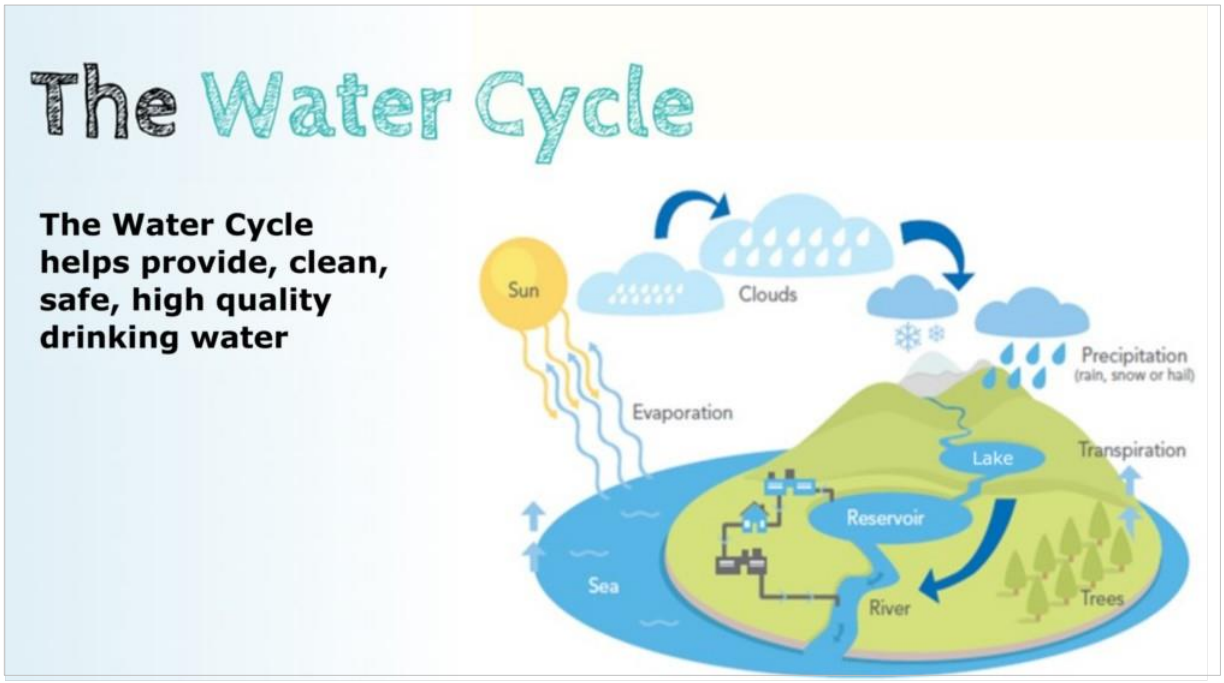
'I don't mind where it comes from, north, Leeds or down south, as long it is decent quality.' (NHH Water Dependent; YW)

'All I know is that Yorkshire Water supplies the water, but not sure where water gets distributed from or which reservoirs.' (HH Pre Family; YW)

'I should care about water and be interested in it, but I have never thought about it until I was tasked by this research.' (HH Pre Family; YW)

7.2 The Water Cycle and Water Resources Management Stimulus (see appendices)

The following water cycle diagram and explanation were provided to respondents.

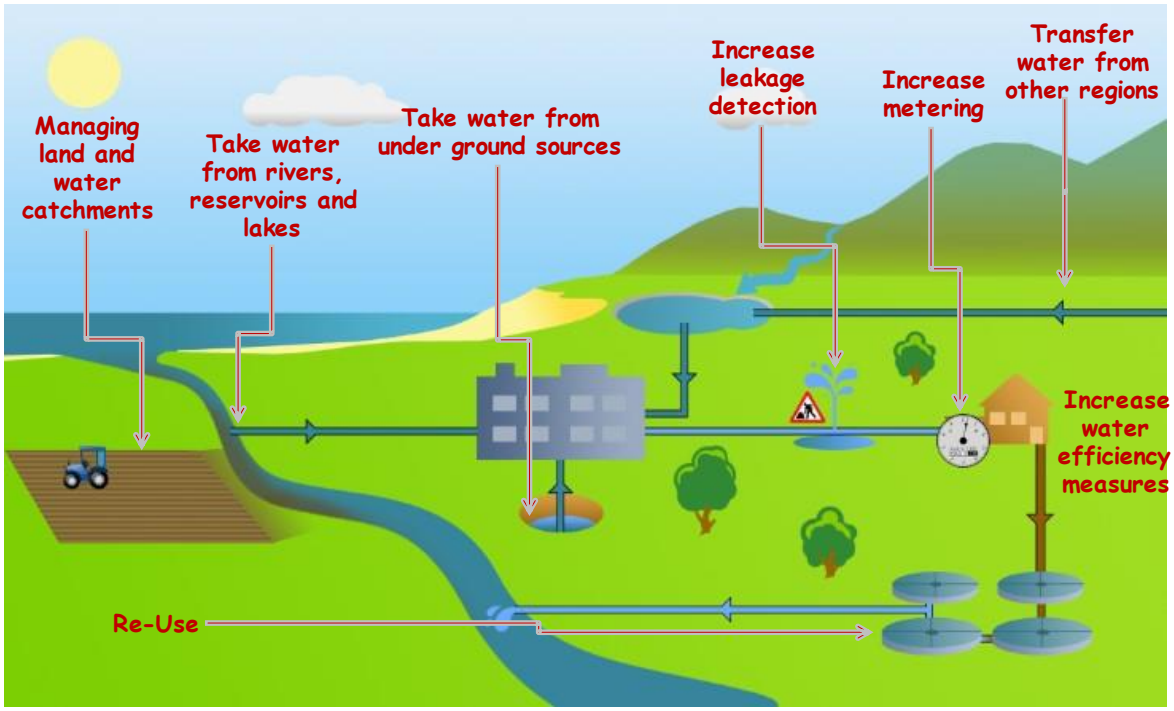


The majority were familiar with the water cycle once prompted. Many younger citizens and pre family respondents had studied it in school, but since they left school, had given it no further thought. However, it did prompt many to think about water and more specifically, it brought the complexity of the cycle to their minds and the infrastructure, pipes etc, to enable water to be piped to where it is required. Thus, having taken water for granted in the first instance, the water cycle highlighted the complex process to get clean water to come out of the tap. This also raised issues about how up to date the piping system is and how wastewater is cleaned to be recycled. The water cycle also raised issues about evaporation and climate change.

Furthermore, upon seeing the following Water Resource Management slides and accompanying moderator explanation, many were surprised by how quickly the water went back into the rivers.

Showcard 2

Water Resource Management



Showcard 2

Take water from rivers, lakes and reservoirs

This is a major source of water supplies.

Taking more water from the rivers, lakes and reservoirs results in lower water levels in these, which in turn can impact on wildlife and plant habitats


Take water from the ground (i.e., the water table)

This supplements surface water supplies in our region.

This involves drilling holes to take water from the ground where water is stored. Taking more water from the ground over time can deplete stocks.

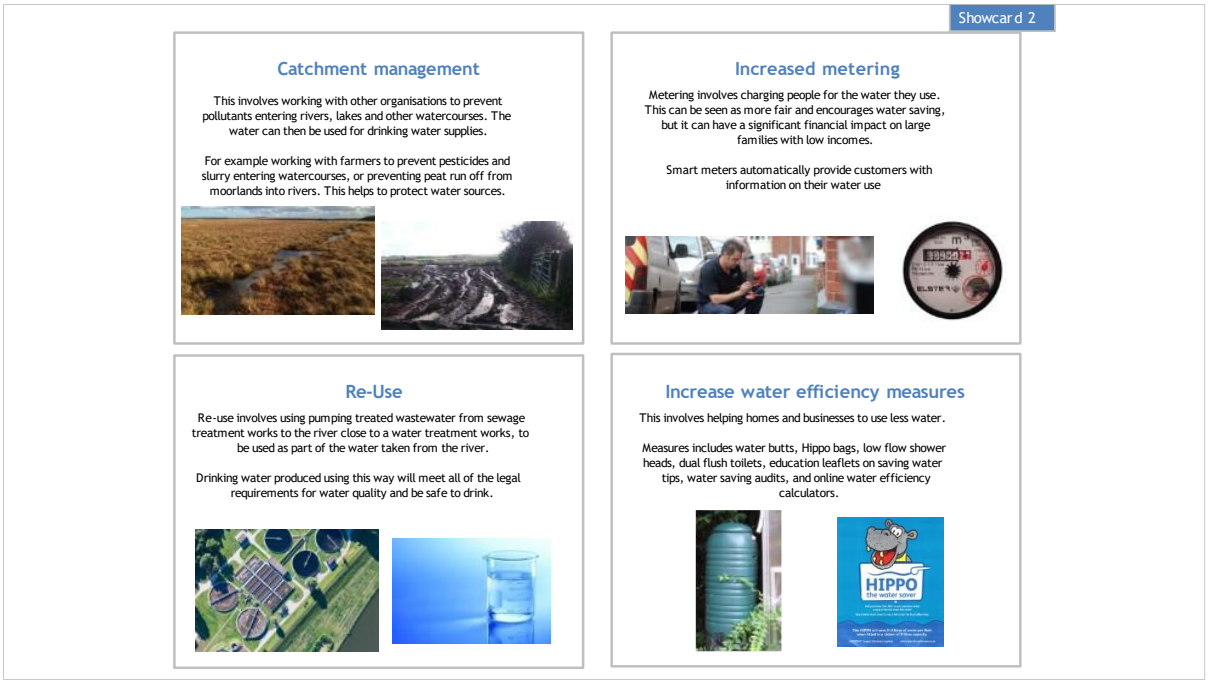
Increasing leakage detection and fixing leaks

Replacing old pipes can prevent leakage into the environment. This means less water needs to be taken from the environment.

This involves spending time finding leaks and potentially digging up roads to fix them.


Transfer water to or from another region (or water company)

Underground water pipes are built to take water from an area with lots of water to areas where water is needed.



With the further explanation around water resource management, customers started to become aware of the scale of the operation and the need to move water around from areas with plenty of water to areas less plentiful. It also raised the possible costs involved.

The information on where water is taken from, catchment management and re-use brought to mind how vulnerable some parts of the environment are to damage and that they need to be protected. It made sense that leaks needed to be detected and fixed, and also, that water efficiency measures and water metering were required to encourage homes and businesses to use less water. It was thought that water companies should focus on water efficiency measures and use technology to optimise this.

Generally, there was a sense that households and businesses need to be more efficient everywhere. This led to discussions about how to make new houses more water efficient with underground storage for rainwater. It recalled the need to be more careful with water so that vulnerable habitats could be protected from too much abstraction.

'They obviously need to think about the impact of wherever they are taking the water from and the impact on the natural habitat.' (HH Citizens 16-17; NW)

'Water companies need to think about sustainability, purity and environmental damage.' (HH Family; YW)

'It's important not to damage anywhere while getting the water. Treating water has environmental issues.' (HH Post Family; HW)

7.3 Water Availability and Challenges that May Impact on Water Availability

The **key long-term issues** that customers and citizens thought may impact on water availability were **climate change and the increase in population**. However, these were not top of mind for many.

It was rationalised that hot weather calls for more water, which in turn puts pressure on supply. During hot weather households fill pools, water plants, and farmers needed water for crops. It was felt that climate change could bring about more droughts thus creating more frequent pressures on supply demand.

Equally, it was felt that climate change would impact on the Water Cycle and there was a sense and recognition that the seasons were changing as they were not as distinct or 'regular' as they used to be. Thus, water supply and demand may be different at different times of the year making it more difficult for water companies.

A minority were worried for the future and felt that climate change could put a huge stress on water companies. If the earth is heating up, the atmosphere will absorb more water, which would cause heavier and more frequent downfalls leading to major flooding. Clearly some customers and citizens had been exposed to recent climate events and flooding.

Population change was also thought to be a challenge that would impact water availability, and there may be a need to transport water further within water companies from rural areas to cities. Therefore even at this early stage in the process, customers are already starting to think about water transfer as a management option. Some felt that increases in population and therefore demand, would be more of a problem in the South, and in London in particular, than in the North. However, in Yorkshire and Hartlepool it was felt that the population was increasing in their own 'backyards'. It was thought to be difficult for conurbations to build new reservoirs due to lack of space.

A number of customers and citizens in both Yorkshire and Northumbria expressed concern at the level of increased building / new connections, and thus cutting down trees and therefore less water being trapped in the land, would lead to problems such as faster run off and more flooding. However, they also believed that Yorkshire had plenty of higher areas with a high amount of rainfall to mitigate against this.

Beyond population increases and climate change, there were also a number of other factors cited as potential factors that water companies may need to consider in future plans and resource management. Ad hoc pressures such as the recent first COVID lockdown was mentioned as a factor that has potential to create increased demand. In this case, there was little rain in the early lockdown and people were at home using more water in their gardens which it was felt would have put a strain on supply.

Equally, a minority mentioned contamination from farm animals or mining as a short-term problem.

Some customers and citizens were concerned about the aging infrastructure. It was clear that aging pipework would lead to an increase in leaks and could impact on

water availability. For a business customer, there was a sense that the copper pipes underground are not protected and any ground movement leads to a need for repairs. If the pipework was more efficient it was thought that both the customer and the water company would benefit.

There was widespread low awareness of the Northern Powerhouse, however, once the concept had been explained it was clear that it too would lead to water resources becoming depleted if there was a quick rise in demand from new businesses and increasing populations.

Few customers and citizens had a feel for whether the water in the rest of England or Wales was plentiful or scarce however, most felt that it was probably less plentiful than in the North where it rained more, was cooler and the population density was lower.

'The Northern Powerhouse. It goes as far as Manchester. We are a black hole here between Manchester and Newcastle.' (HH Post Family; HW)

'I feel guilty that we have a plentiful supply.' (HH Post Family; HW)

'If a lot of houses are being built there will be less water available as there is more demand on it.' (HH Pre Family; YW)

'I'm not aware of where water may be scarcer.' (NHH Water Dependent; YW)

7.4 Water Supply

Generally, customers and citizens in the North East were unaware of any problems with supply in their area. This was particularly true for Northumbrian Water customers. Overall, it was felt that all regions in the North East had sufficient water, most likely due to the climate being more 'rainy'. In living memory there had never been a shortage.

There was a general awareness that there was more supply in the North than the South, due to a number of factors:

- The South of the UK having a higher population.
- Highly populated, built up areas, such as London, had nowhere to store water and thus probably had less of a supply than their region.
- The climate was warmer in the south and therefore customers and citizens down 'there' used more water. Indeed, it was in the South East where they recalled hosepipe bans.

Therefore, the majority seemed to openly support sharing water with areas that didn't have enough. Interestingly most were open to the idea of sharing, but there were some caveats e.g. there was a need to investigate why there was a shortage and whether this could be rectified, and equally there should be no negative outcome to the donor water supply company customer.

8. Prompted Response to Educational Films - Water Resource Planning, The Overview

Following spontaneous exploration of water supply and scarcity, respondents were shown the first of three educational videos regarding the background to Water Resource Planning and the formation of WReN (script in the appendix).

8.1 Response to Regional Water Groups

Overall, there was no awareness of the regional water groups, but there was a strong sense that customers and citizens were in favour of the formation of WReN. It was viewed as the water companies working together for the greater good. The main takeaway from the film was that the water companies were looking for patterns and trends in water usage and therefore it was seen as a good way to work. They could also allocate resources and identify areas of weakness.

8.2 Issues Raised from the Film:

The film highlighted that if there were pressures on the water supply it could lead to serious consequences. In the first lockdown people were quick to panic buy so there was a sense that water companies need Government control and intervention if water became scarce.

In addition, customers and citizens believed that with climate change and population growth there was more of a need to plan for the future and plan for increased demand.

8.3 Perceived Advantages of WReN:

The perceived advantages of WreN were that water companies would get a better overall picture of the local area and work collaboratively. It was thought that WReN would give individual water companies more of a collective view and enable sharing of knowledge and ideas with each other. Some customers and citizens spontaneously suggested that water trading or channelling water to every part of the region would be beneficial. If one region needed water, then the regions would work as a team to transfer it. There was also a sense that if a neighbouring water company was able to produce water in a more cost-effective way, then it may make the bills cheaper.

'I'm largely in favour of Water Resources North and the idea behind what they are planning.' (HH Vulnerable and Low Income; HW)

'Two brains are better than one.' (HH Family; YW)

'It seems more organised. That more people are working together.' (HH 21-30; NW)

'With the regional thing, if the South East is struggling, Yorkshire can share out water a bit more evenly, that would be a good thing.' (HH Pre Family; YW)

'If there are any problems they can be shared between three water companies.' (HH Post Family; NW)

8.4 Perceived Disadvantages of WReN:

A minority felt that if the system was working well currently, and there was no need to change it.

Areas of potential concern, expressed by a minority regarding the formation of WReN, were:

- Some areas may be prioritised and have less access to water.
- If the regional groups do not co-operate with each other then it could be a problem.
- Larger companies are more expensive and that may be a reason for the bills increasing.
- Some also worried that more 'northern water' would go to the south and that the north might run out of water.

'There is a massive cost impact. If the southern companies come into the north. London is expensive and they might start demanding higher prices from us. We will be giving our water to the south who don't have enough.' (NHH Water Dependent; YW)

8.5 Other Stakeholder Collaborations

Customers and citizens bought into the idea of collaboration and thus wanted other sectors involved, who it was felt, should have an equal voice. In addition, it was felt that farmers and manufacturers as well as the Environment Agency and Defra should be involved.

'In the pandemic people couldn't manage without panic buying loo paper, so COBRA and the government need control over the water.' (HH Post Family HW;)

8.6 Response to Overall Water Resource Management Plans

Customers were informed of the following WRMP objectives via the moderator reading out the following alongside use of showcard 3 (see appendix) :

The EA have outlined that water companies' plans for water resources should…

- ***Be ambitious.***
- ***Deliver enhanced protection for the environment.***
- ***Not be restricted to current environmental obligations and/or legal requirements.***
- ***Consider timings of delivery and the impact this might have on the wider environment and on customer affordability.***
- ***Support nature recovery and achieve sustainable water abstraction across the planning period.***

Each plan needs to address the following…

Increasing resilience to drought. *So that water restrictions, such as rota cuts (at certain times of day) and standpipes will be needed no more than once every 500 years on average by the 2030's.*

Environmental improvement. *Consider changes to water abstractions, beyond those the water companies have already identified in their WRMPs. These changes will achieve a sustainable abstraction regime across all sectors.*

Reducing long-term water usage. *Adopt a planning assumption of achieving on average, 110 litres of water use per person per day by 2050 (so visualise the volume akin to 110 cartons of orange juice), but also reducing non-household demand.*

Reducing leakage. *Meet industry's target to reduce leakage by 50% by 2050.*

Reducing the use of drought permits and orders*. (In times of prolonged dry weather, water companies can apply for a Drought permit/order, if accepted this can allow them to take more water from the environment.) Understand the environmental risk of each drought measure e.g. hosepipe bans (such as permits and orders) and use them less frequently, particularly at sensitive water sources or habitats.*

Increasing supplies. *Exploring options to develop new supplies such as:*

- *Reservoirs*
- *Water reuse schemes and desalination plants*
- *Shared supplies with other sectors and regions*
- *Catchment-based work to improve water management.*

Overall, customers and citizens felt the WRMP objectives were reasonable with the key salient points that customers focussed in on as follows; reducing individual consumption, reducing leakages and protecting the environment.

There was a sense that water companies were attempting to futureproof supply and to put in an infrastructure that was sustainable without too much damage to the environment. The net effect was to imbue customers and citizens with a level of confidence that the water supply was resilient. Some felt that plan was ambitious, and that in order to reduce water consumption, they would have to bring in compulsory water meters and educate the population.

One of the key areas of interest that sharing the Water Resource Management Plan with customers and citizens raised, was around reducing long term water usage and water consumption. Most were shocked at how much was used each day (once the analogy to the number of cartons of orange juice was explained) and consequently many were keen to try and reduce their water consumption. However, some (mainly those with younger families whereby they are using a lot of water for their children in the form of baths and washing etc) were not sure where they could make a saving.

There was a keen sense that water companies need to educate their customers and citizens about usage to encourage them to take responsibility for their water consumption. Indeed, some argued that water companies were not spending enough time or effort communicating to customers and citizens about the issues. For some, it was key that water companies made all customers and citizens aware of the plan; they felt that there was no point having a plan if they did not tell anyone about it.

However, reducing long term water usage did raise the issue of how people with larger families may struggle to meet the targets.

Leaks were a key area of interest and contention throughout the 32 workshops. Customers and citizens were in strong agreement that water companies must reduce leakage. They hated to see so much wastage of what is thought to be a precious resource.

Some customers and citizens felt strongly that water companies needed to put new infrastructure in place in terms of pipework rather than patching it up. It was felt that this would save more money for the future and so was a good long term plan.

The timescales in this plan were generally met with a negative response. 2050 seemed too far in the future to address what was seen as a pressing problem. Customers and citizens believed that water companies should 'get their own house in order' before they expect their customers to cut their own consumption. There was little point in being frugal with water at home when water companies allowed leaking pipes to gush water down the street.

In terms of targets, customers and citizens throughout wanted smaller, nearer milestones to be met so that progress could be established. If this meant that the targets would have an impact on bills, customers and citizens were generally willing to pay a small amount more if there was a clear explanation for it. Concern was expressed that any price rises must consider those on low incomes and those who had been financially impacted by COVID. There is a need to explain why the water companies are undertaking the improvements.

However, unsurprisingly, amongst some customers, there was a resistance to bills increasing.

There were concerns around Environmental Improvement as this highlighted an activity i.e. water abstraction, that customers and citizens knew little or nothing about but its impact on the environment was worrying for many. Thus, they felt that having measures in place to protect the environment was very important. They also believed that water companies need to work closely with the Environment Agency and with Ofwat.

Generally, customers and citizens agreed that water companies should reduce the use of drought permits and orders. Hosepipe bans were preferred over taking more water from the environment.

There was some interest in increasing supplies and customers and citizens tended to prefer water reuse schemes, even desalination if it could be achieved in a carbon neutral way and raising the sides of reservoirs to increase supplies rather than taking water from natural waterways and lakes. There was a limited understanding of 'catchment-based work' to improve water management.

There was less concern with regard to increasing resilience to drought and many had never heard of standpipes. Many were baffled by numbers such as once in 500 years. Customers and citizens argued that if you won't need it in 500 years, there is no point

building it into the infrastructure. The numbers were just too large and unfathomable. Even the 2030s seems a long way away.

8.7 Targets and Timelines

On the whole, customers and citizens wanted targets and timelines brought forward. There were a number of reasons that contributed to this;

- Primarily most found it very hard to envisage too far into the future, with 2050 simply being too far in the future for them to comprehend. Therefore, they wanted to understand what was being achieved in a shorter timeframe i.e. 5-10 years.
- For some, it felt like the issues had been 'kicked into the long grass'.
- Many customers and citizens believed the management plan raised questions that needed to be addressed in a more timely and documented way.
- Technology advancements across the longer proposed time periods in place could potentially impact upon achievement of those targets i.e. technology could help achieve the targets sooner.
- Fundamental to raising bills was a need to communicate to customers and citizens what was being done, why it had to be done now, and how much it would cost.
- The other pressing concern was climate change. Some felt that if the water companies waited until 2050 it would be too late, it would be 'game over'.

8.8 Financial Implications

Generally, the majority of customers and citizens within this qualitative exercise, were seemingly happy to pay a **little** more to cover some aspects. They felt that if they paid a little more for a better service, that would be reasonable. However, please be aware this was a relatively small sample size and therefore should only be used as a guide prior to any quantitative testing of willingness to pay.

Unsurprisingly there were a minority who were not willing to pay. Typically, these customers were older.

'For example, the water usage. We didn't know how much we were using or how to use less. If we had been told we would be more vigilant. 99% of the population would never think about this.' (NHH Water Dependent; YW)

'2050 seems a lifetime away.' (HH Pre Family; YW)

'These are all pieces in a jigsaw. I don't think one is more important than another.' (HH Post Family; HW)

'Increasing resilience to droughts will make me sleep easy at night.' (HH Post Family; HW)

'We have to think of people who can't make the commitment to pay more money. We don't pay bills yet. But we don't know what our situation will be. People on higher incomes can pay more but it is hard to get people to pay more money if they can't afford it.' (HH 16-17 years; NW)

9. Response to Metrics

9.1 General Response to Metrics

Customers were introduced to the metrics via the moderator reading out the following alongside use of showcard 3 (slide 2).

A key requirement for the planning process is to identify suitable descriptors of best value (i.e. the metrics that are used to assess how companies are performing against the plan) and to understand how important they are to you.

We are clearly interested in what you think of the proposed metrics, see if they describe what will be evaluated in the most appropriate way and that you understand what each metric means.

Some of these metrics have constraints i.e. there is no choice as they have to be done for regulatory/legal reasons however one of these might be very important to you, so you could suggest to do it before the proposed deadline. Some you could chose to enhance the rate at which or the scope of how they are achieved. Others you have a choice on.

When first exposed to the metrics customers and citizens were taken through each one briefly and encouraged to comment prior to ranking them in order of importance. Below we discuss initial response to the metrics before we look at how customers and citizens ranked them.

Clearly there were a number of metrics that were more easily understood by customers than others.

Metrics that were more clearly understood and required little explanation were as follows:

PWS Drought Resilience and Leakage. These two were core important metrics for customers. Everyone understood these metrics without further explanation around them.

Per Capita Consumption was clearly understood and again there was shock at how much each customer used and there was a strong desire to get personal consumption down. Clearly bringing PCC to life via illustration with something that is familiar to them e.g. akin volume to 150 litre cartons of orange juice, helps understanding and perspective.

Carbon was understood and customers and citizens welcomed water companies reducing their carbon emissions, but it was not top of mind compared to other companies such as energy companies. Water companies are not seen as huge emitters of carbon and their activities could off set carbon if they plant trees and look after the enviroment. However, nevertheless it would be seen as irresponsible if water companies did not try to reduce their carbon emissions.

Human and social well being was understood and whilst some saw it as a side benefit for a few i.e. kayak owners, the majority believed the COVID lockdown had made people more aware of the importance of such a metric.

Financial Cost was also clear and was thought to be easy to measure and was deemed to be important.

Metrics requiring further explanation were as follows:

- Biodiversity Net Gain was more easily understood when customers and citizens were told that water companies would plant more trees than they cut down.

- Natural Capital was also difficult to comprehend. It seemed too abstract and difficult and to some extent even pointless to measure.

- Non Drought Resiliance needed further explanation or prompting to ascertain what else could impact the water supply. However, upon explanation it was seen to be fundamentally important. Water companies need to foresee problems further down the line (global warming, population change) and make plans.

- Customer Preferred Option Type and Stakeholder Preferred Option Type also needed further clarification, but most felt that it was important that household and business customers and citizens, alongside other stakeholders, such as farmers and manufacturers, have their say.

- Option Deliverability seemed confusing and lacked appeal. Many felt that the other metrics need to be addressed first. Some felt that it was wrong to gamble with customers and citizens' money. It seemed too risky. Others percieved it as attempting to measure something that hasn't been invented yet so why was it included as a metric.

'I put D (leakage) as my top answer. It is paramount because leakage causes the company to lose an asset which costs a lot of money to produce. The bottom one I chose was F (non drought resilience) because if we solve D (leakage) you don't have a problem with F.'(HH Post Family; NW)

'I believe we are getting good value for money for a natural resource. If it rose by 2% per annum that would be a fair rise for what needs to be done.' (HH Post Family; NW)

'It would be interesting to have a breakdown of what the water companies are doing with the money. A bit like the pie chart on the council tax bill.' (HH Post Family; NW)

'It's better to fix leaks rather than ask customers and citizens to take a shower instead of a bath.' (NHH Water Dependent; YW)

'I'm a horrible person. If I'm stuck at traffic lights on my commute because the water company is digging up the road to fix the pipes it bothers me. I don't think about who it is I just think about my journey to work and it is disrupting my journey.' (HH Post Family; HW)

'As a customer I don't need to know the ins and outs of Natural Capital for example. I just know that water is coming out of my tap.' (HH 21-30 years; NW)

9.2 Ranking the Metrics

Respondents were asked to complete a self-completion exercise within the group to rank the metrics and explain the rationale individually for their top metrics. These individual rankings were later collected by Turquoise via a post workshop questionnaire. The post questionnaire also asked customers to apportion points (they had a total of 100 to allocate) against the metrics to understand the relative weighting and thus importance of each metric.

The following tables depict the results, firstly of the average ranking of metrics followed by relative weighting of them. This is shown at an overall level first (across all respondents) and then by individual water company area.

At an overall level, perhaps unsurprisingly, **leakage** was ranked first and achieved 16.66 points, which was 2 clear points ahead of the second ranking metric, Public Water Supply (PWS) Drought Resilience. The second ranked metric was seen to be fundamental to a water company; however, customers could not recall the last 'hosepipe' ban or issue with water supply at a time of drought. Regardless, with climate change at the back of their minds, this was still deemed a key priority and therefore an important metric for WReN.

Financial Cost was also important, but it did not mean that customers and citizens were not willing to pay more, it was that it should be a small increase over a long period of time. We discuss this in more detail further on in this report. Customers and citizens wanted to avoid front loading of their bills to tackle infrastructure problems.

In essence, these top three ranked metrics gained relatively equal weighting for customers, especially PWS and Financial Cost, indicating that these were their main priorities. Equally these three were weighted some way ahead of the next close grouping of metrics: PCC; Biodiversity Net Gain and Non-Drought Resilience.

Per Capital Consumption was also important to customers and citizens and as already discussed previously in this report, there was a desire for more information and help to reduce water consumption. It was generally felt that customers could all do more to save water and thus reduce the need for increased supply and extraction.

The environment was ranked after this with Biodiversity Net Gain ranked 5th. Non Drought Resilience was ranked in the middle as customers and citizens felt that it was critical that water companies made provision for changes in the climate and population increases.

It was clear that the least important metrics were ones that customers and citizens felt had less impact on themselves.

Table 9.1 Overall Ranking of Metrics

Ranking	Metric
1.	Leakage
2.	Public Water Supply (PWS) Drought Resilience
3.	Financial Cost
4.	Per Capita Consumption (PCC)
5.	Biodiversity Net Gain
6.	Non-Drought Resilience
7.	Human and Social Wellbeing
8.	Carbon
9.	Natural Capital
10.	Customer Preferred Option Type
11.	Option Deliverability
12.	Stakeholder Preferred Option Type

Table 9.2 Overall Weighting of Ranked Metrics

Metric	Average Points Allocated
Leakage	16.66
Public Water Supply (PWS) Drought Resilience	14.83
Financial Cost	14.22
Biodiversity Net Gain	9.57
Human and Social Wellbeing	9.38
Non-Drought Resilience	9.06
Per Capita Consumption (PCC)	8.79
Carbon	8.24
Natural Capital	7.26
Option Deliverability	5.72
Customer Preferred Option Type	5.63
Stakeholder Preferred Option Type	4.71

Table 9.3 Ranking of Metrics – **Northumbrian Water** Customers

Ranking	Metric
1.	Leakage
2.	Public Water Supply (PWS) Drought Resilience
3.	Per Capita Consumption (PCC)
4.	Financial Cost
5.	Biodiversity Net Gain
6.	Human and Social Wellbeing
7.	Carbon
8.	Non-Drought Resilience
9.	Natural Capital
10.	Customer Preferred Option Type
11.	Option Deliverability
12.	Stakeholder Preferred Option Type

Table 9.4 Weighting of Metrics – **Northumbrian Water** Customers

Metric	Average Points Allocated
Leakage	19.21
Public Water Supply (PWS) Drought Resilience	13.31
Financial Cost	12.74
Per Capita Consumption (PCC)	11.33
Biodiversity Net Gain	9.83
Human and Social Wellbeing	9.09
Carbon	8.40
Natural Capital	7.38
Non-Drought Resilience	7.16
Customer Preferred Option Type	6.13
Stakeholder Preferred Option Type	5.14
Option Deliverability	4.55

Table 9.5 Ranking of Metrics – **Yorkshire Water** Customers

Ranking	Metric
1.	Leakage
2.	Financial Cost
3.	Public Water Supply (PWS) Drought Resilience
4.	Per Capita Consumption (PCC)
5.	Non-Drought Resilience
6.	Carbon
7.	Human and Social Wellbeing
8.	Biodiversity Net Gain
9.	Natural Capital
10.	Customer Preferred Option Type
11.	Option Deliverability
12.	Stakeholder Preferred option Type

Table 9.6 Weighting of Metrics – **Yorkshire Water** Customers

Metric	Average Points Allocated
Financial Cost	16.59
Public Water Supply (PWS) Drought Resilience	15.50
Leakage	14.97
Human and Social Wellbeing	9.49
Biodiversity Net Gain	8.53
Non-Drought Resilience	8.19
Carbon	8.11
Option Deliverability	7.06
Per Capita Consumption (PCC)	6.69
Natural Capital	6.33
Customer Preferred Option Type	5.69
Stakeholder Preferred option Type	4.83

Table 9.7 Ranking of Metrics – **Hartlepool Water** Customers

Ranking	Metric
1.	Public Water Supply (PWS) Drought Resilience
2.	Non-Drought Resilience
3.	Leakage
4.	Biodiversity Net Gain
5.	Natural Capital
6.	Per Capita Consumption (PCC)
7.	Financial Cost
8.	Carbon
9.	Human and Social Wellbeing
10.	Customer Preferred Option Type
11.	Option Deliverability
12.	Stakeholder Preferred option Type

Table 9.8 Weighting of Metrics – **Hartlepool Water** Customers

Metric	Average Points Allocated
Non-Drought Resilience	21.71
Public Water Supply (PWS) Drought Resilience	18.00
Leakage	12.50
Biodiversity Net Gain	12.22
Natural Capital	10.63
Human and Social Wellbeing	10.33
Financial Cost	8.86
Carbon	8.13
Per Capita Consumption (PCC)	6.75
Option Deliverability	3.83
Customer Preferred Option Type	2.83
Stakeholder Preferred Option Type	1.6

Looking at the differences by individual water area, the top three weighted metrics remained similar for both Northumbrian and Yorkshire Water, although the relative position of these changed slightly, with Leakage remaining top for Northumbrian but coming in third for Yorkshire Water customers, who narrowly placed Financial Cost more important.

Customers of Hartlepool Water seemed more strongly focussed on Non-Drought Resilience, which had the greatest weighting. Financial Cost for this group was weighted lower down in seventh position. However, the caveat to this is the small sub sample of Hartlepool Water customers in this qualitative exercise.

9.3 Financial Implications and Intergenerational Fairness

Significantly, in this qualitative research, most customers and citizens were prepared to pay a little more on their bill for water companies to meet their objectives in the plan. Most were happy to pay marginally more in the region of 2-5% increase per annum. There were some who were prepared to pay up to 20% more. The caveat to those who gave percentages was that in many cases when they worked this out in a monetary £ figure, it didn't necessarily equate to the % they had stated – thus

caution needs to be heeded where %'s are stated by customers. For any further future testing we would recommend a monetary figure is tested vs %.

Many felt that if they were more careful with their water consumption this would help to keep their bills lower. However, some were more resistant and did not want their bills to increase. They felt that the Government, various grants, Local Authorities and businesses should 'pick up the bill.'

There was understanding of the difference between cheapest price and best value for money and, on the whole, they wanted best value not the cheapest. Most did not mind paying extra if things improved and they were getting long term benefits. The benefits would however, need to be communicated to customers and citizens.

There was a strong sense that customers and citizens wanted to avoid large increases, rather they wanted an incremental rise. Many observed that although their finances could withstand a slight increase, many households and businesses would struggle, especially given COVID and how hard hit some industries, especially hospitality and travel, have been. A minority wanted water companies to wait a year so that households could recover from the effects of the pandemic. Some argued that if water usage decreases, why would customers and citizens have to pay more? They felt that it was the customers and citizens that were doing the work to reduce water consumption rather than water companies investing in reducing leakages etc.

There was also a strong sense that customers and citizens did not want future generations to pay more whilst they kept their bills low. They wanted intergenerational fairness. A small amount of money over a long period of time was better than a larger amount over a shorter amount of time. Also, many felt that costs only increase over time so it would be more cost efficient to make improvements now than in the future. The argument behind intergenerational fairness was that future generations were having to combat the damage of climate change that this generation and previous generations had caused. There was also a desire for the water company to carry out improvements where necessary in a proper and timely way.

Given that water companies are a monopoly, and that customers and citizens have no choice, it was thought to be important that any price rises were 'policed' and regulated by the Government, the Environment Agency and Ofwat.

Equally, any price increases should be transparent, and they were keen to see a breakdown in their bill of where the extra money was being spent. Examples of communication channels were pamphlets through the door, or a high-profile TV advertising campaign, to ensure customer buy in. Ultimately, customers and citizens wanted to see progress was taking place as a result of their bills increasing, and they wanted communication from the water companies to tell them how they are succeeding. They did not expect instant results, but it was perceived that the problems would become more of an issue if they were not addressed now.

'It's good to have a meter. If you use over a certain amount you get charged more, so it's better to use a lower amount of water so you don't get charged so much.' (HH 16-17 years; NW)

'Once I start paying water bills, I want to know that I'm preparing for the future so that when I have kids I know I have invested in it.' (HH 16-17 years; NW)

'For people who are struggling with bills and living hand to mouth, it's impossible to plan for the future.' (HH 21-30 years; HH)

9.4 Targets / Timescales

As seen already, across all groups, there was a common theme of a desire for tangible, shorter time scales. Customers and citizens were more likely to buy into 5-year plans or timescales. Any longer than that and they become disengaged as they feel that they will not see improvements in the short term. They are far more likely to support water companies if they can see the benefits and if there is transparency.

In terms of the environment, customers and citizens wanted water companies to protect what they had currently and to gradually improve the environment over the next 5 years and into the future. Again, 5 year plans and short term goals were more easily comprehended, and if these met, and the water companies are seen as competent and prudent, then customers and citizens would be open to paying a small increase going forward to the next 5-year plan.

'It's really selfish not to pay because you are not going to see the benefits. You should do it for your grandchildren and for the good of the planet. The water companies can say this is the money you have given us, be clear and transparent, no lies, this is what you want to do, show us every 5 years.' (HH Vulnerable and Low Income; HW)

'As long as the water company provides a good return, like improved services. It's a long-term investment, you pay a little now and further down the line you get a better service.' (HH Vulnerable and Low Income; HW)

9.5 Economic Level of Leakage

Given leakage and reduction came out very strongly within customers priorities, they were given an explanation behind leakage to explore whether it would change how important this metric was. The explanation was as follows:-

Many of you have said that leakage is important to you and want WReN to reduce the current levels of leakage. Some leaks are visible and are often reported by customers and citizens. However, only around 6% of leaks can be found. Some leaks can be very small and not visible to the eye and at the moment there is no technology to trace these.

In some cases, it can cost exponentially more to fix these leaks than the cost of the water that escapes. This is referred to as the economic level of leakage. This is also why there is a target of 2050 to achieve a 50% reduction in leakage, so that customer bills are not impacted.

This statement did change how important leaks were for some customers and citizens. Many realised that they had been too literal in their initial response to leaks and that it was more complex.

For some, it impacted on their ranking positioning of this metric. Equally, others felt after this explanation, that financially it was not worth fixing the leaks and that money would be better used somewhere else.

Many did not realise how hard it was to detect leaks and that only 6% of leaks can be found. This information was a surprise for most. Consequently, if this was true, it made the target to achieve a 50% reduction in leakage by 2050 to be somewhat ambitious rather than not quick enough. There was low awareness that most leaks cannot be seen and are undetected. This made a number of customers want investment in technology to find leaks.

Some customers felt they needed more information around the level of water being wasted, and if it was a relatively small percentage, it would thus not be a great priority. Customers and citizens presumed that within the water industry there was an acceptable level of leakage, but they did not know or were not equipped to suggest what that may be.

However, despite this, there was still a sense that it was important that leaks get resolved and perhaps it needs to be done over the longer term. For many, they then rationalised that leakage could be dropped further down their rankings and mains pipe renewal further up, since pipe renewal would stop the invisible leaks.

'For me, if the leaks are not causing a major issue, and it's not costing more money, then leaks are not that important. Initially I was thinking that leaks are a waste but now I wouldn't have it at the top of my list.' (HH Vulnerable and Low Income; HW)

'It makes more sense that the target is 29 years away now that I understand about leaks. It would be nice to sort out the leaks sooner but not if there was an exponential price rise.' (HH Vulnerable and Low Income; HW)

However, significantly, most customers and citizens still felt that leakage meant that money was going to waste, and they would rather pay to have the leaks fixed in the short term. This was a moral argument because wastage was perceived to be wrong and inefficient – this was quite a strong theme from non-household customers, where business efficiencies are key.

Customers and citizens viewed leaks as money running down the street. Even knowing that it costs three times as much to dig up the road causing traffic congestion, then it does to fix the leak, did not lessen the argument for these individuals.

Again, renewal of supply pipes came further up the rankings. Customers and citizens argued that shorter term targets were more motivating than long term ones. New technology in the future would find leaks more efficiently and it was hoped that this would be part of the solution.

'It's not an economic matter to me, they've collected this water and they are letting it run away. It is worse than that. It's wasteful.' (HH Post Family; HW)

10. Response to Water Trading

Customers were once again shown a short educational film to explain Water Trading (script in the appendix).

10.1 Initial Reactions towards Water Trading

Generally, and perhaps unsurprisingly given spontaneous mention highlighted previously, customers and citizens were in support of water trading.

However, upon further exploration and discussion, many issues surfaced. Firstly, there was the issue of cost as it was perceived that transporting water would be expensive. The cost of pipes, transporting the water, pumping stations must not be passed on to the donor water company but must be paid by the company requiring water. It was thought only to be viable if the cost of transporting the water was low.

Secondly, some customers and citizens were in support of water trading as long as there was no threat to their own water supply.

One of the key perceived challenges with water trading was recognition that water companies would have to work together to transport the water, and that the inter-relationship between water companies was an unknown quantity from a customer perspective.

However, there was no strong feeling that the water belonged to the people and therefore could not be traded. It was seen as commodity by the majority.

10.2 Negatives

Perhaps inevitably, some felt uncomfortable with the concept. It led to too many issues that were mostly cost related. Some of the issues were relating to why some water companies had come to the point where they lacked water. Was it due to poor management, poor efficiency, or lack of planning? There was a strong belief that the most efficient company should benefit.

For many, water trading was seen as 'last resort' and that other WRMP Options should be in place such as reservoir embankment raising, and reservoir desilting as well as increased metering and supply pipe renewal before water trading takes place.

10.3 Positives

Some customers and citizens thought water trading was a good idea. There were those of a more altruistic mindset who felt that it was only fair that those water companies who had plentiful water supplies should share their water with those who had a deficit. If there was a reduction in customers and citizens' bills that would be welcomed.

Northumbrian Water customers and citizens were more open than the other water regions because they felt they had a surplus because of Kielder Reservoir. Yorkshire

Water and Hartlepool customers and citizens were less keen because they were aware they are more likely to be in water deficit.

Some argued that if Northumbrian traded water, the revenue could contribute towards pipe repairs. Equally, building resource solutions in the north could be a positive since it would create jobs and increase revenues to the companies building the infrastructure. It was felt the investment was desperately needed in the north.

Customers and citizens of Hartlepool Water felt it could have a positive environmental impact i.e. it would mean that the areas with a deficit would not need to build a reservoir or extract more water from the rivers and lakes, which is detrimental to the environment. If the reservoirs already exist there is no point in building new ones if water can be traded.

'If we have more than we need, then sell it to other areas and put our bills down that would be good.' (HH Post Family; NW)

'If there is water there and an excess in one area, then there would be further money from trading water to invest in all the infrastructure.' (HH Pre Family; YW)

10.4 Conditions Requirement of Water Transfer

There were a number of conditions required to be met prior to support for water trading.

- The key condition to be met was that water trading would not have a detrimental effect on the donor companies' water supplies. It was argued that water should be taken from all 3 WReN water companies rather than just the one. Otherwise, it could have a detrimental impact on the environment and the water levels in the reservoirs.

- Many customers and citizens felt that issues such as leaks should be addressed before water companies traded water. Leakage was such a contentious issue and there was concern that if WReN water companies ignored leaks in the short term, it would lead to more water being lost and then they would be in deficit. However, there was support for water trading in a scenario where the water company invested £Xm to reduce leakage, which in turn created surplus water as it was not being leaked.

- Another related issue was concern that WReN customers and citizens had paid to fix the leaks in their region, but other regions who were in water deficit had not, and that was why they lacked water. It would therefore seem as if the receiving water company were getting water at a reduced rate compared to the donor regions, which did not appear fair.

Therefore, more generally, customers and citizens wanted to make sure that their region had plenty of water to trade, that there was no extra cost passed onto them and that the leaks 'were fixed'. It was clear that customers and citizens wanted receiving water companies to pay for any cost of pipes and pumping stations. Some expected the water companies to foot the bill rather than customers and citizens as they were businesses that made a profit.

Building more infrastructure in the north for the benefit of people in the south did not sit happily with many WReN customers and citizens. It begged the question of what the benefit to them in the north was? They don't need more water. If was felt that the building works could have a negative impact on the environment, such as large pumping stations built in the countryside.

10.5 Trading Treated vs Untreated Water

On the whole, it was felt that trading of untreated water would be more preferable because then the donor company has fewer costs. However, if there was more profit to be made by trading treated water then it would make sense to trade treated water. Some felt that the water should be treated for health reasons although many felt they were unqualified to answer that question.

'It could be worth investing in piping infrastructure in order to trade water because bills would be reduced. It would be win for everyone.' (HH Family; YW)

'I wouldn't support building pumping stations somewhere really nice because we are transporting water somewhere else.. (HH Vulnerable and Low Income; HW)

'Water trading is a really good idea. Why build a plant or a reservoir that ruins the environment, why not just buy water from somewhere else?' (HH Vulnerable and Low Income; HW)

'I wouldn't want to see anyone without water in other regions.' (HH 21-30 years; NW)

11. Response to WRMP and DWMP Options

In addition to the ranking of metrics being collected via the post workshop session 1 questionnaire, we also asked customers to rank WRMP and DWMP options individually, and then asked them to rank their combined top 6 WRMP and DWMP options in a combined list.

The aim of testing WRMP and DWMP directly was to understand customers' relative priority areas for investment rather than them being driven by options tackling the same needs or challenges.

11.1 WRMP Options:

From the output (shown in the following tables) customers and citizens were again **most concerned** about leakage. This held true across both Northumbrian and Yorkshire Water regions, although Hartlepool Water customers placed this second to water efficiency.

All customers were consistent about the fact that increased abstraction came in last position and therefore they do not desire this. Within discussions, it was felt that customers desired water companies to implement options that improved the efficiency of the current 'system' and resource, rather than abstract more resource.

General exploration of the output within the second workshop sessions, highlighted that customers felt that if leakage was solved, the whole system would be more efficient. Water efficiency (and relatedly consumption data) was also key priority to customers and citizens because they believed that if consumers could reduce the amount of water they consumed, it would in turn lead to less pressure on the environment.

Overall, within follow up discussions, many options overlapped in customers' and citizens' minds such as meter optants and metering on change of occupancy which they felt was related to water efficiency and leakage was interconnected to mains replacement and supply pipe renewal.

Generally, customers and citizens wanted the reservoirs or dams to be enhanced rather than new ones created, as this was perceived to be less damaging to the environment.

The options that appeared last on the list such as increased abstraction and desalination were seen as a last resort options to only be tried if everything else had failed. Customers and citizens did not want increased abstraction if it could be helped.

The following tables provide the individual ranked output.

Table 11.1 Overall Ranking of WRMP Options

Ranking	WRMP Options
1.	Leakage
2.	Water Efficiency (providing water saving products)
3.	Meter Optants
4.	Mains Replacement
5.	Supply Pipe Renewal
6.	Commercial Water Efficiency
7.	Metering on Change of Occupancy
8.	Consumption Data
9.	Reservoir (dam or embankment raising)
10.	Extension of Existing Water Treatment Works
11.*	Water Transfers
12.*	Reservoir Desilting
13.	Desalination
14.	Increased Abstraction

Key: * = received equal ranking

Table 11.2 Ranking of WRMP Options **Northumbrian** Water Customers

Ranking	WRMP Options
1.	Leakage
2.	Water Efficiency (providing water saving products)
3.	Mains Replacement
4.	Supply Pipe Renewal
5.	Meter Optants
6.	Metering on Change of Occupancy
7.	Commercial Water Efficiency
8.	Consumption Data
9.	Extension of Existing Water Treatment Works
10.	Reservoir (dam or embankment raising)
11.	Water Transfers
12.	Desalination
13.	Reservoir Desilting
14.	Increased Abstraction

Table 11.3 Ranking of WRMP Options **Yorkshire** Water Customers

Ranking	WRMP Options
1.	Leakage
2.	Water Efficiency (providing water saving products)
3.	Meter Optants
4.	Commercial Water Efficiency
5.	Supply Pipe Renewal
6.	Mains Replacement
7.	Reservoir Desilting
8.	Reservoir (dam or embankment raising)
9.	Consumption Data
10.	Metering on Change of Occupancy
11.	Water Transfers
12.	Desalination
13.	Extension of Existing Water Treatment Works
14.	Increased Abstraction

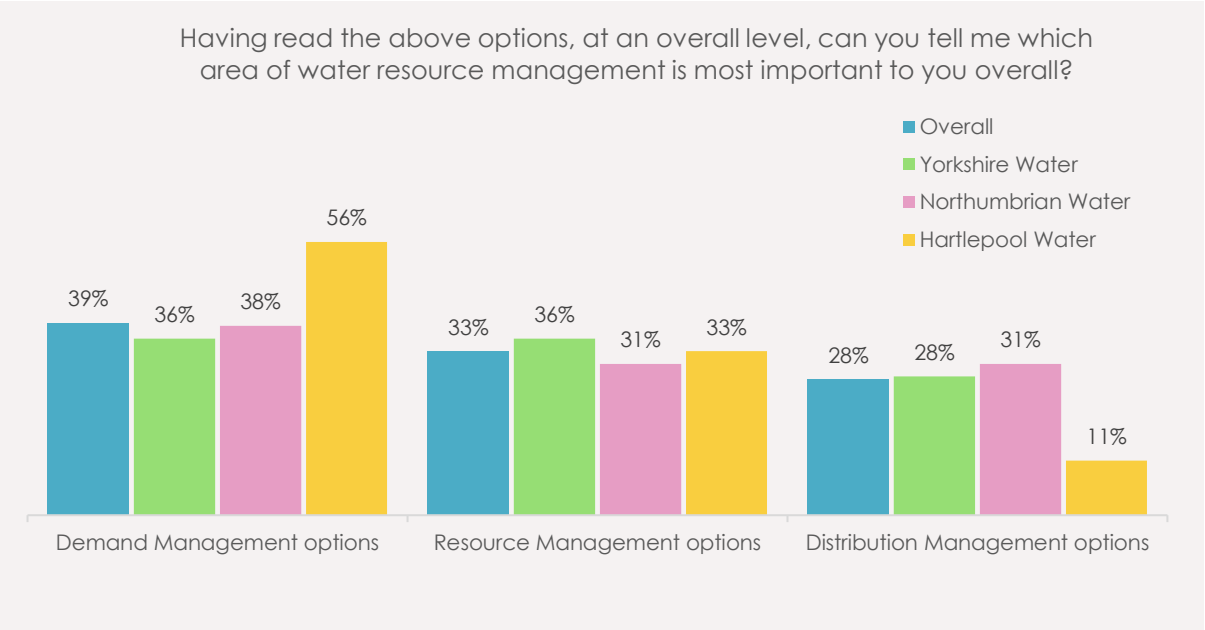
Table 11.4 Ranking of WRMP Options **Hartlepool** Water Customers

Ranking	WRMP Options
1.	Water Efficiency (providing water saving products)
2.	Leakage
3.	Commercial Water Efficiency
4.	Extension of Existing Water Treatment Works
5.	Water Transfers
6.	Meter Optants
7.	Reservoir Desilting
8.	Desalination
9.	Consumption Data
10.	Mains Replacement
11.	Metering on Change of Occupancy
12.	Supply Pipe Renewal
13.	Reservoir (dam or embankment raising)
14.	Increased Abstraction

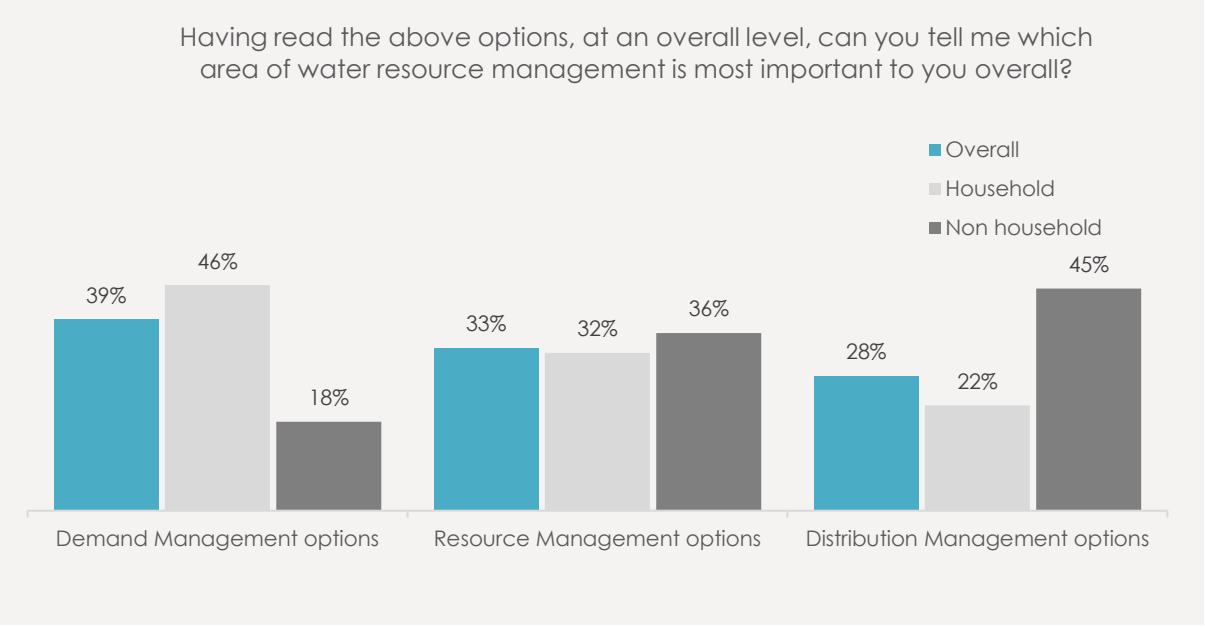
Exploring what area of water resource management is most important to customers, the following chart shows that, overall, it is fairly evenly split between the demand management options and resource management options, with distribution management options gaining slightly fewer customer votes, which is interesting given how high leakage came out.

Demand management options do, however, just get the majority vote with almost 4 in 10 customers believing this area is key to resource management. This was particularly true for Hartlepool Water customers, whereby this area gained 6 in 10 of customers vote.

Graph 11.1 Water Resource Management Options of Most Importance Overall (by region)



Graph 11.2 Water Resource Management Options of Most Importance Overall (by customer type)



Interestingly, the above chart highlights that non-household customers appear to differ from household customers, placing greater importance on distribution management options and resource management options, rather than demand management options. This may reflect earlier findings that non-household customers were more opinionated on leakage and its link to perceived inefficiency, than household customers.

11.2 DWMP Options:

Prior to a ranking exercise of DWMP options, customers were initially asked to indicate which of the DWMP options they believed water companies should work hardest to prevent (shown in table 11.4 below).

Overall, top of customers list was to prevent 'flooding of infrastructure such as major roads and hospitals' (75%), followed by over half citing 'pollution leading to dead fish in rivers' (61%), 'litter in rivers and the sea' (57%), and 'potential to make people and animals who go in the river and sea water poorly' (51%).

Bottom of the list was 'temporary loss of use of rivers and the sea for leisure activities' (20%).

There were some slight differences by region and customer type (highlighted in the table), most notably with Hartlepool Water customers placing greater priority on prevention of 'potential to make people and animals who go in the river and sea water poorly' (78%), and non-household customers placing greater priority on prevention of 'pollution leading to dead fish in rivers' (82%).

Table 11.4: Desired DWMP Areas of Focus for Water Companies

Areas of Focus	Overall	NW	YW	HW	Household	Non Household
Flooding of infrastructure like major roads, hospitals	75%	74%	74%	78%	75%	73%
Pollution leading to dead fish in rivers	61%	62%	67%	33%	54%	**82%**
Litter in rivers and the sea	57%	62%	54%	56%	55%	**64%**
Potential to make people and animals who go in river and sea water poorly	51%	**51%**	44%	**78%**	49%	55%
Indoor flooding	45%	**51%**	41%	33%	49%	32%
Slow drainage due to blocked drains	45%	41%	**51%**	33%	43%	50%
Bad smells due to blocked drains	43%	36%	**54%**	22%	40%	50%
Outdoor flooding	39%	33%	49%	22%	37%	45%
Algae choking plant and wildlife	38%	33%	46%	22%	38%	36%
Water company fines for pollution or poor river and bathing water quality	38%	36%	41%	33%	37%	41%
Temporary loss of use of rivers and the sea for activities like swimming, surfing and paddling	20%	21%	21%	11%	18%	23%

Key: NW = Northumbrian Water; YW = Yorkshire Water; HW = Hartlepool Water.

Upon conducting the ranking exercise, anecdotally within session 2 workshops, customers and citizens seemingly found it difficult to choose between the DWMP options. However, the highest-ranking options were those that could affect customers and citizens directly and have highest potential impact upon them

(flooding of infrastructure and indoor flooding), especially as some have seen or been affected by recent weather anomalies causing flooding. Equally there was also real concern about the environment and animals and fish that rely on the rivers, sea and lakes and reservoirs. Some wanted the pollution leading to dead fish in rivers to rank higher.

Table 11.5 Overall Ranking of DWMP Options

Ranking	DWMP Options
1.	Flooding of Infrastructure (like major roads, hospitals)
2.	Indoor Flooding
3.	Pollution Leading to Dead Fish in Rivers
4.	Potential to make People and Animals who go in River and Sea Water Poorly
5.	Outdoor Flooding
6.	Algae Choking Plant and Wildlife
7.	Litter in Rivers and the Sea
8.	Water Company Fines for Pollution or Poor River and Bathing Water Quality
9.	Bad Smells due to Blocked Drains
10.	Slow Drainage due to Blocked Drains
11.	Temporary Loss of Use of Rivers and the Sea for Activities like Swimming, Surfing and Paddling

Broadly speaking, customer views were relatively consistent across the different water regions, especially Northumbrian and Yorkshire Water customers, whereby the top four ranked DWMP options remained in the top 4, although relative positions were slightly different, and equally the bottom two ranked options (slow drainage and temporary loss of use of rivers and sea to leisure activities) remained in their relative positions.

Hartlepool Water customers showed more fluctuations against the overall, however this was a much smaller customer sample, and thus fluctuations are to be expected.

Table 11.6 Ranking of DWMP Options **Northumbrian** Water Customers

Ranking	DWMP Options
1.	Flooding of Infrastructure (like major roads, hospitals)
2.	Pollution Leading to Dead Fish in Rivers
3.	Indoor Flooding
4.	Potential to make People and Animals who go in River and Sea Water Poorly
5.	Litter in Rivers and the Sea
6.	Water Company Fines for Pollution or Poor River and Bathing Water Quality
7.	Outdoor Flooding
8.	Algae Choking Plant and Wildlife
9.	Bad Smells due to Blocked Drains
10.	Slow Drainage due to Blocked Drains
11.	Temporary Loss of Use of Rivers and the Sea for Activities like Swimming, Surfing and Paddling

Table 11.7 Ranking of DWMP Options **Yorkshire** Water Customers

Ranking	DWMP Options
1.	Flooding of Infrastructure (like major roads, hospitals)
2.	Indoor Flooding
3.	Pollution Leading to Dead Fish in Rivers
4.	Potential to make People and Animals who go in River and Sea Water Poorly
5.	Outdoor Flooding
6.	Algae Choking Plant and Wildlife
7.	Bad Smells due to Blocked Drains
8.	Water Company Fines for Pollution or Poor River and Bathing Water Quality
9.	Litter in Rivers and the Sea
10.	Slow Drainage due to Blocked Drains
11.	Temporary Loss of Use of Rivers and the Sea for Activities like Swimming, Surfing and Paddling

Table 11.8 Ranking of DWMP Options **Hartlepool** Water Customers

Ranking	DWMP Options
1.	Flooding of Infrastructure (like major roads, hospitals)
2.	Potential to make People and Animals who go in River and Sea Water Poorly
3.	Indoor Flooding
4.	Slow Drainage due to Blocked Drains
5.	Litter in Rivers and the Sea
6.	Pollution Leading to Dead Fish in Rivers
7.	Algae Choking Plant and Wildlife
8.	Bad Smells due to Blocked Drains
9.	Water Company Fines for Pollution or Poor River and Bathing Water Quality
10.	Outdoor Flooding
11.	Temporary Loss of Use of Rivers and the Sea for Activities like Swimming, Surfing and Paddling

11.3 Combined WRMP and DWMP Options:

As previously discussed, within the post session 1 questionnaire, customers' top 6 ranked WRMP and DWMP options were ranked as a combined set, of which the following tables highlight the output.

Given individual customers' top 6 ranked WRMP and DWMP options were used to produce a 'unique' combined for them to further rank in order of importance, the tables produced below show the overall combined findings and by region. For the Hartlepool Water customers, it was felt the output gained was not reliable given the small sample, therefore only Northumbrian and Yorkshire Water customer rankings are depicted.

Table 11.9 Overall Ranking of Combined WRMP and DWMP Options

Ranking	Options	Option Type
1.	Leakage	WRMP
2.	Water Efficiency (providing water saving products)	WRMP
3.	Flooding of Infrastructure (like major roads, hospitals)	DWMP
4.	Extension of Existing Water Treatment Works	WRMP
5.	Potential to make People and Animals who go in River and Sea Water Poorly	DWMP
6.	Litter in Rivers and the Sea	DWMP
7.	Supply Pipe Renewal	WRMP
8.	Pollution Leading to Dead Fish in Rivers	DWMP
9.	Indoor Flooding	DWMP
10.	Reservoir (dam or embankment raising)	WRMP
11.	Reservoir Desilting	WRMP
12.	Temporary Loss of Use of Rivers and the Sea for Activities like Swimming, Surfing and Paddling	DWMP

Overall, the top 2 ranked options were WRMP options (leakage and water efficiency), with the third most often ranked option being a DWMP option.

From the table above, unsurprisingly, leakage was ranked highest. Already discussed, leakage is something customers and citizens can see and therefore they view it as wasteful and unacceptable. Significantly, customers and citizens were shocked by the PCC level, and many were determined to reduce their consumption which is the reason why it ranked second highest. Many felt that this was an option that could be tackled more easily through flush monitors for example, and education that would be easier than trying to fix the pipes. However, some countered this with saying that fixing a leaking pipe would have a far greater impact in reducing waste than asking many customers and citizens to reduce their water consumption.

Clearly it was important to avoid flooding of the infrastructure which gained third position.

The reason for extension of existing water treatment works was 4th was because customers and citizens felt this would create more water without causing pressure on the environment. Concern for the environment is high on customers and citizens' agendas as it features here at positions 5, 6 and 8.

The temporary loosing use of rivers and the sea for activities like swimming, surfing and paddling was ranked lowest because for many it did not have a personal impact on them as they never partook of these activities. Moreover, it was seen as a side benefit of the water companies not their main reason for being.

The following tables show the ranking by water region. Ultimately the top 4 options remained in the top four although their relative position changed slightly by region.

Table 11.10 Ranking of Combined WRMP and DWMP Options **Northumbrian** Water Customers

Ranking	Options	Option Type
1.	Leakage	WRMP
2.	Water Efficiency (providing water saving products)	WRMP
3.	Flooding of Infrastructure (like major roads, hospitals)	DWMP
4.	Extension of Existing Water Treatment Works	DWMP
5.	Litter in Rivers and the Sea	DWMP
6.	Supply Pipe Renewal	WRMP
7.	Indoor Flooding	DWMP
8.	Potential to make People and Animals who go in River and Sea Water Poorly	DWMP
9.	Reservoir Desilting	WRMP
10.	Slow Drainage due to Blocked Drains	DWMP
11.	Pollution Leading to Dead Fish in Rivers	DWMP
12.	Meter Optants	WRMP

Table 11.11 Ranking of Combined WRMP and DWMP Options **Yorkshire** Water Customers

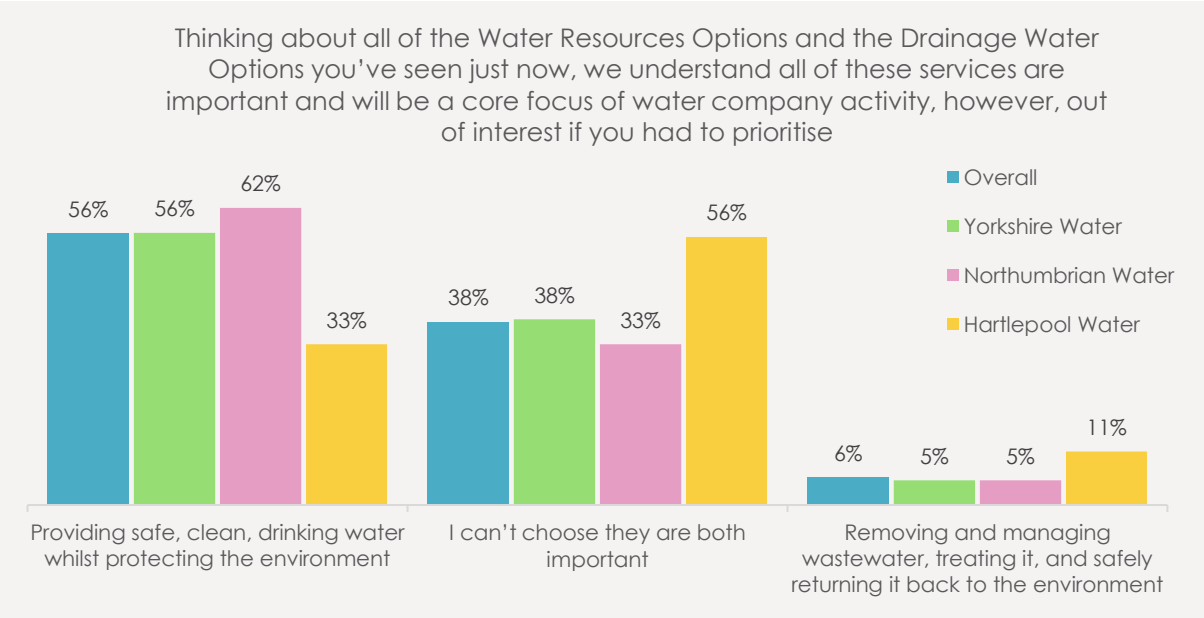
Ranking	Options	Option Type
1.	Leakage	WRMP
2.	Extension of Existing Water Treatment Works	DWMP
3.	Water Efficiency (providing water saving products)	WRMP
4.	Flooding of Infrastructure (like major roads, hospitals)	DWMP
5.	Reservoir (dam or embankment raising)	WRMP
6.	Potential to make People and Animals who go in River and Sea Water Poorly	DWMP
7.	Pollution Leading to Dead Fish in Rivers	DWMP
8.	Water Transfers	WRMP
9.	Litter in Rivers and the Sea	DWMP
10.	Desalination	WRMP
11.	Mains Replacement	WRMP
12.	Outdoor Flooding	DWMP

11.4 Choosing between WRMP and DWMP

Customers and citizens were also asked which was overall most important to them i.e. DWMP or WRMP options via an additional question: 'Thinking about all of the water resources options and the drainage water options you've seen just now, we understand all of these services are important and will be a core focus of water company activity, however, out of interest, if you had to prioritise one, which one is most important to you?'

The chart below highlights that over half (56%) of customers believed 'providing safe, clean, drinking water whilst protecting the environment' was the most important priority. However, a further 38% could not choose between WRMP and DWMP as both were deemed equally important.

Graph 11.3 Importance of WRMP vs DWMP Options



Generally, customers and citizens had a preference for providing safe, clean drinking water over removing and managing wastewater because it was more top of mind i.e. what comes out of the tap has more resonance than the water going down sink or toilet. They don't see their drains; they are underground whereas they see fresh water coming out of their taps.

Many customers and citizens could not choose between WRMP and DWMP because both are important, and they are interconnected. It was seen as a balancing act.

'If you stop leakage, you will have less problems with supplying the water.' (HH State Pensioners; YW)

'Leakage is at the top of the pile because you need to get your house in order before you start supplying or transferring water to other people.' (HH 16-17 years; YW)

'If you raise the sides of reservoirs, they will hold more water. Water transfers are the last resort. Water companies should do everything in their power to stop water leaking out.' (HH 16-17 years; YW)

12. General Perceptions of Environmental Issues

The environment seems to be higher on customers' and citizens' agendas than it has been previously. Many felt that this was due to lockdown, especially the first lockdown when people became more conscious of the environment around them and valued it more than they had ever done before. The first lockdown forced people to use their local park or nearest natural place for exercise instead of their gym.

There was new appreciation for natural places including local canals and waterways. Nature helped lower people's anxiety levels. Working from home encouraged people to exercise more and locally. With homeworking likely to continue this may mean that this new appreciation of nature will continue into the future.

However, there was shock and dismay at the amount of litter left behind on beaches during lockdown. Many felt that there was a need for greater education in schools detailing the impact litter can have on the environment and to encourage young people to take responsibility for their litter.

There was high awareness of the issues pressing on the environment. The most pressing was animals becoming extinct, the loss of vast tracts of rainforests, the warming up of the sea, and how human action can damage habitats. Many felt that this was due to the documentaries that they have had time to watch on Netflix during the lockdowns, such as Cowspiracy and Seaspiracy as well as films by David Attenborough. There was also evidence that seasons in the UK were changing i.e. Spring arriving earlier, and in some countries, such as Australia, devasting effects, such as the bush fires.

There was a strong sense that we live in a wasteful society with huge amounts of food being thrown away each day.

The lockdowns themselves were thought to have had a positive impact on the environment, albeit short lived, with less traffic including air traffic and the recovery of rivers (dolphins in Venice canals) and natural habitats (goats wandering the streets).

However, this did not always translate to people's personal impact on the planet. Many still used their cars for short journeys because they paid for the car so they might as well use it. Some are aware that they need to reduce their red meat consumption. Nor did it always work in practice with businesses, although companies planned to reduce their carbon footprints it did not always happen. Often deadlines and targets were pushed back. As a result, customers and citizens wanted to see more action with Government targets in general and with water companies in particular.

Customers and citizens wanted companies, not just water companies, to address priorities with the environment straight away and for targets to be reached within 5 or 10 years and a new plan made after 5 - 10 years. There was more of a sense of urgency with the threat of climate change looming closer. However, there was a sense of powerlessness, since in this country we could achieve targets but is seems pointless if other countries (Russia, USA and China) are still burning fossil fuels.

In terms of other organisations or companies leading the way in improving the environment, most struggled to think of many. The car manufacturers including Honda and Tesla were mentioned because of electric cars and sustainable energy. Some of

the energy companies were addressing the environment by choosing renewables over fossil fuels. There were some food manufacturers who were trying to reduce plastic packaging. Supermarkets had made good headway with the reduction in single use plastic carrier bags and people's behaviour has changed. People now go to the supermarket with reusable bags. Charging people for bags was felt to have acted as a deterrent.

'We are more conscious of our environment. We are changing the way we are doing things.' (NHH Non-Water Dependent; YW)

'I saw a thing online about catching litter in a net to combat river pollution. It was shocking how much rubbish was caught up in it.' (HH 21-30 years; NW)

'I'd like to see pollution go down. Covid has brought it down, going by what is on the news.' (NHH Water Dependent; YW)

13. The Environment and Water Companies

At a spontaneous level, this topic was not top of mind for most customers and citizens. Water companies are not perceived to be particularly damaging to the environment, unlike energy companies or heavy manufacturing or mining. However, there was concern with regard pollution of rivers and damage to the habitats in a general way, but most did not blame water companies for this.

Many felt that water companies should improve the natural environment, not just protect what was there. Equally, they wanted water companies to 'pick up the pace' with reference to hitting targets. There was also an awareness that climate change will become more of a problem and that water companies would have to prepare for extreme weather, such as intense downfalls and droughts.

'If water companies said more about what they are doing with your money, and an ad campaign, to say things like in 2021 we replaced 200 miles of pipework with total transparency around what was happening. That would be good.' (HH Post Family; HW)

When probed, customers and citizens expected water companies to repair pipes as quickly as possible, and to reduce litter and plastic in the rivers and the sea. Some thought water companies could reduce their carbon footprint by generating electricity through hydro-electric dams.

Again, the reoccurring theme of wanting water companies to communicate how they were helping the environment, what they expected customers and citizens to be doing to reduce consumption, and for transparencies on where money was spent was highlighted.

'It's naïve to think that saving a pound is more important than stopping your bathroom flooding. If the water companies said that you have to put up with flooding because our focus is on taking care of the environment, we wouldn't be happy. We are noble about water as long as we don't have leaking pipes and water comes out of tap and there is no inconvenience.' (HH Post Family; HW)

'Water companies are basically in the shadows. We don't pay them much attention. If we have more metering and pressure on people to use water in a more careful way, one way to do that is to promote water companies as people who care about the issues that we care about, so that we are on their side.' (HH Post Family; HW)

Generally, the role of water companies was thought to be creating a buffer between the downfalls and the droughts, using the natural environment to slow down the water cycle so that extreme weather is balanced out.

14. Environment Agency's Environmental Ambition/Destination

A film explaining the EA's environmental ambition for water companies was shown to customers (script in the appendix).

14.1 Initial thoughts

Many customers enjoyed the film and felt that the issues it raised were important. Most did not know that water companies took water from rivers, chalk streams and groundwater reserves and for some this raised concerns. However, the key takeaway from the film was that water companies are governed by rules to take care of the environment and they were largely reassured by that. There was widespread low awareness of the special environments, such as the Sites of Special Scientific interest (SSSIs), the Special Areas of Conservation (SACs), the chalk streams and salmon rivers in water catchment areas, and upon hearing about them most felt that it was imperative to protect or improve them. There was surprise voiced that water companies were allowed to abstract water from these environments and habitats.

There was a strong sense that water companies must look after the environment. Climate change was going to bring further pressures. Those in Yorkshire had experienced flooding and understood that water companies have a role to play in slowing down water by planting trees, using peat bogs to absorb water and holding carbon naturally. Customers and citizens felt that SSSIs were valuable and once they were gone it was impossible to bring them back.

It was clear to customers and citizens that climate change could put the region at a risk of drought and that long term management strategies (and investment plans leading to increased bills) were required to protect species and habitats that relied on the water environment. Customers and citizens concurred with this and were largely willing to pay a small amount more to protect the ecologically important areas. Significantly, many wanted a blanket reduction in abstraction. There was a strong belief that water companies cannot, or should not, rely on abstraction because it has a negative impact on the environment.

14.2 Protecting Versus Improving the Environment

Some customers and citizens wanted water companies to protect what was there rather than improve it. These customers and citizens felt that water companies were not environmental companies or wildlife organisations. Their main role was to supply water and so their remit should be to protect the current habitats. Water companies need to consider the environment, but their primary job is to provide their customers and citizens with water. It was not their job to protect the environment over and above anything else.

However, there were some customers and citizens who believed that water companies should go further and improve the environment, even if there were cost implications. For some, there was a sense of urgency as species were becoming extinct at an alarming rate. There was widespread approval of an example of

Biodiversity Net Gain where water companies replant more trees than they cut down.

14.3 Water Sourcing

It was thought to be right that there was a limit as to how much water could be abstracted from these special environmentally sensitive areas, but there was limited understanding of where else water could come from. Desalination and treating dirty water was thought to be a solution, as was water trading. Customers and citizens also believed that removing silt from reservoirs and building up the sides, would be preferable from taking water from sensitive areas. Some felt that building a new reservoir and localising the damage would be worthwhile if it protected the SSSIs, SACs, chalk streams and salmon rivers.

Unsurprisingly, the conversation came back to leaks where it was felt that if leaks could be addressed then there would be less need to take water from environmentally sensitive areas. In addition, it was felt that if all customers and citizens helped to reduce their consumption then there would be less need for water companies to abstract water from sensitive areas.

Grey water systems for flushing toilets, collecting rainwater for watering plants, reusing washing machine water as well as compulsory meters could have a big impact, it was felt. Some argued that the Government needed to go further to educate children to be more responsible about water consumption.

14.4 Targets and Timescales

There was a sense that some customers and citizens would pay more to prevent further damage to the environment, but again, there would be a need for clear communication of where their money was being spent. Many felt that protecting the environment should be the key target and once that was in place improvement should be the next target. COVID and lockdown had led to customers and citizens appreciating their local areas more and enjoying the beauty of the countryside and waterways, and thus may be more willing to pay a little more to protect them.

There was little point seen in delaying the investment since building is always more expensive in the future. Also, if investment starts in the short term then gains from increased efficiency will also be felt sooner.

Customers and citizens had little understanding of the percentage of reduction in abstractions required to have an immediate positive impact, but unanimously, wanted a reduction. However, as before, they struggled with long term plans and wanted plans of 5 years and 10 years. Some believed that these issues cannot be rushed and that a 10-year plan was reasonable if there was clear communication of whether water companies were on track to meet the targets.

14.5 Level of Agreement with Sustainable Abstraction

Customers and citizens found it difficult to make decisions about where to reduce abstractions from i.e. SSSIs, SACs, chalk streams or salmon rivers, as they all seemed to be critically important environments and therefore they struggled to prioritise which was the most important. SSSIs and SACs had already been set up to be protected so it was obvious to many that water should not be abstracted from these

sensitive habitats. Some customers and citizens' initial reactions was to ban abstractions. Their argument was that the SSSIs are super sensitive and abstractions further upstream could wreak damage.

Importantly, there was widespread support of reviewing abstractions to ensure they are not damaging the environment (frequency, location and exploring new areas for abstraction). Generally, there was consensus that water companies should only use the sensitive environmental sites in worst case scenarios such as droughts. However, it was strongly felt that water taken out of the rivers should not cause damage. It was right that water companies had to apply for licenses to abstract from these sources and that applications are approved by the Environment Agency. Again, this was encouraging to know.

Another issue was that customers and citizens felt ill equipped to make judgements on levels of abstraction e.g. the impact a 10% reduction in abstractions would make on the sensitive sites, so although in principle they agreed that abstractions should be reduced they could not answer whether 10% would be sufficient or what time period should be implemented.

Overall, it was felt that water companies needed to act in a sustainable way and to avoid damaging the wildlife. They also needed to be accountable and held to the targets that they made. Advertising the targets and ensuring that water companies met them would help customer buy in. It seems that protecting the environment is further up the agenda and most were willing to pay a little more in their bills if it had a positive impact on the environment.

In summary, there was unanimous support for a reduction in abstractions. For many, abstractions should be a 'last resort'.

14.6 Willingness to Pay

Most customers and citizens understood that water companies need to invest to improve and therefore were willing to pay to protect SSSIs, SACs, chalk streams and salmon rivers and to abstract less water. It was in the region of 10% to 20% per annum or £2-9 per month. Many customers and citizens believed their water bills were not huge especially those on a meter who had managed to reduce their bills. Again, customers and citizens wanted transparency and for the water companies to communicate to their customers and citizens and to educate them as to what they were doing and why it was important.

14.7 Customer Environmental Priorities

In the first instance customers priorities were to protect what is there and to make an investment plan to improve the environment further into the future. The bare minimum concept was disliked, and the desire was for water companies to go further than that, to reach their targets for reducing abstractions sooner.

'If we are expected to pay more to protect these areas, I don't mind paying more to protect SSSIs.' (NHH Water Dependent; YW)

'With lockdown, I cycle along the canal to work and during the lockdowns it was mad – there were so many people out walking.' (NHH Non Water Dependent; YW)

'Water companies need to look to different sources of getting water to use that doesn't abstract water from the rivers and lakes. They should be actively looking for alternatives. It should not be the first choice but only when absolutely necessary.' (HH Vulnerable and Low Income; HW)

'If people knew about it and understood they would be willing to pay a bit more.' (HH Vulnerable and Low Income; HW)

'The SSSIs are important. We don't want to lose all of that. We've lost enough already. It's not the SSSIs' fault. Why take that away?' (HH Vulnerable and Low Income; HW)

'You need to start with the company. If you walk down the street and see water running away, you think they don't care.' (HH State Pensioner; YW)

'The crux of it is put a water meter in. The basic point is that it makes you thrifty with water. It makes me more aware. If you go washing up there is no point in running the tap and when you are cleaning your teeth. We all need to save water every day and it will help the whole system'. (HH State Pensioner; YW)

'Reduce water waste. Make a Netflix documentary about water.' (NHH Water Dependent; YW)

15. Creating a Best Value Plan

An educational film explaining the Best Value Plan concept was shown to customers within the second workshop (script in the appendix).

15.1 Response to the Best Value Plan Film (understanding, likes/dislikes)

Overall, the Best Value Plan concept 'made sense' and customers appeared to support this. It was believed Defra and the Environment Agency were right to put in a plan that factored in what was best for the wider environment rather than a 'least cost plan'. The concept that 'cheapest wasn't always the best' was understood with Aldi supermarket given as an example by some. It was deemed honest and open for water companies to admit that this plan would not be the cheapest. However, it raised the issue of who would pick up the cost.

As we have seen all along, most customers and citizens in this qualitative research accepted or were willing to pay more for priorities and targets to be met, and some were even happy that their money was going towards protecting the environment. Again, they struggled to comprehend the 25-year time span as it seemed too far ahead. The fact that the film explained the BVP had to be affordable to customers and citizens was reassuring.

15.2 Customer Best Value Plans (BVP)

Initially, customers were asked to individually construct and create their own Best Value Plan within the workshops. This was completed by showing them a summary of everything that should be considered in their plan (showcard 4) and using the following as a template for completion.

Customers were encouraged by the moderators to consider the following when creating their plans:

- Taking into consideration everything discussed across the last two sessions, what is important to you as a customer, for WReN to focus on in the future and why?
- When do you want WReN to achieve this / these by?
- The price you would be willing to pay, if anything, to enable these things to be achieved - this could be as simple as 1% of your current bill, £1 per year, £5 per year, 50 pence per month etc.

To help with the financial element, individual customer regions were shown what the average cost of water resource management was on their current bills per month.

This approach enabled unbiased views to be uncovered. These plans were again collected from respondents via the post session 2 questionnaire.

Criteria to be considered for the BVP:

Showcard 4

Metrics:
Public Water Supply Drought Resilience
Biodiversity Net Gain
Natural Capital
Leakage
Per Capita Consumption
Public Water Supply Non Drought Resilience
Carbon
Customer Preferred Option
Stakeholder Preferred Option
Human and Social Wellbeing
Financial Cost
Option Deliverability

Abstraction and the Environment:
Reviewing abstractions to ensure they are not damaging the environment
Protecting SSSI's,
Protecting sensitive habitats such as SACs
Protecting chalk streams
Protecting salmon rivers
Reducing the use of drought permits/orders

Water Management Options:
Water Meter Optants
Metering on Change of Occupancy
Supply Pipe Renewal
Water Efficiency
Consumption Data
Commercial Water Efficiency
Leakage
Mains Replacement
Extension of Existing Water Treatment Works
Reservoirs
Reservoir Desilting
Desalination
Increased Abstraction
Water Transfers

Water Trading

5

BVP Template:

Showcard 4

Best Value Plan:
Your Target:
Price of your bills to achieve your plan:

6

BVP Emergent Themes.

From the plans created by individuals, consistency was noted across the 3 water companies' regions.

There was a mix of options within customer and citizens BVP's, and they included demand management, distribution management and resource management options.

From the BVPs supplied by customers and citizens, Turquoise recoded these into the following areas (metrics / WRMP options etc) to illustrate how many individual mentions each received and thus provide guidance on the BVP – these can be seen as a number alongside the associated metric / option.

Metrics:
Public Water Supply Drought Resilience 19
Biodiversity Net Gain 6
Natural Capital 1
Leakage 55
Per Capita Consumption 26
Public Water Supply Non Drought Resilience
Carbon 10
Customer Preferred Option 1
Stakeholder Preferred Option
Human and Social Wellbeing 5
Financial Cost 23
Option Deliverability

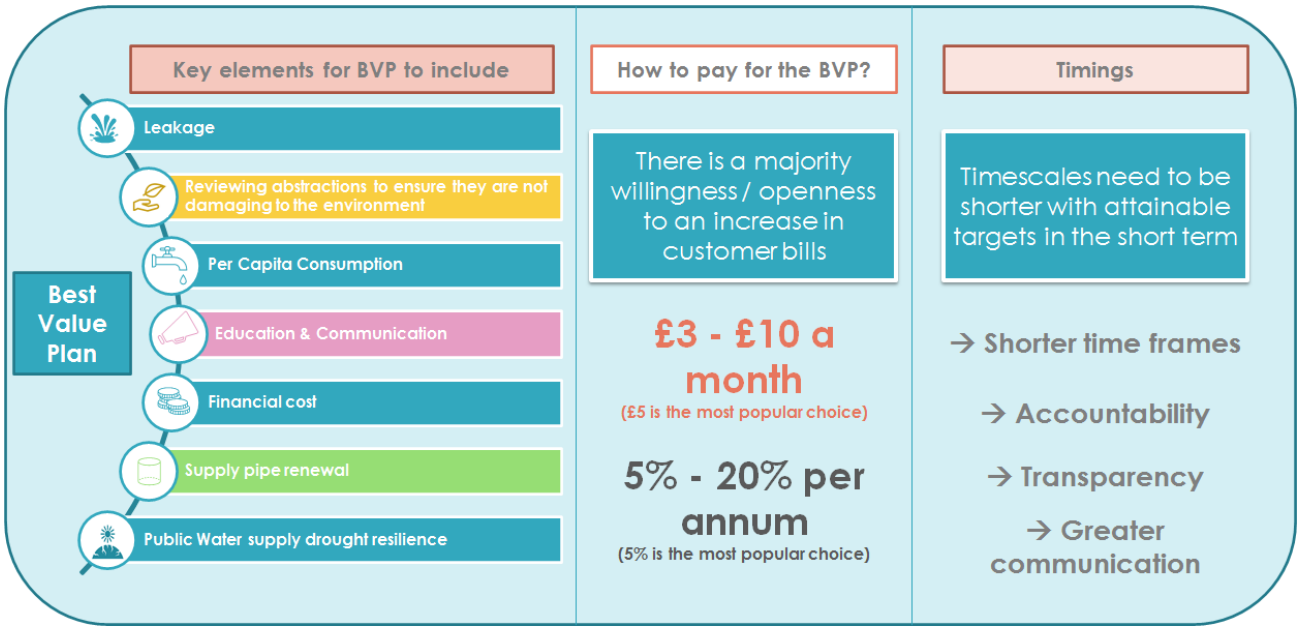
Abstraction and the Environment:
Reviewing abstractions to ensure they are not damaging the environment 29
Protecting SSSI's, 11
Protecting sensitive habitats such as SACs 10
Protecting chalk streams 8
Protecting salmon rivers 8
Reducing the use of drought permits/orders

Best Value Plans – Key Metrics

Water Management Options:
Water Meter Optants 8
Metering on Change of Occupancy 11
Supply Pipe Renewal 23
Water Efficiency 10
Consumption Data
Commercial Water Efficiency 1
Leakage 55
Mains Replacement 6
Extension of Existing Water Treatment Works 3
Reservoirs 10
Reservoir Desilting 4
Desalination 1
Increased Abstraction
Water Transfers 5

Water Trading 5 **Education and communication 24**

From the above, a visual summary of the desired BVP can be seen below:



Perhaps unsurprisingly, given previous comments, **leakage** was the **single most salient BVP theme** across the regions. It was thought that tackling leakage would help with supply and so tackling leaks would solve many of the problems. In some instances, there was acknowledgement that leaks should be addressed *if* it was economically viable. If it wasn't, then leakage was ranked lower for some. However, in the future it was felt that new technology would be able to detect leaks and the whole system would become more efficient.

In terms of targets for fixing leaks, as might be expected, there were considerable variations in timescale targets given in individual BVPs. However, there was a consensus across the workshops that targets should be brought closer so that a reduction in 10%-15% of leaks should be reached by 2025, 2030 or 2035; 2040 at worst. In 20 years, many customers and citizens wanted water companies to hit a target of 50% reduction in leaks and by 2050 to hit a reduction of 60-75%.

This is obviously different from the industry's targets to reduce current leakage by 50% by 2050. Interestingly, there was greater preparedness to pay more to reach their own ambitious targets, and these ranged from £5 per month to £5 per annum.

Generally, most customers and citizens suggested an increase of around 10-20 % per annum although some were prepared to pay up to £9 more per month. Caveat: this was not just for the repair of leaks this was for all the other elements of their Best Value Plan.

Relating to reducing leakage was **supply pipe renewal**. There was a strong desire for water companies to invest in their aging infrastructure to prevent leaks.

Another salient theme was the **per capita consumption**; reducing long term water usage. Linked to this was **encouraging** or **making metering compulsory** (the belief being that unless you hit customers in their pockets, there will be large swathe of people who will not be motivated to conserve water). It was felt that this would increase supply and therefore there would be less need to abstract water, for example, from sensitive areas. Targets mentioned were 80% of customers on a meter

by 2040 and a reduction of PCC of 20% within 3-5 years or 25% reduction by 2050. However, some wanted a target of all customers to be on a meter by 2030 but they did not know if that was realistic or not. Some felt that monetary incentivisation would help e.g. by giving a bonus of £10 per annum if they reduced their water consumption by 30%. In terms of payment, customers and citizens believed they would see a reduction in their bills if they consumed less water.

Equally, greater education would also serve to help this aspect e.g. education on how much water people use daily (akin orange juice carton analogy).

Public Water Supply Drought Resilience was a frequent theme as it was seen as the single most important role for a water company. Customers and citizens wanted reassurance that they would always have access to plentiful clean water and that water companies would make provision in the face of climate change and increasing population. As for targets, it was felt difficult to give a time for WReN to achieve this by as it was ongoing. However, there was a sense that prices should come down once the new technology and investment was in place which would make the system more efficient.

Another prominent theme on customers and citizens' Best Value Plan was **the environment**, which seems to have risen on customers and citizens' agendas since the final workshop and educational piece. Customers wanted a reduction in abstraction levels from sensitive areas, protecting SSSIs and SACs, chalk streams and salmon rivers and reducing pollution, and they wanted water companies to become carbon neutral using self-generating electricity, wind turbines and solar power.

Biodiversity Net Gain was also a vital part of some customers and citizens' Best Value Plan.

In terms of targets, customers and citizens wanted a reduction in abstractions by 10% by 2030 and another 10% by 2040. In addition, it was believed water companies needed to communicate with their customers and citizens whether the targets were being reached. Within this, they were particularly interested in whether the habitats (SSSIs and SACs) had been protected.

Education was a common theme across the 3 regions, particularly around the subject of PCC. Many were surprised, even shocked, at the average daily consumption of 150 litres and resolved to try and reduce their consumption. Part of the education piece was communicating to customers and citizens what the goals were, why there were there and whether they were being achieved. Some graphical representation such as a pie chart, with spending broken down, was desired to aid this. It was felt this would encourage engagement in what is a difficult and dry subject. Customers and citizens admitted that they took water for granted and thus would need something impactful with strong MPT (Message Pull Through).

In terms of education targets, there was appetite for more advertising campaigns on the TV and in cinemas; on the back of buses etc, and maybe a documentary on Netflix about water conservation, so that customers took more personal responsibility for reducing their consumption. Leaflets through the post were also mentioned as a way of communicating. They also wanted to see water companies in schools educating children about the environment and how precious a resource water is.

The **final salient theme** on customers and citizens' Best Value Plans was **financial cost**. There were a minority of customers who were not prepared to pay more to address any of the issues. Their argument was that the water companies should pay for investment. They also thought that there were other avenues of finance open to water companies, such as Government grants, asking business customers rather than household customers to pay, as well as receiving money from Local Authorities.

Others had Financial Cost on their plans because they were keen that the cost was in line with inflation. They were happy to pay a little more but felt that the Best Value Plan had to be affordable for customers. This was in the range of £2-5 per month. Significantly, if the price of bills increased, the expectation was that there would be faster results.

15.4 Timings

To summarise, customers and citizens desired shorter goals, i.e. within 5 years, 10 years at most, and attainable targets.

Most customers felt that the current targets did not go far enough, and in their Best Value Plan they brought the timings forward particularly for reduction in leakages and PCC, metering, and reduction in abstractions.

15.5 Financial Implications

Overall, within this qualitative piece of research, most customers were willing to pay more to achieve their Best Value Plan. The caveats were that the targets were shorter and more achievable, and that water companies were fully transparent.

Typically, customers were prepared to pay in the region of 5-20% more per annum or between £3-10 more per month, which are quite large ranges, but a consequence of a qualitative exercise. The most often cited price increases were £5 per month and 5% per annum.

Caveats: many customers incorrectly tallied their % increases with monetary values. Equally, given the research was water resource focused, there may have been a propensity to over value, therefore further testing will be required in line with wider business plan objectives later in the process.

'I think it is shocking that the water companies don't want to communicate with the customers and citizens. They want us to pay the bill but not to communicate with the person that is paying that bill.' (NHH Water Dependent; YW)

'My Best Value Plan is to reduce leakage flowing out of the system then you don't need to take it out of the environment.' (NHH Non Water Dependent; YW)

'We need to understand what they are doing and why.' (NHH Water Dependent; YW)

16. Response to WReN Regional Plan Objectives

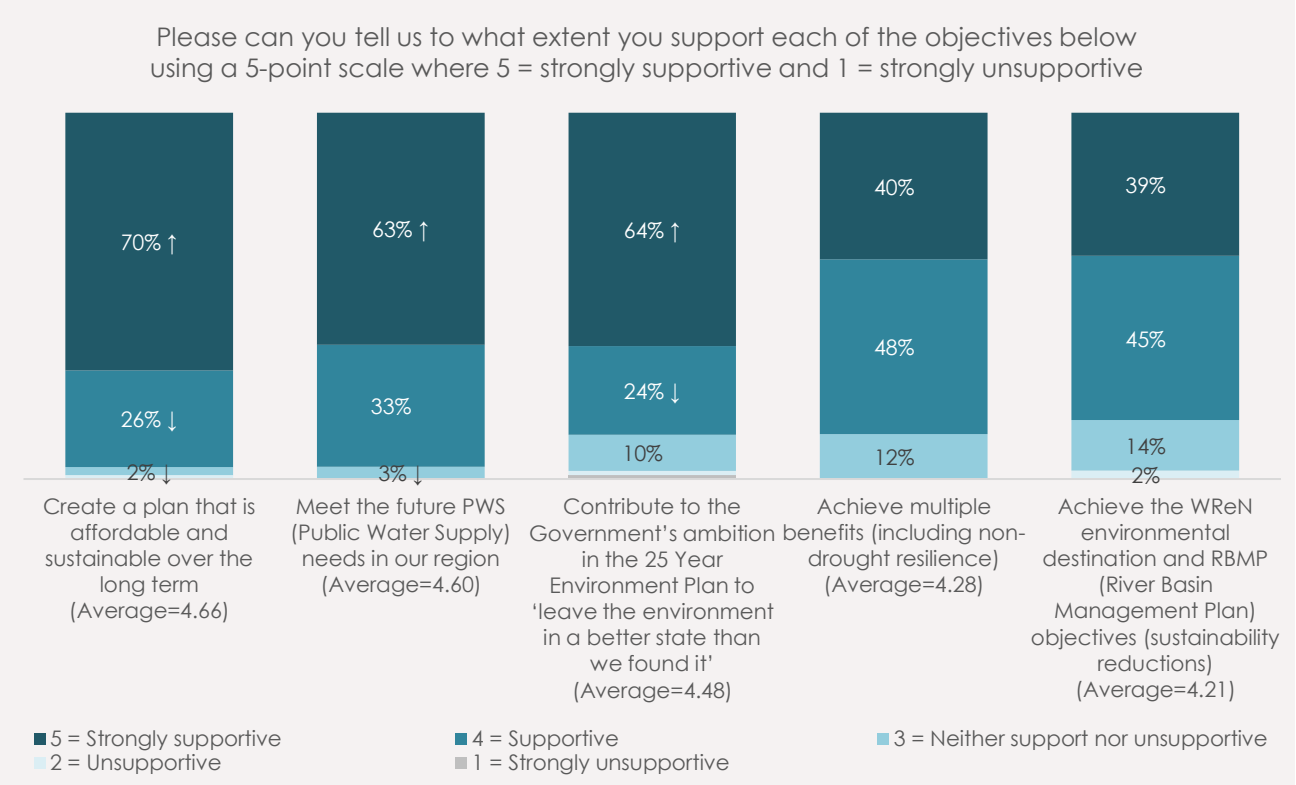
Customers and citizens were shown the WReN regional plan objectives to understand their overall feedback and level of support of these.

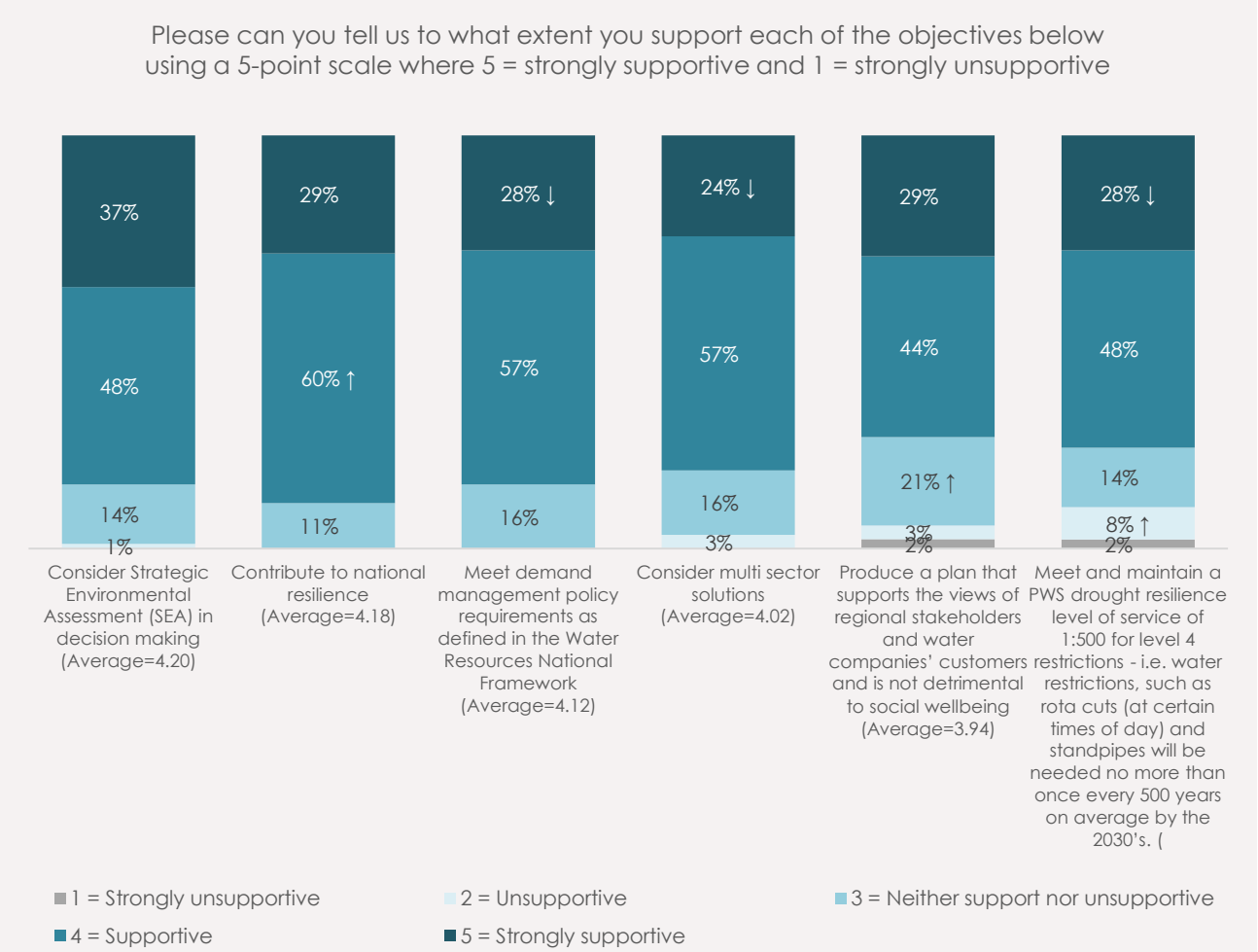
16.1 Initial Response

Generally, customers felt that the objectives largely met their plans. They seemed to focus on the environment and meeting future PWS needs. In some ways the plan was deemed to be ambitious, but this was seen as a positive.

The following charts highlight customers level of support for the different objectives that were collected in a post workshop 2 follow up questionnaire.

The **strongest** level of support was for 'creating a plan that is affordable and sustainable over the long term', 'meeting the future PWS' and 'contributing to the Government's ambition in the 25 year environmental plan'.





16.2 Key Issues

There was no explicit mention of leakages, which for many was a key issue. Many had not appreciated that this aspect is wrapped up into demand management policy requirements.

Another key element that appeared to be missing and was on many customers' and citizens' Best Value Plans, was education. There was a sense that in order for WReN to meet the objectives, they would need to enlist the help of their customers and the only way to do that was through education.

New technology and the potential impact on efficiency was also missing.

For those in Yorkshire there was a sense that the plan should do more to help development in the region.

The role of customers and citizens was thought to be key in reducing water consumption and improving water efficiency.

Customers and citizens struggled to understand a drought resilience level of service of 1:500 for level 4 restrictions. It was almost impossible for them to think in terms of 500-year chunks of time.

'People are oblivious as to how they can support the water companies. They need to tell them how to reduce consumption.' (HH Vulnerable and Low Income; HW)

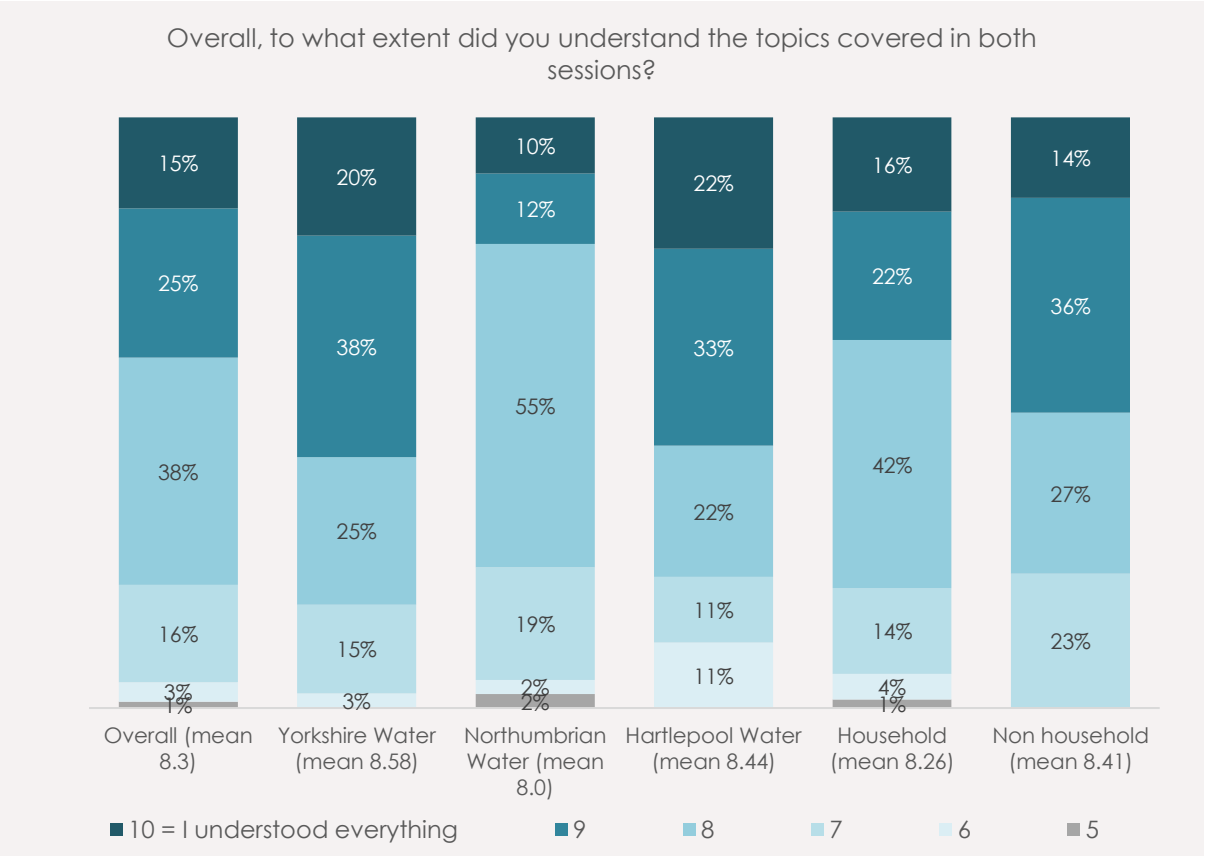
'It sounds like someone with a big ego talking about 'leaving the environment in a better state than we found it' like Dominic Cummings or Boris Johnson.' (HH Post Family; HW)

'Getting in touch with customers and citizens, education is a massive part of it, and it is missing from their objectives.' (HH Post Family; HW)

'Their list of objectives is largely okay but there is a lot of jargon and some of it is too woolly.' (NHH Water Dependent; YW)

17. Customer Understanding of the Research

As a final exercise within the post session 2 follow up questionnaire, customers were asked about their level of understanding of the research they had been involved in.



Given the complicated nature of the topic in question, and requirement of customers to be educated in a fairly short space of time, the chart above encouragingly highlights that the majority of customers that participated did have a good level of understanding of what was being asked of them through the process that was used. Using a 10-point scale, all indicated a score of 5 and above, with a mean score of 8.3 out of 10 achieved overall.

18. Conclusions and Recommendations

18.1 Awareness of Water Scarcity and Water Security:

Water was largely taken for granted by household customers and citizens, with them rarely giving much thought about it. Moreover, they were not concerned where the water was sourced from as long as it was clean and came out of the tap when they wanted it. Upon consideration of water, value was attributed to the fact that they could drink water straight out of the tap and that it was safe to drink. This was not always the case in some countries, even within Europe.

Significantly, many customers and citizens were unaware of potential water scarcity, particularly amongst those customers in the Northumbrian Water region. There was a widespread belief that there was sufficient water to meet everyone's demands. Indeed, there was a strong sense that fresh water was abundant in this region, largely due to Keilder Reservoir. Most felt that each part of the WReN region had more than enough water and there were no shortages.

However, in a more general sense, customers believed that there was more water supply in the North of the country than the South, purely due to how much rainfall there was, temperatures and population density. Also, there was a sense of geographical differences, in that London was 'built up' and so there was less space to store water, whereas in the North East there was more space and fewer 'built up' areas. Customers and citizens concluded that they took water for granted because they all thought they had plenty. Evidence to support this was that there was no memory of hosepipe bans and many were unfamiliar with the term 'stand pipes'.

Non-household customers were perhaps more aware of water in that they were looking to save money by reducing their water consumption, e.g. gyms and hotels, but they equally did not have any sense of the potential scarcity of water.

Customers in Yorkshire, however, were more likely upon prompting to mention water was becoming more depleted over the years.

18.2 Awareness of Issues Facing Water Companies

Upon consideration and reflection, customers and citizens felt that summers were getting drier and that water resources could be depleting. It was noticed that some new houses were installing water efficiency measures, such as capturing rainfall, and that meters were encouraged and fitted to all new houses, perhaps in an attempt to limit or make people aware of their water consumption.

When prompted customers felt that global warming could contribute to water resources being depleted, alongside population increases and thus new housing developments.

Another issue cited was the aging of the infrastructure and pipework with customers rationalising that, if this was not properly maintained, it would impact upon water availability.

18.3 Reactions towards Water Trading

Overall, there appeared to be little concern over which region water potentially came from. Customers had limited understanding in the first place, so being told that their water could come from further away did not trouble them. They were not particular that water from their taps had to be taken from local sources. There was brief mention of the taste of water and some, particularly those in Northumbria, believed they could taste the difference between their superior water and that from other water regions.

At a high level, the concept of water sharing and thus support for water trading, seemed a logical premise for the majority of customers. Spontaneously many customers and citizens concluded that if there was surplus water in the North it made sense to share water to regions that were in deficit. However, there was little or no awareness of why it might be necessary.

Pros

It was felt that it would be better to trade water than build a new reservoir or abstract more water in the regions that were in deficit. Why ruin the environment when there is a more environmentally friendly solution in the form of water trading?

If the donor water companies' customers' bills could be reduced as a result of water trading, then that was seen as a real benefit.

Cons

However, upon discussion, the question was often raised as to why some regions were, or could be, in water deficit? Could it be that they were mismanaging their supplies and were inefficient?

There was also significant concern around the cost of building the infrastructure for this concept. It was strongly felt that the donor should not have to pay for any new infrastructure investment required to support this venture.

Caveats and Conditions Required Prior to Support of Water Trading.

After discussion, customers and citizens would only agree to water trading if there was no adverse effect on their water supply. In other words, customers wanted limits as to how much water could be taken from reservoirs to use for trading.

This limitation was also imposed because there was a sense that water trading could be seen as an 'easy option' for water companies to source water, rather than invest in their own infrastructure, and thus could also lead to greater inefficiencies across the network.

It was felt that water companies supplying/trading water should fix their leaks. This was purely because customers felt that this was a pressing issue. It was thought that water companies that traded water without first 'getting their own house in order' were irresponsible and were potentially putting their customers' water supply at risk.

Perceived Issues and Challenges of Water Trading

The key perceived challenges were around how to transport the water, and the costs involved. There was a strong feeling that the costs should be paid for by the water company receiving the water not the company supplying the water.

18.4 Inter-Generational Affordability

The unanimous view was that customers and citizens felt that the current generation should start to pay now rather than push the costs forward to future generations for any desired priorities within WRMPs.

18.5 Response to WReN Regional Plan Objectives

There was largescale agreement with the WReN regional plan objectives. However, again, education was a key area felt to be missing.

The **strongest** level of support was for 'creating a plan that is affordable and sustainable over the long term', 'meeting the future PWS' and 'contributing to the Government's ambition in the 25-year environmental plan'.

18.6 Reactions towards the Metrics

The top 3 metrics across all workshops were leakage, PWS drought resilience and financial cost. Environmental considerations were ranked after this.

Overall Raking of Metrics

Ranking	Metric
1.	Leakage
2.	Public Water Supply (PWS) Drought Resilience
3.	Financial Cost
4.	Per Capita Consumption (PCC)
5.	Biodiversity Net Gain
6.	Non-Drought Resilience
7.	Human and Social Wellbeing
8.	Carbon
9.	Natural Capital
10.	Customer Preferred Option Type
11.	Option Deliverability
12.	Stakeholder Preferred Option Type

Overall Weighting of Ranked Metrics

Metric	Average Points Allocated
Leakage	16.66
Public Water Supply (PWS) Drought Resilience	14.83
Financial Cost	14.22
Biodiversity Net Gain	9.57
Human and Social Wellbeing	9.38
Non-Drought Resilience	9.06
Per Capita Consumption (PCC)	8.79
Carbon	8.24
Natural Capital	7.26
Option Deliverability	5.72
Customer Preferred Option Type	5.63
Stakeholder Preferred Option Type	4.71

Leakage was the most important metric, and this was driven by the sense that wasting water is unacceptable. This was especially the case if water companies were asking customers and citizens to reduce their water consumption. There was a strong sense that the water companies 'have to get their own house in order' before they ask customers to help reduce their water use.

The second most important metric was PWS drought resilience because reliability of water supply is the perceived 'heartland' of any water company.

The third most important metric was financial cost. To be clear, nearly all customers and citizens in this qualitative research were prepared to pay a little more on their bill to meet the targets and objectives, but that the increases needed to be fair and affordable in the short and long term.

The environment was ranked fourth most important with the following metrics, biodiversity net gain, human and social wellbeing, per capita consumption and carbon and natural capital were all relating to the protection of the environment. This was driven by the sense that water companies should not damage the environment. SSSIs and SACs, chalk streams and salmon rivers were seen as hugely important to the environment, the water cycle, and society as a whole and should be protected.

Looking at the differences by individual water area, the top three weighted metrics remained similar for both Northumbrian and Yorkshire Water; although the relative position of these changed slightly, with Leakage remaining top for Northumbrian Water customers, but coming in third for Yorkshire Water customers, who narrowly placed Financial Cost more important.

Which metric is an important one that is a non-negotiable that must be delivered?

PWS drought resilience was fundamentally important and the key role of water companies. Leakage was also non-negotiable, and customers wanted the targets to reduce leakage to be brought forward.

The impact of water companies was also non-negotiable. Customers strongly felt that water companies should not damage the environment. They agreed with the

concept of Biodiversity Net Gain, for example, that more trees are planted than are cut down.

What's missing in the metrics and options?

A common theme that emerged from the research was the need for more education for customers and citizens. There was a sense that if water companies were to meet their targets, they needed to enlist the help of their customers to reduce water consumption. This could only happen if customers were educated about water preservation.

In addition, they wanted more transparency from water companies. Transparency meant clear communication of where the money was being spent, perhaps in a pie chart such as Local Councils provide on council tax bills. It also meant clear communication on what the targets were, why there were targets and whether they had been reached. This was particularly true going forward if bills were going to be increased.

Response to Targets

There was widespread negative response to the timescale of targets that were deemed to be too far in the future. It was just too far in advance for customers to contemplate in a meaningful way. It was felt that if targets were nearer i.e. within 5 years, they were more likely to be met; that it was easier for progress to be seen. Customers view 2050 as a 'lifetime away' and some of the issues, such as leakage and tackling PCC, needed to be addressed far sooner.

In their Best Value Plans most customers brought their targets forward to make them more accountable, tangible and ultimately attainable. Long targets felt that they were being 'kicked into the long grass'.

Willingness to Pay.

Significantly, the majority of customers and citizens in this research were willing to pay a little more. In their heads, the increase in their bills was largely paying for:

- the fixing of leaks,
- for investment in the infrastructure and pipework to prevent future leaks,
- for the introduction and wholesale uptake of meters,
- an education campaign to encourage customers to reduce their water use,
- to improve reservoirs,
- for a resilient water supply going forward given the pressures of climate change and population increase,
- whilst at the same time, protecting the sensitive environments and preventing pollution.

In terms of how much customers and citizens were willing to pay there was a continuum of response from £3 a month to £10 a month on top of the entire water bill, or £50 a year, or 10-15% per annum.

Caveats: many customers incorrectly tallied their % increases with monetary values. Equally, given the research was water resource focused, there may have been a propensity to over value, therefore further testing will be required in line with wider business plan objectives later in the process.

18.7 Environmental Ambition

It was clear that customers wanted to be consulted on environmental ambitions. In this research the environment was further up the 'agenda'. This was largely due to both media (environmental programs and content around the environment) and the impact of the pandemic and subsequent lockdowns which has made people aware of the beauty of their landscape, canal ways, open spaces, and parks in their local areas. People appreciated the natural environment and wanted to protect it.

Overwhelmingly, customers and citizens agreed and supported WReN's environmental ambition. There was a strong adverse reaction to abstraction in sensitive areas. It was felt that water trading could offer a solution to this. In other words, customers and citizens would prefer water companies to trade water from an area of surplus to an area of deficit rather than abstract water from an environmentally sensitive area. In fact, water abstraction should be treated as a 'last resort' in times of dire need, such as a drought. However, many felt that water companies should make provision for droughts and that water abstraction that is damaging to the environment should not occur.

18.8 WRMP and DWMP Options

Leakage and **water efficiency** were the **most concerning and important** WRMP options for WReN to focus on. This held true across all regions, with both Northumbrian and Yorkshire Water placing leakage first, whilst Hartlepool Water customers placed leakage second to water efficiency.

All customers were consistent about the fact that increased abstraction came in last position and therefore they do not desire this. Within discussions, it was felt that customers desired water companies to implement options that improved the efficiency of the current 'system' and resource, rather than abstract more resource.

Overall ranking of WRMP options can be seen below:

Ranking	WRMP Options
1.	Leakage
2.	Water Efficiency (providing water saving products)
3.	Meter Optants
4.	Mains Replacement
5.	Supply Pipe Renewal
6.	Commercial Water Efficiency
7.	Metering on Change of Occupancy
8.	Consumption Data
9.	Reservoir (dam or embankment raising)
10.	Extension of Existing Water Treatment Works
11.*	Water Transfers
12.*	Reservoir Desilting
13.	Desalination
14.	Increased Abstraction

In terms of **DWMP priorities** the highest-ranking options were those that could affect customers and citizens directly and have highest potential impact upon them (flooding of infrastructure and indoor flooding).

Equally there was also real concern about the environment, and the animals and fish that rely on the rivers, sea and lakes and reservoirs. Some wanted the pollution leading to dead fish in rivers to rank higher.

Overall Ranking of DWMP Options

Ranking	DWMP Options
1.	Flooding of Infrastructure (like major roads, hospitals)
2.	Indoor Flooding
3.	Pollution Leading to Dead Fish in Rivers
4.	Potential to make People and Animals who go in River and Sea Water Poorly
5.	Outdoor Flooding
6.	Algae Choking Plant and Wildlife
7.	Litter in Rivers and the Sea
8.	Water Company Fines for Pollution or Poor River and Bathing Water Quality
9.	Bad Smells due to Blocked Drains
10.	Slow Drainage due to Blocked Drains
11.	Temporary Loss of Use of Rivers and the Sea for Activities like Swimming, Surfing and Paddling

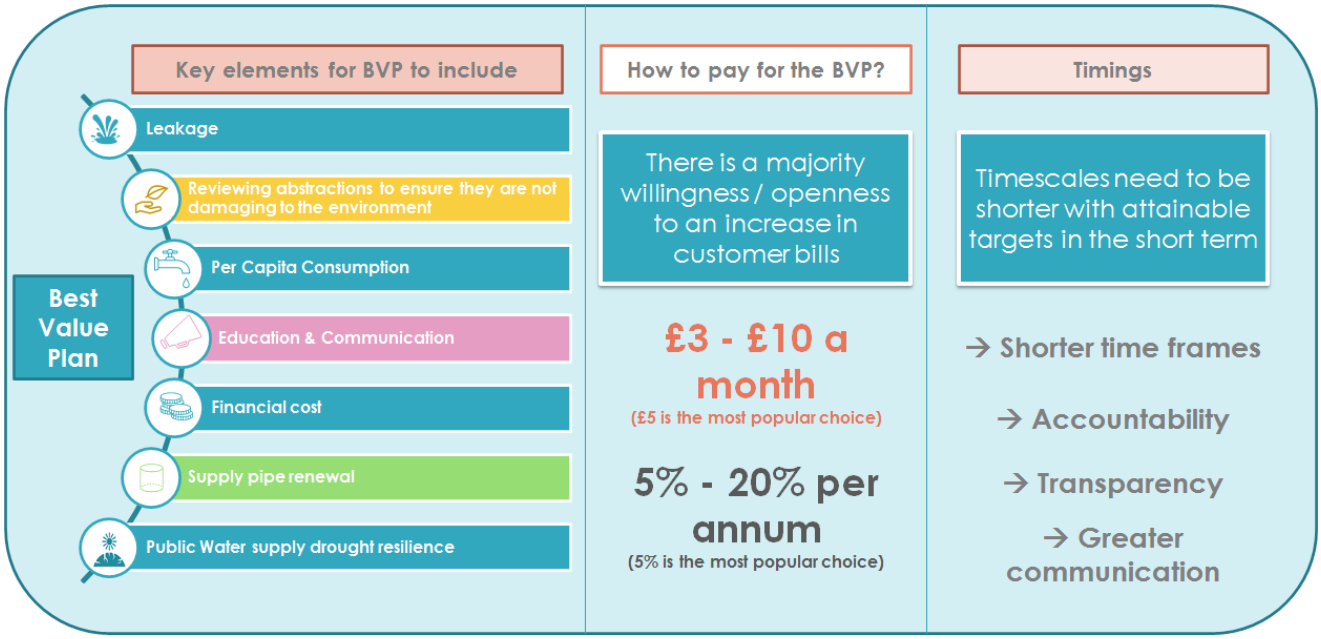
When presented with choosing between WRMP and DRMP options, 56% believed 'providing safe, clean, drinking water whilst protecting the environment' was the overriding priority for WReN. However, almost 4 in 10 (38%) could not choose between them highlighting the importance of both to customers.

18.9 Best Value Plan

The key requirements (as summarised below) from a customer perspective for BVPs were: Leakage, Per Capita Consumption, Financial Cost, Education, Reviewing of Abstractions to ensure they are not damaging to the environment, and Supply Pipe Renewal.

Overall, from this research, there was a willingness to pay more on current bills to achieve plans of around £5 per month or 5% per annum. (Quite a large range of proposed price increases were mentioned, but the most often cited were around £5 per month and 5% per annum). However, similar caveats to those cited above exist around willingness to pay, i.e. many customers incorrectly tallied their % increases with monetary values. Equally, given the research was water resource focused, there may have been a propensity to over value, therefore further testing will be required in line with wider business plan objectives later in the process.

Timescales and targets needed to be shorter, more manageable timeframes. Generally customers found it difficult to attribute targets given the extent of their knowledge – what is a good target vs poor target?



We would advocate further research with a more robust sample to test BVPs priorities further, alongside willingness to pay. In addition, we would recommend that in testing any willingness to pay, that an actual monetary figure is used rather than % increase given customers often struggle to correctly tally a % with a monetary value in their heads.

19. Appendix

Topic Guides:

Session 1 Topic Guide May 2021

Section 1 - Introduction	<5 mins

- Introduce Turquoise.
- Explain that being as open and honest as possible is essential.
- Explain MRS code of conduct and rights to anonymity.
- Explain that the research is being conducted in the legitimate interests of our client. By agreeing to take part in the research they are consenting to the processing of the data collected; please note that the data will be used to inform the water resources plans and future water company plans. All research will be provided to water companies in a summary format so no comments with me attributed to any of you personally. For further information on how we handle our data and your rights as a data subject, please visit the privacy policy page on our website – thinkturquoise.com
- Explain audio/video recording and about Clients viewing the Session – (first names – explain they will switch off their cameras shortly – hear to answer any technical questions we can't)
- Please be open and honest, there are no right or wrong answers we are entirely interested in your views.
- Your views will help us shape the future of water in your region.
- Respondent to introduce themselves briefly – name, age, where they're from, etc.

Section 2 – Scene Setting	2-3 mins

- Introduce oneself and objectives of the workshop – We want to know where you think your drinking water comes from and how water as a resource is managed to meet customer needs taking into account wider environmental and other considerations.

- Explanation of terms/scope. There may be some terms you have not heard of, so if you are unsure please ask.

- As a matter of interest do you know who your water company is?
  - Who?

Section 3 – Background to respondents current understanding	10 mins

- Where does the drinking water that comes out of your taps, come from?
  - What is the source?
  - Does anyone know?
  - Guess?

- Is it important to you where your water comes from?
    - Yes/no?
    - Why/why not?

- What do you value about your water supply?
    - Why is that important?

Show Showcard 1 – The water cycle..

- Does this make sense?
    - Have you seen this/something like this before?

- What do you think has to be considered within managing water as a resource?
    - What do you think is included/has to be thought about?
    - Which and why?

Show Showcard 2 – Water resources …

- Does this make sense?
    - Yes/no?
    - Why/why not?

- Are you surprised by any of these?
    - Which and why?

- What are your thoughts on water availability in your area?
    - Is there enough water to meet customers needs?

- Is this something you think about (that the amount of water available for public water supply is plentiful or scarce across the North/North East?))
    - Yes/no?
    - Why/why not?

- What challenges do you think may impact on water availability for Yorkshire/the North East both now and in the future?
    - Unprompted then probe.
    - Probe
        - And what else?
        - What about climate change
            - How does that/might that impact the water resources
        - What about population changes
            - How does that/might that impact the water resources
        - What about the desire to have a 'Northern Powerhouse'?
            - How does that/might that impact the water resources?
        - Are there any habitats that need particular care?
            - Which and why?

- What about the rest of England and Wales, do you think that the amount of water available for public water supply is plentiful or scarce across the rest of England and Wales?

- Are there any areas of England and Wales that you think have more limited supplies/availability of water?
- What should be done about those areas?

Section 4 – Water Resource Planning Overview | 10 mins

Show Video (1) stimulus (Introduction)

- What do you think about the information that was provided in that video?
  - Does it make sense?
  - What do you feel about what was said?

- What do you think of the idea of having regional water groups?
  - Good idea/bad idea?
  - Why/why not?

- Do you think it is beneficial for your water company to spend time working with other companies rather than independently?
  - Good idea/bad idea?
  - Why/why not?
  - Is there anyone else they should work with? What about other sectors who also take water from the environment i.e. energy and agricultural sectors?
    - How should they work together and why?

The EA have outlined that water companies' plans for water resources should…

- **Be ambitious**
- **deliver enhanced protection for the environment**
- **not be restricted to current environmental obligations and/or legal requirements**
- **consider timings of delivery and the impact this might have on the wider environment and on customer affordability**
- **support nature recovery and achieve sustainable water abstraction across the planning period**

Each plan needs to address the following… SHOWCARD 3 (first slide)

Increasing resilience to drought. So that water restrictions, such as rota cuts (at certain times of day) and standpipes will be needed no more than once every 500 years on average by the 2030's.

Environmental improvement. Consider changes to water abstractions, beyond those the water companies have already identified in their WRMPs. These changes will achieve a sustainable abstraction regime across all sectors.

Reducing long-term water usage. Adopt a planning assumption of achieving on average, 110 litres of water use per person per day by 2050 (so visualise the volume akin to 110 cartons of orange juice), but also reducing non-household demand.

Reducing leakage. Meet industry's target to reduce leakage by 50% by 2050.

Reducing the use of drought permits and orders. (In times of prolonged dry weather, water companies can apply for a Drought permit/order, if accepted this can allow them to take more water from the environment.) Understand the environmental risk of each drought measure e.g. hosepipe bans (such as permits and orders) and use them less frequently, particularly at sensitive water sources or habitats.

Increasing supplies. Explore options to develop new supplies such as:

- Reservoirs
- Water reuse schemes and desalination plants
- Shared supplies with other sectors and regions
- Catchment-based work to improve water management

Ask all…

- At a general level what do you think about the principles above?
  - Is it a good thing/bad thing?
  - Why/why not?
  - See a show of hands for those that support it?
    - Why?
  - What about those who don't?
    - Why not?

- Is there anything missing in these principles that your feel is important?
  - What? Why?
- What would be the key area(s) of importance for yourselves?
  - Why that/those?
  - For areas not considered, why not those?
- What about the timeliness of the plan e.g. standpipes once every 500 years, leakage reduced by 50% by 2050, 110 litres per customer by 2050, better understanding of environmental impact of abstractions and a reduction in these overall.
  - Is this a comfortable timeline for you?
  - Should the plan do more? How much more? Why?
  - Should it achieve results faster? Baring in mind wanting more sooner could impact your bills more heavily than slower progress?

Section 5 - Metrics | 20-25 mins

A key requirement for the planning process is to identify suitable descriptors of best value (i.e. the metrics that are used to assess how companies are performing against the plan) and to understand how important they are to you.

Unlike past WRMPs, the best value plan may not necessarily be the cheapest plan for customers. The cheapest plan may simply address a supply-demand deficit, without taking into account broader considerations of value and environmental enhancement.

We are clearly interested in what you think of the proposed metrics, see if they describe what will be evaluated in the most appropriate way and that you understand what each metric means.

Some of these metrics have constraints i.e. there is no choice as they have to be done for regulatory/legal reasons however one of these might be very important to you so you could suggest to di it before the proposed deadline. Some you could chose to enhance the rate at which or the scope of how they are achieved. Others you have a choice on.

You will need a pen and paper for this exercise.

Show Showcard 3 (slide 2) of metrics…

For each, probe…

- Do you understand what this means?
  - What do you understand by that?
  - Is it clear to you what is covered by this?
    - Why/why not?

- Can you think of a better way of explaining this, or making it clearer?

- How important is that metric?
  - Why is that important/why not important?

Ok, we are now going to do an exercise to look at how important each of the 12 metrics is to you. We would like you to prioritise them.

You will see that each metric has been coded with a letter, from A to L. We want you to prioritise each from 1 to 12.

1 is the metric you regard as most important, 2 is the metric you regard as the second most important, 3 is the third most important, and so on.

On a piece of paper please write the letters from A down to L, down the left-hand side. Then, write the number that you ranked that metric against the letter.

Moderator to complete a grid for each person in the group.

- Why have you chosen that order?
  - Probe on top 3.

- Probe enhance further, speed up or achieve for each (both for constrained and optimised metrics)
- Are there any metrics missing from this list that you think should be included?
  - What? Why?
  - How important is this metric in relation to the others?
- Looking at the 'Financial cost' metric and where this is sitting in regard to other metrics explore:
  - Why is financial cost ranked as it is?
    - If ranked high, what does this mean – keep bills low above everything else? Explore

        - If ranked low, what does this mean – bills can rise to cover other more important metrics? Explore
    - Thinking about increased bills to cover longer term improvements, how do you feel about that?
        - Explore intergenerational fairness and who pays – thoughts on paying now but not seeing the benefit for years to come, or push costs to the future when benefits are realised?

Section 6 – Water trading | 10-15 mins

- What is your view on the water that supplies this area?
    - Whose water is it? Who does that water belong to?
    - Does it matter whose water it is?
        - Yes/no?
        - Why/why not?

Show Video (3) stimulus (Water trading)

Moderator explain: Ofwat who were mentioned in the video, is the regulator for the water sector in England and Wales

- What do you think about the information that was provided in that video?
    - Does it make sense?
    - What do you feel about what was said?

- Would you support the idea of trading water with another area?
    - Yes/no?
    - Why/why not?
    - See a show of hands for those that support it?
        - Why?
    - What about those who don't?
        - Why not?

- Current position/deficit and ask customers what they think about that?

- Does the current situation change your view of water trading?

- Why do you think water trading is needed/may be required?

- What challenges do you believe that water trading brings?

- Are there any conditions that Yorkshire Water/Northumbrian Water/Hartlepool Water would have to meet before you would agree to trading water with another area?

- What aspects of your supply would the plans need to protect under any agreement to trade water with another area?

- If Yorkshire Water/Northumbrian Water/Hartlepool Water spent millions of Pounds fixing leaks, would you be happy to trade any surplus water?
    - Yes/no?

- Why/why not?

- What about the cost of the pipes/pumping stations required to get the surplus water to other regions?
  - Who should pay for this?
  - Would you support that cost to allow trading to secure water nationally?
    - Yes/no?
    - Why/why not?

- Would you support trading water with other areas if your bill was reduced as a result?
  - Yes/no?
  - Why/why not?

- What are your thoughts on water trading whereby it is cheaper to develop solutions to combat a national water scarcity issue in the North where water is less scarce and send the water South to areas where water availability is an issue. Would building solutions up North be acceptable in this scenario?
  - Why? Why not? What would make it acceptable?

- If water trading were to be allowed, would you prefer to ship treated (Ready to drink) or untreated water?
  - Why?

Section 7 – Summary and Introduction to Session 2	5 mins

- Summarise customers views on the key metrics to be included in the plan.
  - Check they are happy that reflects what was said?

- Summarise customer views on the idea of water trading.
  - Check they are happy that reflects what was said?

- Explain what will be covered in Session 2.

- Explain that they will receive a post-group questionnaire (Sent the day after each session).
  - Establish whether customers understood everything,
  - Whether they agree with the consensus reached in the groups.
  - Ask customers to rank WRMP options and DWMP options and if they are equally important or if one area is more important.

Session 2 Topic Guide June 2021

Section 1 - Introduction	<5 mins

- Re-introduce yourself.
- Quick recap on legals/MRS Code
- Explain that the research is being conducted in the legitimate interests of our client. By agreeing to take part in the research they are consenting to the processing of the data collected; please note that the data will be used to inform the water resources plans and future water company plans. All research will be provided to water companies in a summary format so no comments with me attributed to any of you personally. For further information on how we handle our data and your rights as a data subject, please visit the privacy policy page on our website – thinkturquoise.com
- Explain audio/video recording and about Clients viewing the Session.
- Please be open and honest, there are no right or wrong answers we are entirely interested in your views.

Section 2 – Recap/scene setting	5 mins

- Quick recap on Session 1
  - Water trading
  - The metrics that need to be used to measure company performance

- Introduction to the topic/scene setting for tonight
  - Environmental ambition
  - The customers best value plan

Section 3 – WRMP V's DWMP	10-15 mins

Moderator, explain that we just briefly want to discuss some of the things covered in the post-group questionnaire.

Moderator Show WRMP Considerations <u>Showcard 4 Page 1 & 2</u>

- You remember these?

Moderator Show DWMP <u>Showcard 4 Page 3</u>

Moderator explain that, while these sessions are about finding the best value plan that you as customers want for water (clean) resources (the WRMP), Water Companies also have to produce a Drainage Water Management Plan DWMP.

In the questionnaire we sent you after the first group we asked you to rank both sets of criteria and then, taking the top six of each, to rank them overall.

Moderator show <u>slide of overall results</u> ranking for the 12 WRMP and DWMP criteria. This shows the results for all groups at an overall level (i.e. everyones views), so this may not match your personal preference.

Ask all…

- Does this broadly reflect your views?
  - Yes/no?
  - Why/why not?

- Why are they ordered like this? Why is the most important top of the list?
  - Explore top and bottom and reason for placement, are the metric are the bottom unimportant?

- Did you find it hard to choose between WRMP and DWMP?
  - Yes/no?
  - Why/why not?

- At a general level which do you think are more important, WRMP or DWMP, or are they equally important?
  - Yes/no?
  - Why/why not?

Section 4 – Environmental Destination	20 mins

- What are your views around the environment generally (not in a water context at first)? Why do you feel like this? Has this changed in recent years/is this a new consideration?

- What do you feel are the key priorities with regards to the environment?

- When do you expect/want your priorities to be achieved?

  - What is a realistic timescale timescales for achieving them
  - Are customers motivated by environmental concerns?
    - Yes/no?
    - Why/why not?
  - How important is it to them?
    - Very, somewhat, not very, not at all
  - Prioritise customer ambitions and their expected timescales

- Which organisations/companies are leading in improving the environment?
  - What are they doing to improve the environment?
  - How do they know this?
  - How do WReN companies(Yorkshire/Northumbrian/Hartlepool) compare to these?

Moderator Show Video 4 (Environment) Stimulus

- What do you feel about the information in that video?

  - Do they agree with the EA's Environmental Ambition/Destination on sustainable abstraction and protecting the water environment?
    - Yes/no?
    - Why/why not?

- Which is more important, protecting or improving the environment?
  - Why/why not?

- What are your thoughts on this? Is this ambition going far enough by focusing on the impact of abstractions to protect specific areas of our region?

- Is there any desire to go further than this?
  - If so, how much further?

- What would the targets for this ambition look like to you? For example, a target might be to reduce abstractions by 10% overall or only to abstract from non sensitive sites, it might be to avoid abstracting from chalk streams or salmon rivers?

- When do you think WReN should achieve these targets by?
  - This may have cost implications

- Would customers pay more to go further or go faster?
  - How much more (this can be placed in the context of how much of customers current bill is spent on water resources)?

- If customers support reduction in abstraction, where do they think we should get additional water from to ensure a secure supply of water?
  - Why?
  - What should they not do to get more water?

Inform customers on aspects we could influence/control, e.g. abstractions, and the impact of these on Sites of Special Scientific Interest, chalk streams and salmon rivers, as well as reducing the impact or frequency of drought permits or orders.

- Which of these areas are more important to you, granted they might all be important but what is your priority?

  - reviewing abstractions to ensure they are not damaging the environment (frequency, location and exploring new areas for abstraction)
  - protecting SSSI's
  - protecting sensitive habitats such as SACs
  - protecting chalk streams
  - protecting salmon rivers
  - Reducing the use of drought permits/orders

- What do customers want with regards to the environment? the bare minimum or above and beyond?

Section 5 – Creating a Best Value Plan	35 mins

Moderator Show Video 2 (Best Value Plan) Stimulus

- What did you think about that?
- Any concerns?

A best value regional plan will meet the water needs of our region, covering the areas supplied by Yorkshire Water, Northumbrian Water and Hartlepool Water, in a way that ensures long term water supplies and an improved water environment up to 2050 and beyond.

Plans can be created using a number of metrics and options and WReN must consider customer and stakeholder wants and needs in their decision-making. It is important that customers outline their wants and needs from the Water Resources North plan.

What must the plan include in order for it to best meet your needs, what are your main priorities for the Water Resources North plan?

For example, one of your biggest priorities could be:

- **bills are kept low**
- **developing water reuse schemes**
- **biodiversity net gain**
- **increasing customer awareness of the water they use (their PCC)**
- **Or, you might have a preference for hitting statutory requirements much sooner or going beyond them. For example, with leakage the statutory requirement is to achieve 50% reduction in leakage by 2050 - you might want to achieve a 50% reduction by 2040 or a 60% reduction by 2050.**

Ok, it is now time for you to develop your best value plan. We want you to write down, in your own words on a piece of paper, what you think WReN should be focussing on for the future (similar to this structure – SHOWCARD 4 - SLIDE 6).

Using all of the knowledge you have gained throughout both sessions – so please consider all the metrics, all of the water management options you have seen, abstration and the environment and water trading discussions we have had……

SHOWCARD 4 – SLIDE 5-

Best Value Plan:

- Taking into consideration everything we have discussed across the last two sessions, what is important to you as a customer, for WReN to focus on in the future and why?

Customer Targets:

- When do you want WReN to achieve this / these by?

Price of your bills to achieve your plan:

- The price you would be willing to pay, if anything, to enable these things to be achieved - this could be as simple as 1% of your current bill, £1 per year, £5 per year, 50pence per month etc.

Explore each persons BVP in turn and why they have chosen that / those aspects.

We will collect this information once again via a post session questionnaire.

Section 6 – WReN Objectives	5 mins

Moderator; only do this section if time.

Moderator show Showcard 7 – WreN Regional Plan Objectives

- What do you feel the WReN regional plan objectives?
    - Do the WReN objectives broadly match your plan?
        - Yes/no?
        - Why/why not?
        - What, if anything, is missing?

Moderator read out…

Many of you have said that leakage is important to you and want WReN to reduce the current levels of leakage. Some leaks are visible and are often reported by customers. However, only around 6% of leaks can be found. Some leaks can be very small and not visible to the eye and at the moment there is no technology to trace these.

In some cases, it can cost exponentially more to fix these leaks than the cost of the water that escapes. This is referred to as the economic level of leakage. This is also why there is a target of 2050 to achieve a 50% reduction in leakge, so that customer bills are not impacted.

- Given this knowledge, would it change how important leakage is to you?
    - Yes/no?
    - Why/why not?

Section 7 – Summary of Session 2	5 mins

- Summarise customer views on WRMP V's DWMP.
    - Check they are happy that reflects what was said?
- Summarise customers views on the environment.
    - Check they are happy that reflects what was said?
- Summarise customer views on their best value plan.
    - Check they are happy that reflects what was said?
- Explain that they will receive a post-group questionnaire (Sent after the sessions).

Pre and Post Workshop Questionnaires:

WReN Pre-Workshop Homework tasks

We kindly ask that you complete the following simple tasks we have set over the next few days. The tasks serve as a gentle warm-up to the workshop you will be participating in.

Q1. Do you give much thought to the water that comes out of your tap, where it comes from, how much there is available? Please give as much detail as you can and explain your answer. Please either type your answer or film and upload a short video of you giving your view.

Q2. What sources do you think are used to supply water to your homes? Where do you think the water comes from?

Q3. In what ways do you believe your water supplier manages the water resources available to them in order to meet customer demand? Please tick all that apply

Encouraging water efficiency measures amongst customers
Reducing the amount of water lost through leakage across the network
Metering
Moving water around the area / region to where it is needed
Limiting water usage through initiatives likes hosepipe bans and water restrictions
Other (please specify)

Q4. What is your view on the current situation with regards water availability (e.g. water that comes out of your taps) in your area / region?

I believe there is enough to meet demand in my area / region
I believe there is not enough to meet demand in my area / region
I believe there is enough to meet demand with a surplus in my area / region

Q5. Do you believe there will be more or less water available in the future?
More
Less
Don't know

Q6. What do you think will have an impact upon the availability of water in the future? Please either type your answer or film and upload a short video of you giving your view. Please give as much detail as possible.

Q7. Consider if your area / region had a surplus of water (e.g. more than they needed) whilst others had a deficit (e.g. not enough to meet demands), which of the following do you most agree with?

I would want the surplus to remain in my area / region just in case we need it
I would want the surplus to be shared with those areas / regions that had a shortage if possible
Don't know / Not sure

Q8. Why have you given that answer?

Q9. Thinking about water and the environment what do you think should be the key areas of focus for your water company? Please give as much detail as you can and explain your answer. Please either type your answer or film and upload a short video of you giving your view.

Q10. Again thinking about water and the environment which of the following do you think should be the key areas of focus for your water company?

Becoming carbon neutral (achieving net zero carbon emissions)
Managing the impact of climate change on water supply (droughts / flooding)
Protecting rivers and ecosystems (an ecosystem is a community or group of living organisms that live in and interact with each other in a specific environment)
Ensuring river water quality
Protecting reservoir stocks
Minimising the impact of water abstraction on chalk streams (abstraction is the process of taking water from a source to provide drinking water)
Working more closely with the agriculture industry to promote more sustainable farming practices (e.g. reducing fertiliser and pesticide use)
Working with partners to restore bog habitats (a bog habitat is a freshwater wetland of soft, spongy ground which is home to unique ecosystems – please see information above about ecosystems)
Other (please specify)
Don't know / not sure

WReN Post Workshop Questionnaire 1

1. **In the workshop we introduced you to the proposed Metrics and asked you to rank them from 1 to 12 where 1 was the most important to you, 2 was the second most important to you etc. Please could you confirm how you ranked them from the notes you took. SHOWCARD USED IN GROUPS WILL BE SHOWN**

   Ranking 1 - 12

   A. Public Water Supply (PWS) drought resilience
   B. Biodiversity net gain
   C. Natural capital
   D. Leakage
   E. Per Capita Consumption (PCC)
   F. Non-drought resilience
   G. Carbon
   H. Customer preferred option type
   I. Stakeholder preferred option type
   J. Human and social wellbeing
   K. Financial cost
   L. Option deliverability

2. **Thinking about the Metrics again we would like you to allocate points to them to show how important they are to you. You have a total of 100 points to give to the 12 Metrics, you can give as many points as you would like to each of the Metrics, you can give some to all of them or only choose to share the points out to a selection, it all depends on what you think is important (the more points given the more important it is) however the total must add up to 100.**

   A. Public Water Supply (PWS) drought resilience
   B. Biodiversity net gain

C. Natural capital
D. Leakage
E. Per Capita Consumption (PCC)
F. Non-drought resilience
G. Carbon
H. Customer preferred option type
I. Stakeholder preferred option type
J. Human and social wellbeing
K. Financial cost
L. Option deliverability

3. **Is there anything missing from the list of metrics that you think companies should be considering?**

   Open

4. **There are a number of options available as part of a Water Resources Management Plan (WRMP) that can either reduce demand or increase supply. The options are as follows, please read:- (SHOW OPTIONS WITH DESCRIPTION FIRST)**

Water Demand Management	
Meter optants	Customers who have a metered supply are generally more water efficient as they are more water aware. Through increased promotion of metering we can encourage a greater number of customers to opt for a water meter
Metering on change of occupancy	The WReN supply areas cannot universally meter all customers as this is only permitted in areas the Environment Agency classify as water stressed. However, we can increase the number of metered customers by installing a meter into every property which is sold
Supply pipe renewal	Customers are responsible for their supply pipe from the property boundary to the point of supply. Water is wasted through leaks from these pipes. Increased investment would allow identification and replacement of leaking supply pipes
Water efficiency (providing water saving products)	Both commercial and domestic customers can benefit from water audits and installation of water saving products, such as shower regulators and low flush cistern devices
Consumption data	By providing customers with information on how much they use vs. how much other consumers use it raises awareness of how they compare and encourages them to take action to reduce use. This can be through an online portal or app
Commercial water efficiency	Audits and / or internal leakage detection/fixing
Distribution management	
Leakage	All water companies have an annual leakage target they must meet. By investing in increased leakage detection activity, leakage can be reduced beyond current targets
Mains replacement	Replacing aging mains pipes to reduce the number of bursts. Old pipes generally result in more bursts, replacing those mains that lose the most water through bursts will reduce the volume of water put into supply
Resources management	
Extension of existing water treatment works	Increasing the capacity of existing works can increase the volume of water treated and available for supply

Reservoir (dam or embankment raising)	Increasing reservoir capacity provides additional storage of water and increases the volume available for supply
Reservoir desilting	Over time silt accumulates at the bottom of reservoirs taking up capacity. Removal of this silt increases storage and therefore the volume of water available
Desalination	Increased water supply could be provided by constructing a desalination plant. This would treat sea water and increase the water available for supply
Increased abstraction	Supply can be increased by applying for licenses to abstract from new river / groundwater sources or apply for an increase to an existing river / groundwater sources. This may require additional investment in increased treatment work capacity
Water transfers	Transfer water between water companies in our region or between neighbouring regions. This will require investment in new infrastructure

5. **Having read the above options, at an overall level, can you tell me which area of water resource management is most important to you overall?**

   Demand Management options
   Distribution Management options
   Resource Management options

6. **Why is that?**
   Open

7. **Considering all of these options please could you rank them in order of how you would prefer WReN (Water Resources North) approach the water supply demand balance where a ranking of 1 is your most preferred option for meeting the water supply demand balance and a ranking of 14 is your least preferred option.**

   Meter optants
   Metering on change of occupancy
   Supply pipe renewal
   Water efficiency (providing water saving products)
   Consumption data
   Commercial water efficiency
   Leakage
   Mains replacement
   Extension of existing water treatment works
   Reservoir (dam or embankment raising)
   Reservoir desilting
   Desalination
   Increased abstraction
   Water transfers

8. **Company Water Resources Management Plans (WRMP) also need to consider a Drainage Water Management Plan (DWMP).**
   These plans look to improve drainage and, through doing so, environmental water quality. When wastewater (sewage) escapes from the sewer or other drainage networks, it can have a number of consequences which are shown below. We would like you to tell us which consequences you think water companies should work hardest to prevent.

   Flooding of infrastructure like major roads, hospitals
   Indoor flooding
   Pollution leading to dead fish in rivers
   Potential to make people and animals who go in river and sea water poorly
   Algae choking plant and wildlife
   Outdoor flooding
   Litter in rivers and the sea
   Water company fines for pollution or poor river and bathing water quality
   Slow drainage due to blocked drains
   Bad smells due to blocked drains
   Temporary loss of use of rivers and the sea for activities like swimming, surfing and paddling

9. **Considering all of these options, please could you rank them in order of the most important drainage issue to prevent to the least where a ranking of 1 is your most preferred option for improving drainage and environmental water quality and a ranking of 11 is your least preferred option.**

   Flooding of infrastructure like major roads, hospitals
   Indoor flooding
   Pollution leading to dead fish in rivers
   Potential to make people and animals who go in river and sea water poorly
   Algae choking plant and wildlife
   Outdoor flooding
   Litter in rivers and the sea
   Water company fines for pollution or poor river and bathing water quality
   Slow drainage due to blocked drains
   Bad smells due to blocked drains
   Temporary loss of use of rivers and the sea for activities like swimming, surfing and paddling

10. **Taking your 6 most preferred options from the WRMP (Water Resources Management Plan) and the 6 most preferred options to prevent from the DWMP (Drainage Water Management Plan) please could you rank them together based on where you believe companies should be focussing their efforts where 1 is the most preferred and 12 is the least preferred.**

    TOP 6 FROM EACH WILL BE SHOWN HERE

11. **Thinking about all of the Water Resources Options and the Drainage Water Options you've seen just now, we understand all of these services are important**

and will be a core focus of water company activity, however, out of interest if you had to prioritise one over which is most important to you?

Providing safe, clean, drinking water whilst protecting the environment
Removing and managing wastewater, treating it, and safely returning it back to the environment
I can't choose they are both important

WReN Post-Workshop Questionnaire 2 June 2021

Q1. In the three boxes below, please type in each element of your 'best value plan' made during the second session.

If you want to upload a picture of your plan, you can also do that here. However, please only upload a picture if it is of high enough quality and the writing is legible. Thanks.

Best Value Plan: please outline what is most important to you, this should take into consideration everything we have discussed across the last two sessions, and should outline what is important to you as a customer, for WReN to focus on in the future and why? Please outline how far you want WReN to go with each e.g. if you suggest that improved biodiversity net gain is important to you, how much improavement do you want, 10% improvement across all projects they work on which could impact biodiversity net gain for example?

Your target(s) for your plan: When do you want WReN to achieve your plan by?

Price of your bills to achieve your plan: The price you would be willing to pay, if anything, to enable these things to be achieved - this could be as simple as 1% of your current bill, £1 per year, £5 per year, 50pence per month etc. Please specify whether you are referring to a monthly or yearly figure.

Q2. At the end of the second workshop, we introduced you to WReN's objectives for the Water Resources Management Plan. **SLIDE FROM SECOND SESSION SHOWN ABOVE**.

Please can you tell us to what extent you support each of the objectives below using a 5-point scale where 5 = strongly supportive and 1 = strongly unsupportive. Use scale – DK, strongly unsupportive, unsupportive, neither support nor unsupportive, support, strongly support.

- Meet the future PWS needs in our region
- Meet and maintain a PWS drought resilience level of service of 1:500 for level 4 restrictions
- Achieve the WReN environmental destination and RMBP objectives (sustainability reductions)
- Meet demand management policy requirements as defined in the Water Resources National Framework
- Contribute to national resilience
- Consider multi sector solutions
- Contribute to the Government's ambition in the 25 Year Environment Plan to 'leave the environment in a better state than we found it'
- Consider Strategic Environmental Assessment (SEA) in decision making
- Achieve multiple benefits (including non-drought resilience)
- Produce a plan that supports the views of regional stakeholders and water companies' customers and is not detrimental to social wellbeing
- Create a plan that is affordable and sustainable over the long term

Q3. Overall, and using a 5-point scale where 5 = strongly support and 1 = strongly unsupportive, please tell us **overall**, what level of support you have for WReN's objectives?

5 – Strongly support
4 – Support
3 – Neither support nor unsupportive
2 – Unsupportive
1 – Strongly unsupportive
Don't know

Q4. Overall, to what extent did you understand the topics covered in both sessions? Please use 10-point scale, where 10 = I understood everything and 1 = I didn't understand anything.

10 – I understood everything
9
8
7
6
5
4

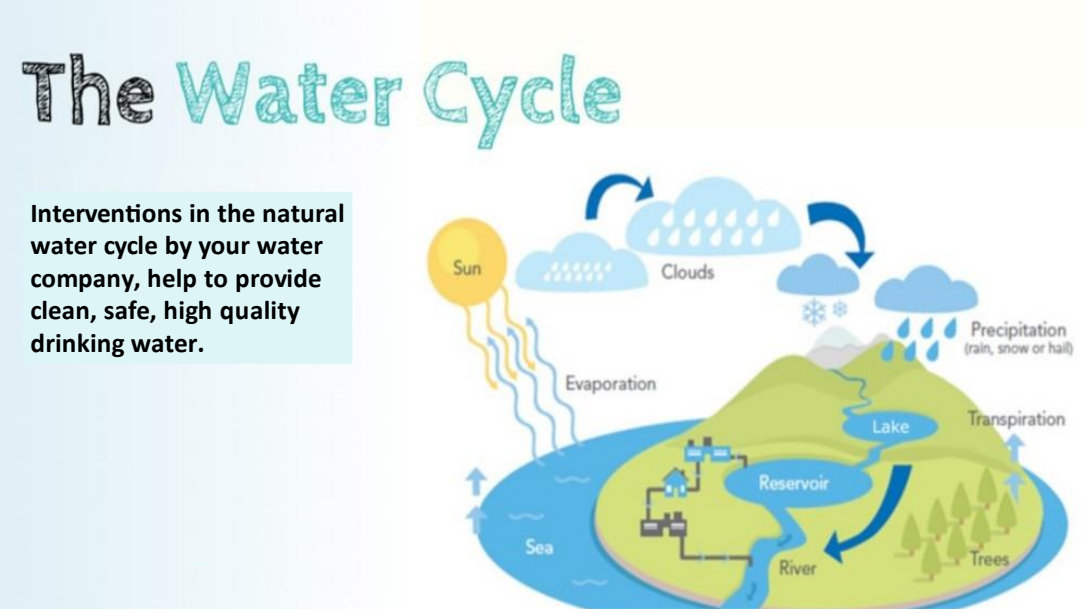
3
2
1 – I didn't understand anything

Q5. Given all you've learned in the last two weeks, do you have any parting comments or advice for Water Resources North?

<free text>

Showcards

Showcard 1



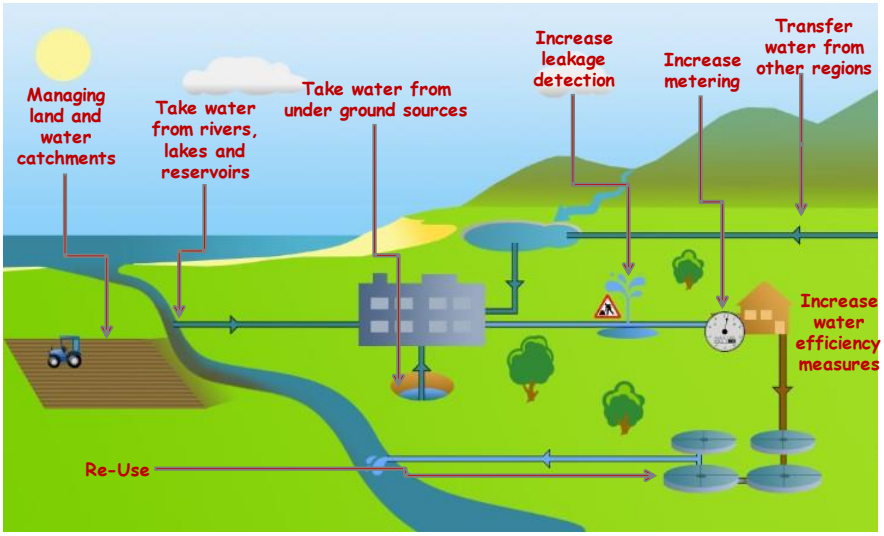
- **Moderator to read:**

- *"The water on Earth continually gets recycled through the water cycle. It goes from a solid (ice), to liquid (water) and then a gas (vapour) and covers about 70% of the Earth's surface, but most of it is salty and in oceans. Only 3% of all water on the planet is fresh, with 2% of that locked in polar ice caps. So drinkable water is a very precious resource.*
- *Water companies tap into the natural water cycle to provide clean, safe, high quality drinking water. They take water from rivers, reservoirs and underground sources and transfer it to water treatment works. There, they clean it to remove any dirt or harmful bacteria. The clean drinking water is then piped to homes and businesses.*
- *Once the clean drinking water has been used it is called wastewater. Wastewater is transferred from homes and businesses, through a network of wastewater pipes, to wastewater treatment works. At the wastewater treatment works it is filtered and cleaned so that it is safe to be returned to the natural environment. This is done by piping it back into the sea or rivers.*
- *The natural water cycle then continues, and water companies continue to tap into the water cycle to provide clean, safe, high quality drinking water."*

Showcard 2

Showcard 2

Water Resource Management



Showcard 2

Take water from rivers, lakes and reservoirs

This is a major source of water supplies.

Taking more water from the rivers, lakes and reservoirs results in lower water levels in these, which in turn can impact on wildlife and plant habitats


Take water from the ground (i.e., the water table)

This supplements surface water supplies in our region.

This involves drilling holes to take water from the ground where water is stored. Taking more water from the ground over time can deplete stocks.

Increasing leakage detection and fixing leaks

Replacing old pipes can prevent leakage into the environment. This means less water needs to be taken from the environment.

This involves spending time finding leaks and potentially digging up roads to fix them.


Transfer water to or from another region (or water company)

Underground water pipes are built to take water from an area with lots of water to areas where water is needed.

Showcard 2

Catchment management

This involves working with other organisations to prevent pollutants entering rivers, lakes and other watercourses. The water can then be used for drinking water supplies.

For example working with farmers to prevent pesticides and slurry entering watercourses, or preventing peat run off from moorlands into rivers. This helps to protect water sources.

Increased metering

Metering involves charging people for the water they use. This can be seen as more fair and encourages water saving, but it can have a significant financial impact on large families with low incomes.

Smart meters automatically provide customers with information on their water use

Re-Use

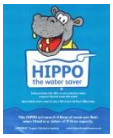
Re-use involves using pumping treated wastewater from sewage treatment works to the river close to a water treatment works, to be used as part of the water taken from the river.

Drinking water produced using this way will meet all of the legal requirements for water quality and be safe to drink.

Increase water efficiency measures

This involves helping homes and businesses to use less water.

Measures includes water butts, Hippo bags, low flow shower heads, dual flush toilets, education leaflets on saving water tips, water saving audits, and online water efficiency calculators.



Showcard 3:

The water resource management plan needs to address the following……

Showcard 3

Increasing Resilience to Drought.	So that water restrictions, such as rota cuts (at certain times of day) and standpipes will be needed no more than once every 500 years on average by the 2030's.
Environmental Improvement.	Consider changes to water abstractions, beyond those the water companies have already identified in their WRMPs. These changes will achieve a sustainable abstraction regime across all sectors.
Reducing Long-TermWater Usage.	Adopt a planning assumption of achieving on average, 110 litres of water use per person per day by 2050 (so visualise the volume akin to 110 cartons of orange juice), but also reducing-household demand.
Reducing Leakage	Meet industry's target to reduce current leakage (whichwill vary across the country) by 50% by 2050.
Reducing the Use of Drought Permits and Orders.	(In times of prolonged dry weather, water companies can apply for a Drought permit/order, if accepted this can allow them to take more water from the environment.) understand the environmental risk of each drought measure e.g. hosepipe bans (such as permits and orders) and use them less frequently, particularly at sensitive water sources or habitats.
Increasing Supplies	Explore options to develop new supplies such as: ▪ Reservoirs ▪ Water reuse schemes and desalination plants ▪ Shared supplies with other sectors and regions ▪ Catchment-based work to improve water management

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WReN Water Resources North

The provisional list of metrics is provided below.

Showcard 3

WReN Metric	Explanation
A: Public Water Supply (PWS) drought resilience	PWS is the public water supply. It is what we, as customers, consume every day. Water Resources North needs to ensure the PWS is resilient to drought (i.e. low or no rainfall). Water companies are not the only sector to take water (Power; food)
B: Biodiversity Net Gain	Projects that adopt a biodiversity net gain approach seek to make their impact on the environment positive , through habitat creation or enhancement after avoiding or mitigating any harm. (i.e. look to improve environment following any damage)
C: Natural Capital	Natural capital can be defined as the region's stocks of natural assets which include geology, soil, air, water and living things
D: Leakage	This is the amount of water lost from pipes.
E: Per Capita Consumption (PCC)	PCC is the amount of water that each one of us uses every day. Currently, each customer uses on average 150 litres of water every day (akin volume to 150 litre cartons of orange juice).
F: Non-drought Resilience	This means the resilience of the system to meet everyday needs other than a drought. An example would be population growt
G: Carbon	Carbon emissions, measured in CO2e, is a unit that measures the carbon dioxide equivalent that may be released from the chosen human activity, in this case, the activities of Water Resources North.
H: Customer preferred option type	These are other options that you as customers may want Water Resources North to include in its plans.
I: Stakeholder preferred option type	These are other options that other stakeholder groups (e.g. Farming, Power Generation, etc) may want Water Resources North to include in its plan.
J: Human and social wellbeing	These are projects or approaches that enhance the wider human or social wellbeing e.g. a new reservoir may create recreatio opportunities or greater amenity value.
K: Financial Cost	This is the financial cost of your water bill. Some customers may not want to pay any more than they currently pay, but some people may be willing to e.g. keeping your bill stable may be your biggest priority over and above any other metrics.
L: Option Deliverability	Innovation costs money and it is possible it can be unfruitful. However, innovation to secure new water supplies in future co pay off substantially, especially considering climate change and population growth. Innovation is taking a risk to spend money options that may or may not pay off.

Showcard 4:

WRMP Options……Water Demand Management Options

Showcard 4

Water Demand Management	Explanation
A: Meter optants	Customers who have a metered supply are generally more water efficient as they are more water aware. Through increased promotion of metering we can encourage a greater number of customers to opt for a water meter
B: Metering on change of occupancy	The WReN supply areas cannot universally meter all customers as this is only permitted in areas the Environment Agency classify as water stressed. However, we can increase the number of metered customers by installing a meter into every property which is sold
C: Supply pipe renewal	Customers are responsible for their supply pipe from the property boundary to the point of supply. Water is wasted through leaks from these pipes. Increased investment would allow identification and replacement of leaking supply pipes
D: Water efficiency (providing water saving products)	Both commercial and domestic customers can benefit from water audits and installation of water saving products, such as shower regulators and low flush cistern devices
E: Consumption data	By providing customers with information on how much they use vs. how much other consumers use it raises awareness of how they compare and encourages them to take action to reduce use. This can be through an online portal or app
F: Commercial water efficiency	Audits and / or internal leakage detection/fixing

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WRMP Options……Distribution Management Options

Showcard 4

Distribution Management	Explanation
A: Leakage	All water companies have an annual leakage target they must meet. By investing in increased leakage detection activity, leakage can be reduced beyond current targets
B: Mains replacement	Replacing aging mains pipes to reduce the number of bursts. Old pipes generally result in more bursts, replacing those mains that lose the most water through bursts will reduce the volume of water put into supply

WRMP Options……Resources Management Options

Showcard 4

Resources Management	Explanation
A: Extension of existing water treatment works	Increasing the capacity of existing works can increase the volume of water treated and available for supply
B: Reservoir (dam or embankment raising)	Increasing reservoir capacity provides additional storage of water and increases the volume available for supply
C: Reservoir Desilting	Over time silt accumulates at the bottom of reservoirs taking up capacity. Removal of this silt increases storage and therefore the volume of water available
D: Desalination	Increased water supply could be provided by constructing a desalination plant. This would treat sea water and increase the water available for supply
E: Increased Abstraction	Supply can be increased by applying for licenses to abstract from new river / groundwater sources or apply for an increase to an existing river / groundwater sources. This may require additional investment in increased treatment work capacity
F: Water Transfers	Transfer water between water companies in our region or between neighbouring regions. This will require investmer in new infrastructure

Drainage Water Management ……..wastewater escape consequences

Showcard 4

Wastewater escape consequences
A: Flooding of infrastructure like major roads, hospitals
B: Indoor flooding
C: Pollution leading to dead fish in rivers
D: Potential to make people and animals who go in river and sea water poorly
E: Algae choking plant and wildlife
F: Outdoor flooding
G: Litter in rivers and the sea
H: Water company fines for pollution or poor river and bathing water quality
I: Slow drainage due to blocked drains
J: Bad smells due to blocked drains
K: Temporary loss of use of rivers and the sea for activities like swimming, surfing and paddling

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Showcard 4

Metrics:
Public Water Supply Drought Resilience
Biodiversity Net Gain
Natural Capital
Leakage
Per Capita Consumption
Public Water Supply Non Drought Resilience
Carbon
Customer Preferred Option
Stakeholder Preferred Option
Human and Social Wellbeing
Financial Cost
Option Deliverability

Abstraction and the Environment:
Reviewing abstractions to ensure they are not damaging the environment
Protecting SSSI's,
Protecting sensitive habitats such as SACs
Protecting chalk streams
Protecting salmon rivers
Reducing the use of drought permits/orders

Water Management Options:
Water Meter Optants
Metering on Change of Occupancy
Supply Pipe Renewal
Water Efficiency
Consumption Data
Commercial Water Efficiency
Leakage
Mains Replacement
Extension of Existing Water Treatment Works
Reservoirs
Reservoir Desilting
Desalination
Increased Abstraction
Water Transfers

Water Trading

5

Showcard 4

Best Value Plan:
Your Target:
Price of your bills to achieve your plan:

6

Showcard 6:

What water resources (WRMP) currently cost as part of your monthly bill

Showcard 6

Northumbrian Water
£14 out of £27 average monthly bill

1

What water resources (WRMP) currently cost as part of your monthly bill Showcard 6

Yorkshire Water
£15 out of £35 average monthly bill

2

What water resources (WRMP) currently cost as part of your monthly bill Showcard 6

Hartlepool Water
£12 per month for water services only

3

Showcard 7:

WRMP Objectives

Showcard 7

	WReN Objectives
1	Meet the future PWS needs in our region
2	Meet and maintain a PWS drought resilience level of service of 1:500 for level 4 restrictions
3	Achieve the WReN environmental destination and RMBP objectives (sustainability reductions)
4	Meet demand management policy requirements as defined in the Water Resources National Framework
5	Contribute to national resilience
6	Consider multi sector solutions
7	Contribute to the Government's ambition in the 25 Year Environment Plan to 'leave the environment in a better state than we f
8	Consider Strategic Environmental Assessment (SEA) in decision making
9	Achieve multiple benefits (including drought resilience)
10	Produce a plan that supports the views of regional stakeholders and water companies' customers and is not detrimental to soc
11	Create a plan that is affordable and sustainable over the long term

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Video Scripts:

Water Resources North Customer Engagement Script
VIDEO ONE (4min 30sec) Providing you with water

Ensuring you have enough clean, safe water is your water company's number one priority, and makes up a large percentage of your bill. Here's how much of your monthly bill goes towards clean, safe water in each region:
Yorkshire (£XX per month) X% of Water and Waste bill (average bill is £417)
Northumbrian (£30 per year) 18.5% of Water and Waste bill (average bill is £328)
Hartlepool (£XX per month) XX% of Water bill (average bill is £XXX, water only provider)
Before we get in to Water Resources Planning let's take a look at what we mean by water resources. There are a number of sources of water that water companies can use to supply to their customers. These
fall into three main categories – Reservoirs, Rivers and Groundwater.
Introduction to Water Resources Planning
In order to ensure a consistent, secure and resilient supply of water for all of its customers, whether that be to a household or a business, water companies must create a Water Resources Management Plan. They do this by following a framework set by Government, with involvement from Defra and the Environment Agency.
All water companies in England and Wales must prepare, maintain, and deliver a Water Resources Management Plan every 5 years.
In their Water Resources Management Plans, water companies must outline how they will manage water supplies in their area, and there are many factors to consider:
[B Roll and annotations used here i.e. stock footage of reservoirs, drought, environment:]
Available water sources (reservoirs, rivers and groundwater sources)
Availability of water, especially in times of dry weather and how water will be managed in times of drought

Forecasting a supply/demand balance – This is all about ensuring there is enough water to supply all customers both now and in the future and being able to meet customer demand for water in the future especially in hotter, drier weather
Population and growing population forecasts ensuring future water supplies
Climate change and the risk of more frequent droughts in the future
• •
•
• •

The environmental impact is a huge consideration for water companies. They must consider the impact of taking water from the environment and how to limit any negative impact on aquatic life and species that rely on the water environment:
A new focus for water companies
This approach to planning at individual water company level has served many parts of the country well, notably where companies – such as Yorkshire Water and Northumbrian Water – cover large geographical areas and so, are able to plan water resources at scale but, the same can't be said in other parts of the country, such as London and the South East. Here, planning at company level has stifled investment in schemes that could ensure more secure water resources at a regional level.
To help tackle this and other challenges, the Environment Agency created a Water Resources National Framework which sets the challenge for regional groups to work together to develop ambitious regional water resources plans. There are five regional groups in England.
Water Resources North is formed, and funded by Yorkshire Water, Northumbrian Water and Hartlepool Water and is designed to oversee water resources planning for Yorkshire and the North East of England.
The Water Resources North strategic regional plan will be translated into the next Water Resources Management Plan for each of the water companies.
Customers at the heart of plans
Water Resources North is working with energy providers, environmental groups and regulators, to shape a long-term plan for managing water resources in our region. Part of this approach is a consultation of the region's largest consumers of water – their customers!
This is why you are here. You can have your say on these plans. We want to understand your priorities with regards to water resources and where efforts should be focused. The government has outlined a number of factors that must be considered by all regional groups and Water Resources North must identify the needs in its area. The plans must also consider customer views and that's what we're going to be talking about next.
•

VIDEO TWO (1min 15secs) Best Value Plan
Historically water companies created a !least-cost plan" based on a supply and demand forecast incorporating population growth and the impact of climate change on available supplies . A least-cost plan
addressed the companies water needs for a minimum of 25 year period in the cheapest way possible. Whilst this ensured the company was meeting its customers needs well, it didn"t always factor in a plan that was
best for the wider environment, other water users (abstractors) or most resilient to the long term challenges such as carbon reduction and flood mitigation.

This time, Defra and the Environment Agency put a 'best value' plan at the heart of its guidance for water companies.
They state that, "A 'best value' plan is one which considers factors alongside cost and seeks to increase the overall net benefit to customers, the environment and society."
It's expected that a !best value"#plan might not be the cheapest but has got to be affordable for customers.

VIDEO THREE (1min) Water Trading
Water trading is where a water company responsible for supplying water in an area buys it from someone else (either another water company or third party provider) rather than developing its own water resources. Splitting the country in to five regional water groups supports the approach to water trading, allowing more of a focus on trading between companies and regions. OFWAT believe water trading has many benefits:
For customers it means a more resilient supply and lower bills
For the environment it means avoiding unsustainable practices
For the water sector it means costs savings from trading rather than investing
As a region, Water Resources North is seen as a donor area when viewed through a national lens, this is mainly due to the impressive Kielder reservoir in Northumberland. In terms of available volumes of water and future forecasting Northumbrian Water are predicting no shortage in water to meet future demands and early forecasts for Yorkshire Water show there is a potential deficit should they continue as they are and make no
improvements - which of course wouldn"t happen, but this must be considered in the Water Trading
conversation. Should water trading come about it is important to note that options will need to be developed to offset water exported from the region.

VIDEO FOUR (2mins 10secs)
Environmental destination and ambition
This section is all about abstraction. Abstraction happens when we take water from the environment.
[Footage of water company abstracting water]
Water companies take water from rivers, chalk streams and groundwater reserves. The water is treated and put into supply for it's customers. Abstracted water counts for roughly a third of our water supply.
Currently water companies apply for licenses to abstract from these sources. Applications are approved by the Environment Agency and this ensures that ecologically important or sensitive species and habitats are protected.
These include:
Sites of special scientific interest. These are areas of land and water that best represent our natural heritage in terms of their natural features such as plants, animals, geology and landforms
Special area of conversation - These protect one or more special habitats or species
Protected species such at the Atlantic salmon Habitats like wetlands, floodplains, chalk streams
Such species and habitats typically provide a significant range of biodiversity, health and wellbeing, water purification, and climate regulation (by naturally and effectively holding carbon in the land).
[climate change footage]

Climate change is likely to alter the water cycle in the future as it's predicted there will be longer periods without rainfall, leading to reduced river flows and an increased risk of drought. This means that the species and habitats which rely on the water environment may be placed at greater risk. Therefore, long-term management strategies to protect the water environment and reduce the water taken from the environment may be required.
Investment will be needed to ensure that the water environment is sufficiently protected and resilient to the impacts of climate change and this must be considered in any new water resources plans.