



Method Statement: Engagement With Customers

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For the full library of WRSE Method Statements, please visit wrse.org.uk/library.

A consultation on the WRSE Method Statements was undertaken in Autumn 2020 – the consultation details can be viewed on the WRSE engagement hq platform at <https://wrse.uk.engagementhq.com/method-statements>.

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Executive Summary

Water Resources South East (WRSE) is developing a multi-sector, regional resilience plan to secure water supplies for the South East until 2100.

We have prepared Method Statements setting out the processes and procedures we will follow when preparing all the technical elements for our regional resilience plan. We consulted on these between August and October 2020 to ensure that our methods are transparent and as far as possible, reflect the feedback we have received.

Figure ES1 illustrates how this 'Engagement with customers Method Statement' will contribute to the preparation process for the multi-sector, regional resilience plan.

Customer engagement is a key part of developing the WRSE regional plan and water companies' respective Water Resources Management Plans 2024 (WRMP24).

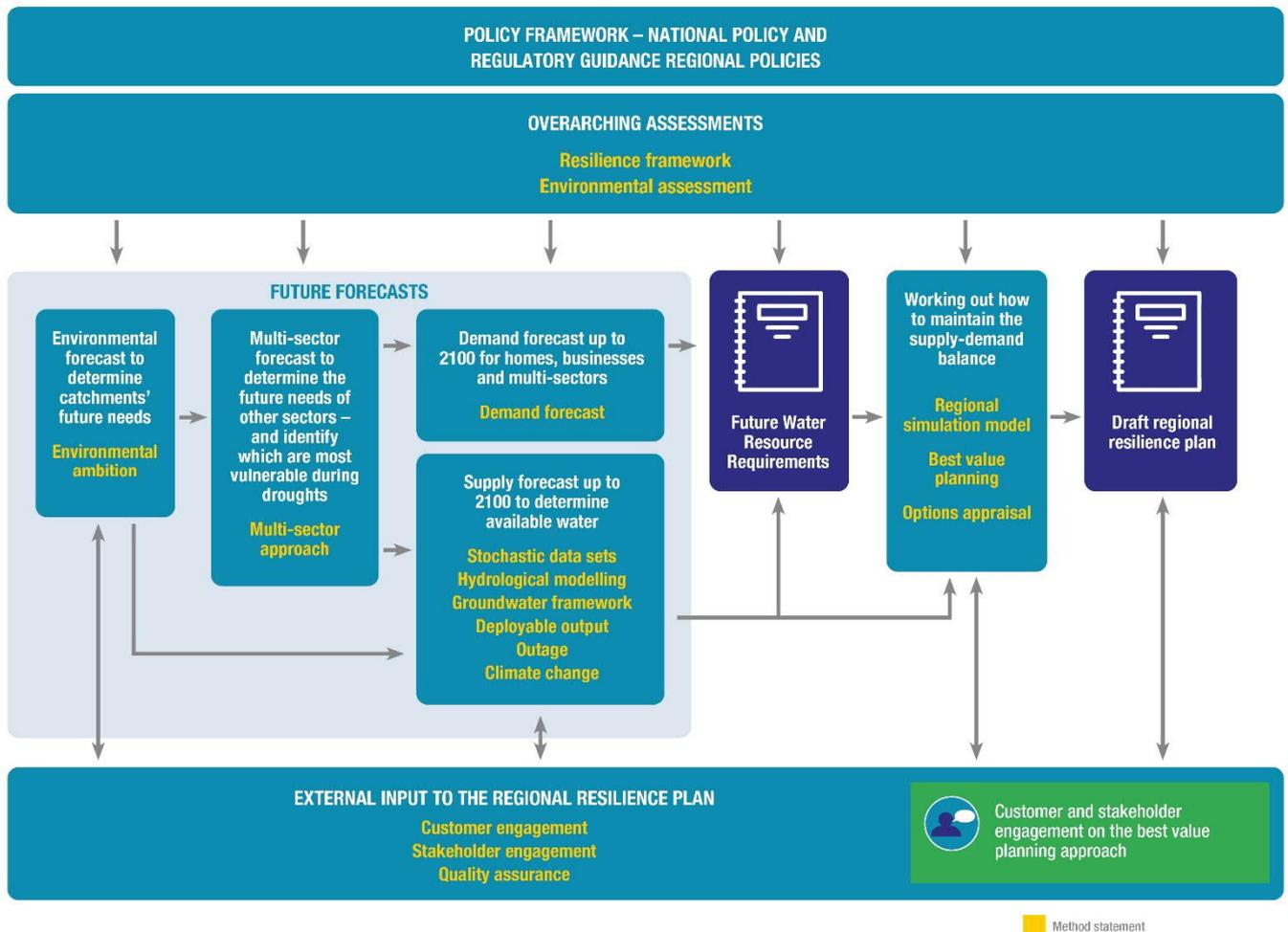
The aims of our customer engagement are to:

- Inform the development of the regional resilience plan and test with customers their views on planning policies, potential solutions, and metrics to determine the best value plan
- Understand from customers how they prioritise the best value criteria
- Explore with customers what their 'preferred' regional plan is.

Overall, the outcomes of this engagement will help define the customer preferences for identifying the best value plan, covering aspects such as level of service/risk of severe water use restrictions, environmental ambition, resilience, resource options, demand management measures and cost/affordability.

The customer evidence will also be a key input to the member water companies' WRMP24 and Business Plans. The collaborative approach taken will ensure greater consistency between the companies.

Figure ES1: Overview of the Method Statements and their role in the development of the WRSE regional resilience plan



1 Introduction

- 1.1 Customer engagement is a critical part of developing the WRSE regional plan. The regulatory framework sets out the requirement to ensure we engage with water company customers, understand their views, priorities, and preferences.
- 1.2 It is crucial that as we engage with customers, we ensure there is a clear line of sight or 'golden thread' between the regional plan, company WRMP24s and PR24 business plans as they are developed.
- 1.3 WRSE, and the member companies, are working collaboratively through the Engagement and Communications Board (ECB) to ensure engagement activity is coordinated, inclusive and effective. In addition, when it has been appropriate, WRSE has worked with other companies across England to ensure both a collaborative and efficient approach to engagement. WRSE has convened regular sessions with company Customer Challenge Group (CCG) representatives and the Consumer Council for Water (CCW) through a regional CCG (rCCG) to challenge and test the engagement approach and materials used.
- 1.4 WRSE has used Market Research Society (MRS) independent agencies to conduct the customer engagement ensuring expert input and challenge as well as helping to shape innovative approaches.
- 1.5 The approach complies with the expectations set out in the National Framework (March 2020) which puts the onus on the regional groups 'to decide how and to what extent they engage with customers at the regional level', and the Water Resources Planning Guideline (February 2021) which requires us to take account of customers' preferences and the costs and benefits for customers. It has also been designed with the expectation of a public inquiry on company WRMP24s and planning applications for new infrastructure. It was first presented and approved at the SLT meeting (April 2020).
- 1.6 Customer engagement will inform:
 - The policies and preferences that will be used to develop the regional planning of water resources in the South East – specifically around key areas such as environmental ambition, risk acceptance (resilience), the use of drought orders and permits and informing the development of best value criteria.
 - The WRSE regional investment model – setting out customer preferences; specifically, around (i) individual solutions (ii) a preferred programme based on weighting of the best value criteria.
 - The recommendations made to the SLT team having established the 'preferred' plan from both a customer and stakeholder perspective which will include exploring the affordability* envelope and understanding the customer drivers for that ceiling (affordability and acceptability will need to be tested further by the individual companies as part of the Price Review development).

**Note: affordability will be explored in the context of total bill.*

- 1.7 Following on from the reconciliation of plans across the five regional groups, a formal consultation on the WRSE multi-sector regional resilience plan will take part in January 2022 – we plan to test this final plan again with both customers and stakeholders.

2 Objectives

Follow best practice

- 2.1 A review was conducted to provide a broad view on the principles and current guidance for developing customer evidence in the water sector. Although there is no specific guidance or statement of expectations for customer engagement on the regional resilience plan, the main points of reference for stakeholders are from the principles set out prior to WRMP19 and PR19 and recent publications from CCW¹ and Ofwat².
- 2.2 Overall, the variety of principles and guidance provide useful checklists that we have used to help steer the various components of our customer engagement – through, for example, segmentation, content and process of undertaking deliberative groups, content of the online survey, and consolidating the customer evidence and insight through ‘triangulation’. There is, however, currently no good practice guidance identified on how customer research should be undertaken during a global pandemic.

Shared learning

- 2.3 We have been keen to share the work we have progressed with other water companies and regions. Where suitable we have commissioned joint engagement activity to provide both efficiency but also consistency in both approach and language used during engagement. Developing the regional plan has allowed the unique opportunity to engage customers in the wider context on water resources planning and to explore areas such as inter-regional transfers in a regional context.

Transparent process and assurance

- 2.4 It has been key that as well as the internal challenge we receive from members of the ECB on both the approach and context of the customer engagement, we strengthened our approach and received independent challenge. To facilitate this, we convened a regional CCG group which has representatives from the companies’ CCGs as well as a representative from CCW. The group meets on a regular basis and has observed the engagement with customers, challenged the approaches and inputted into materials shared with customers. The group along with using independent agencies to conduct the research provides an independent level of assurance.

¹ <https://www.ccwater.org.uk/research/improving-customer-engagement-for-pr24/>

² <https://www.ofwat.gov.uk/publication/pr24-and-beyond-reflecting-customer-preferences-in-future-price-reviews-a-discussion-paper/>

3 Scope

Phase 1 engagement

- 3.1 The overall scope for the Phase 1 customer engagement was to deliver:
- Evidence to Inform the policies and preferences that will be used to develop the regional plan.
 - Input into the WRSE regional model by defining the customer 'preferences'.
 - a) Indicators (metrics) used to compare alternative plans
 - b) Early view of acceptability (incl. affordability) of overall plan
 - c) Preferences for solutions.
- 3.2 It involved consolidating existing insights, analysis, and conducting new research with customers to support the specific requirements of the WRSE regional plan. The project was implemented through three inter-linked work packages:
- Evidence reviews ("Part A"): to compile a range of insights from companies' PR19 and WRMP19 customer research. The purpose was to provide a consolidated view of the customer evidence base structured around a set of research questions related to: (i) resilience outcomes; (ii) demand measures; (iii) supply side solutions; and (iv) the wider policy context for long-term water resource planning.
 - Deliberative research ("Part B"): conducted with household customers of all ten participating companies to understand views on: (i) water resources and the risk of emergency drought restrictions; (ii) resilience planning; (iii) supply and demand options; (iv) sharing resources and associated policy issues; and (v) strategic options.
 - Quantitative research ("Part C"): a representative survey of customers in the WRSE region only to quantitatively measure preferences for demand and supply options to inform the investment modelling underpinning the development of the regional resilience plan.
- 3.3 The research activities were to cover both household and non-household customers who access the public water supply in the South-East of England supplied by the six member companies: Affinity Water, Portsmouth Water, SES Water, South East Water, Southern Water, and Thames Water. In addition, the research included Severn Trent Water, United Utilities and South West Water – as donors of water via strategic resource options, within the assessment of existing research and the new qualitative research undertaken (Part A and B). All the new research activities (Part B and C) were conducted under social distancing measures in place under Covid-19.

- 3.4 Given that the regional plan will shape each water companies' Water Resource Management Plan in 2024 (WRMP24) and input into the Strategic Resource Options (SROs), a particular aspect of the research was to understand potential intra-regional differences in customer views and priorities.
- 3.5 Full reports of the findings from the engagement (Synthesis report, Part A, Part B and Part C as well as specific summary documents for the Strategic Resource Options) can be found at:
<https://wrse.uk.engagementhq.com/customer-engagement>

Phase 2 engagement

- 3.6 The scope for the Phase 2 customer engagement includes:
- Input into the WRSE regional model by defining the customer weightings for the Best Value criteria
 - Explore with customers how best to explain and visualise the regional plan.
 - Establish the customers preferred candidate plan.

Note: full scope of Phase 2 will be updated once engagement has been completed in 2022. Appendix 3 will be produced to provide detail of how the best value criteria weightings were calculated from the customer findings.

4 Methods

4.1 Table 1 sets out a summary of the high-level approach. For each work package the method selected reflects the purpose of the evidence required.

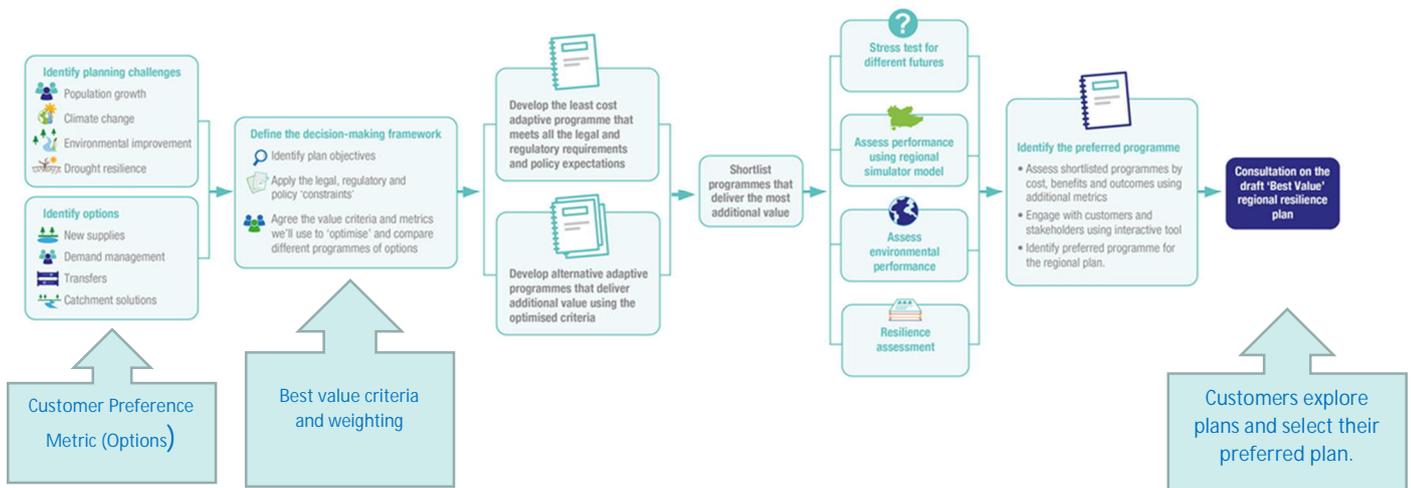
Table 4: Customer research requirements for multi-sector regional resilience plan

Requirements	Description	Purpose	Method
Inform the policies and preferences that will be used to develop the regional plan	Understand customer perspective of the key policies of the plan, including: <ul style="list-style-type: none"> • Environmental ambition • Risk acceptance vs. resilience (reliability, adaptability, evolvability) • Demand-side policies • Connectivity – intra-company (i.e. self-sufficiency) vs. intra-regional vs. inter-regional 	Tests / ensures breadth of customer view (needs and priorities) are reflected in planning approach	Desktop review of historic evidence Qualitative focus groups
Input into the WRSE regional model by defining the customer preferences and weightings for best value criteria	(a) Establish metrics used to compare alternative plans, to enable the setting of objectives for the plan and inform best value criteria <ul style="list-style-type: none"> • Understanding of how customers interpret the definitions used 	Supports comparative assessment of alternative plans	Desktop review of historic evidence. Qualitative focus groups.
	(b) Early view of acceptability (incl. affordability) of overall plan, in terms of: <ul style="list-style-type: none"> • What is the maximum cost (bill impact) customers would support? • Key drivers for customer support 	Provides early guidance to aid identification of best value plan(s)	Qualitative focus groups.
	(c) Preferences for solutions (incl. inter- & intra-company transfer): <ul style="list-style-type: none"> • Acceptability of the solutions (including level of risk) • Early view of trade-offs vs cost 	Provides 'value' for investment model customer preference metric (see Appendix 2 for full methodology).	Quantitative

	(d) Customer weighting for best value criteria.	Provides 'multiplier' to inform investment model	Quantitative
Understand customers 'preferred' plan	(a) Explore how to explain and visualise regional plan providing context on: <ul style="list-style-type: none"> • Regional planning • Benefits / drivers • Cost • Geography 	Provides learning to develop customer visualisation tool.	Co-creation
	(b) Customer preference for regional plan.	Provides input into Regional consultation	Quantitative

4.2 The various strands of customer insight inform different points in the WRSE planning process (Figure 2), ensuring the 'customer voice' is a consistent thread through the development of the regional plan.

Figure 2: Customer evidence inputs into South East best value regional plan



4.3 Below we outline the methodology used across the different phases of research.

Review of historic evidence (Phase 1 part A)

- 4.4 In total, 120 documents and reports were shared by ten water companies for the evidence review, sourced mainly from PR19 and WRMP19 customer research. Each document was assessed to determine which of the customer research topic areas it provided customer evidence for.
- 4.5 Initial insights were written up into topic area workshop notes summarising the coverage of the evidence and emerging findings. The workshop notes were then “played-back” to the water companies through a series of workshop sessions to help ensure that the key messages were correctly identified. Feedback from the workshops helped clarify the interpretation of the customer research and identify gaps in the evidence review, allowing for further insights to be extracted from the evidence base, and the overall summary to be presented.
- 4.6 Full details of the approach and findings can be found in the full Part A report at: <https://wrse.uk.engagementhq.com/customer-engagement>

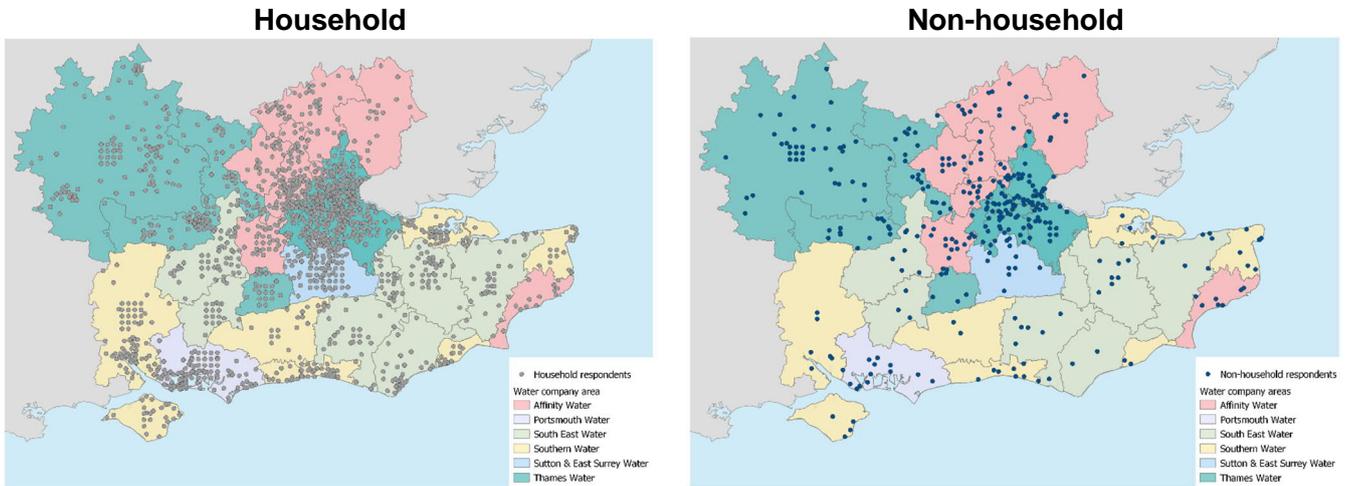
Qualitative (Phase 1 part B)

- 4.7 In designing the deliberative research component, particular emphasis was placed on ensuring it would provide robust insights from customers that could be used with confidence. The implementation plan and research materials (pre-read, topic guide, etc.) were developed with input from the WRSE Engagement and Communications Board (ECB) and rCCG members. Through this process it was agreed that the deliberative conversations with customers would be delivered on a company-by-company basis, with one deliberative group per company implemented in two separate sessions. Before the first session, each group of participants were given pre-read materials to review, which explained water use restrictions and included links to video content and news stories. In between the first and second sessions, participants were encouraged to reflect on the discussion issues by completing a task at home, the results of which were then discussed in the second session.
- 4.8 The topic guides for the sessions were carefully structured to cover the research scope and to enable participants to build their understanding of the issues discussed over the two sessions. This was important to: enable both preliminary, less ‘informed’ views to be heard; for participants to become more knowledgeable through the information provided in the home task; and to enable discussion and sharing of their understanding and reasoning with others in the groups. Materials were adapted for each company group to show participants the Strategic Resource Options (SROs) that are outlined for their area, and their role (if any) in relation to water transfers / sharing (e.g., ‘supplier’, ‘recipient’ or ‘both’).
- 4.9 Examples of the research materials – including topic guides and show materials – are provided in the full Phase 1 – Part B report at <https://wrse.uk.engagementhq.com/customer-engagement>.

Quantitative (Phase 1 – part C)

- 4.10 Customer views were elicited in the context of the water resource planning needs for the South East. Respondents were informed about the supply-demand balance situation over the long-term, in light of population and climate pressure forecasts and strategic aims for the region to reduce the risk of severe drought restrictions, enhance the resilience of the water system to disruptive events, reduce dependency on abstractions from sensitive habitats, improve leakage performance, and help customers to use less water. This framing also provided an opportunity to gauge customer preferences on the overall plan and to initially explore views on the high-level principles for water sharing and SROs.
- 4.11 The survey was developed from two stages of qualitative testing: (a) learnings and findings from the deliberative research (Part B); and (b) iterative testing through 10 one-to-one cognitive interviews. The survey material was piloted and then implemented via a soft-launched test - a choice task for customer preference on demand and supply options.
- 4.12 The survey was implemented to provide results that are representative of all households in the South East of England and non-households connected to the public water supply in the region. The household survey results are representative of geographic, demographic and socio-economic characteristics of the South East. In addition, socio-economic characteristics on household vulnerability and attitudinal characteristics were identified to provide additional insights on the preferences of household customers. The non-household survey results reflect a breadth of views across sectors and company areas. Views of non-household respondents tended not to differ substantially from household customers, reflecting that most organisations represented in the survey are not critically dependent on water for their operations.
- 4.13 Customer preferences on demand and supply options were obtained through a paired comparison choice task.
- 4.14 A total of 2,295 household respondents and 365 non-household respondents participated in the survey. The average survey completion times were 19.1 minutes for the household survey and 16.2 minutes for the non-household survey. Figure 3 shows the geographic distribution of respondents by survey variant. Respondents generally found the survey easy to complete and most found the survey to be interesting or educational. An explanation of how the customer preference metric was calculated can be found in Appendix 1 and further details of the full methodology can be found in the Phase 1 – Part C report at: <https://wrse.uk.engagementhq.com/customer-engagement>

Figure 3: Distribution of survey respondents across the WRSE region



Note: The map shows locations for respondents that either provided postcode information or indicated their Water Resource Zone. Where respondents only indicated their WRZ, they are visually presented as a grid at the centre of the respective zone.

Quantitative (Phase 2 – part A)

- 4.15 Using best/worst scaling methodology respondents were introduced to fourteen best value criteria.
- 4.16 Respondents saw fourteen repeated choices where they were asked to select: (I) their most important factor; followed by (II) their second most important factor – with each respondent seeing each of the fourteen criteria.

Choice task screen (example)

Which is **MOST** important to you?

<p>Make the water system more adaptable</p>  <p>The plan could prioritise options that would mean the system can recover faster if disrupted.</p> <input type="radio"/>	<p>Maximise positive environmental impact</p>  <p>The plan will comply with Government regulations for protecting the environment and use options that have beneficial impacts as much as possible.</p> <input type="radio"/>	<p>Reduce dependency on sensitive river habitats and groundwater sources</p>  <p>The plan will include measures that will make the system less dependent on water taken from rivers and groundwater that are important for sensitive habitats.</p> <input type="radio"/>	<p>None of these are important to me</p> <input type="radio"/>
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Restart selection

Of the remaining two, which is **MOST** important to you?

<p>1. Make the water system more adaptable</p>  <p>The plan could prioritise options that would mean the system can recover faster if disrupted.</p> <input checked="" type="radio"/>	<p>Maximise positive environmental impact</p>  <p>The plan will comply with Government regulations for protecting the environment and use options that have beneficial impacts as much as possible.</p> <input type="radio"/>	<p>Reduce dependency on sensitive river habitats and groundwater sources</p>  <p>The plan will include measures that will make the system less dependent on water taken from rivers and groundwater that are important for sensitive habitats.</p> <input type="radio"/>	<p>None of these are important to me</p> <input type="radio"/>
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Restart selection

4.17 The fieldwork was conducted with 309 respondents during May 2021 and took an average of 15 minutes for respondents to complete.

4.18 An explanation of how the best value criteria values were calculated can be found in Appendix 2 and further details of the full methodology can be found in the Phase 2 – Part A report at:

<https://wrse.uk.engagementhq.com/customer-engagement>

(Note: to be uploaded November 2021)

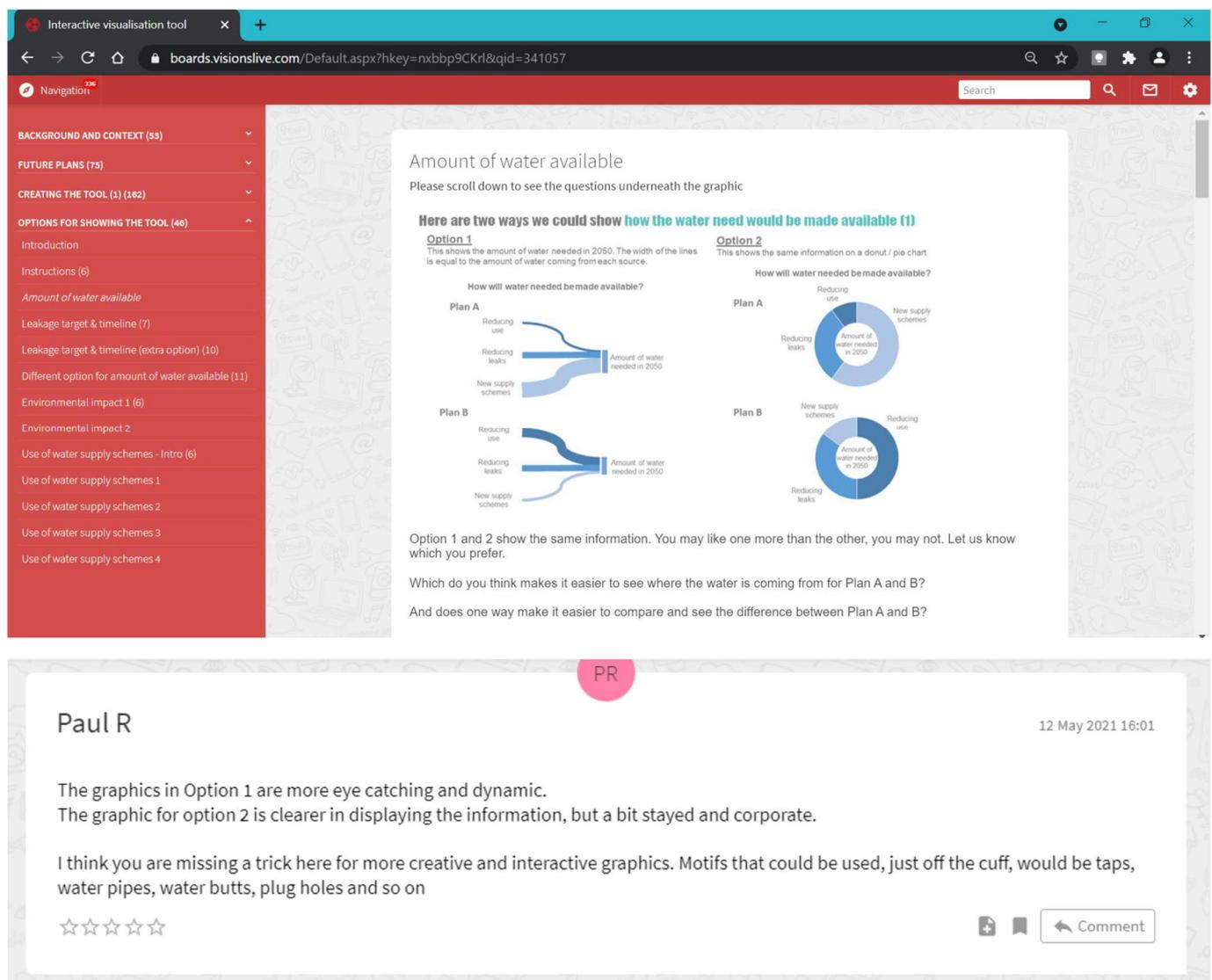
Co-creation (Phase 2 – part B)

4.19 An online bulletin board was used as an innovative way to engage 15 customers with a mix of social-economic groups and ages on multiple tasks over many weeks. The group were set a sequence of tasks

and discussions to test various aspects of a 'tool' interface and materials which could be used in describing candidate plans.

- 4.20 The tasks took place between April and June 2021. The respondents explored several elements from language used to describe materials, display of materials and exploring the areas they felt most important and informative when choosing the 'best' regional plan.

Bulletin Board (example)



The screenshot shows a web browser window with the URL `boards.visionlive.com/Default.aspx?hkey=nxbbp9CKrl&qid=341057`. The page title is "Amount of water available". Below the title, it says "Please scroll down to see the questions underneath the graphic".

The main content area displays two options for visualizing water availability:

- Option 1:** "This shows the amount of water needed in 2050. The width of the lines is equal to the amount of water coming from each source." It features a Sankey diagram for Plan A and Plan B, showing flows from "Reducing use", "Reducing leaks", and "New supply schemes" to "Amount of water needed in 2050".
- Option 2:** "This shows the same information on a donut / pie chart." It features donut charts for Plan A and Plan B, with segments for "Reducing use", "Reducing leaks", and "New supply schemes" representing the "Amount of water needed in 2050".

Below the graphics, the text asks: "Option 1 and 2 show the same information. You may like one more than the other, you may not. Let us know which you prefer." and "Which do you think makes it easier to see where the water is coming from for Plan A and B?" and "And does one way make it easier to compare and see the difference between Plan A and B?".

A user comment from Paul R, dated 12 May 2021 16:01, is displayed below. The comment reads: "The graphics in Option 1 are more eye catching and dynamic. The graphic for option 2 is clearer in displaying the information, but a bit stayed and corporate. I think you are missing a trick here for more creative and interactive graphics. Motifs that could be used, just off the cuff, would be taps, water pipes, water butts, plug holes and so on". The comment includes a star rating and a "Comment" button.

4.21 A summary of the key finding for this engagement can be found in Appendix 3 and further details of the full methodology and outputs can be found in the Phase 2 – Part B report at: <https://wrse.uk.engagementhq.com/customer-engagement>

(Note: to be uploaded November 2021)

Quantitative (Phase 2 – part C)

Note: Method is still in development – to be updated once work complete (December 2021)

Customer engagement segmentation

4.22 It is important that large-scale customer research is implemented with a representative sample of the customer base. Segmentation is an important means of testing the consistency of needs and priorities across the customer base, but the appropriate approach is context dependent. Based on consultation with the water companies involved in this project and the rCCG group, Table 2 summarises the dimensions that have been identified as segments that evidence from engagement considered.

Table 2: Overview of segments

Type of segment	Sub-segment	Definition	
Geography	Region	Overall South East region	
	Water resource zones (WRZ)	<ul style="list-style-type: none"> 31 WRZs within the region 15 WRZs within Severn Trent Water 	
	Water company	<ul style="list-style-type: none"> Affinity Water Portsmouth Water South East Water SES Water 	<ul style="list-style-type: none"> Southern Water Thames Water Severn Trent Water United Utilities
Type of customer	Public water customer	<ul style="list-style-type: none"> Household 	<ul style="list-style-type: none"> Non-household
Socio-economic and demographic characteristics	Socio-economic group	<ul style="list-style-type: none"> SEB AB SEG C1C2 ('just about managing') SEG DE (economically vulnerable) 	

	Future customers	• 16-18	• 18-21	• 22-30
	Urbanisation	• City	• small town/suburbia	• rural
	Gender	• Male	• Female	• Other
	Age	• Under 30	• 31-55	• 56+
	Ethnicity	<ul style="list-style-type: none"> • White • BAME 		
	Customers in vulnerable circumstances	To be included if appropriate		

5 Public consultation

- 5.1 Following regional reconciliation across the regional groups we will publish the draft regional plan in January 2022 for consultation. This is not a statutory consultation because regional planning is not currently a statutory part of the water resource planning process, but we are intending to follow best practice as far as feasible within the timeline. We will design an engagement programme to ensure it is accessible to interested customers, communities and technical stakeholders and will produce a response to the consultation. This will not be in the format of a statutory Statement of Response, but will clearly summarise the key issues raised, and our consideration and response.
- 5.2 We have procured an online engagement platform (EngagementHQ) to support the engagement work and provide a “one stop shop” for stakeholders. It also enables WRSE to keep robust records of stakeholder interaction. The visualisation tool produced as part of Phase 2 will be utilised to help inform this consultation.
- 5.3 We will prepare a report, which will be part of the draft regional plan, and will set out the approach applied and how the engagement activity has input to the plan development.

6 Summary

- 6.1 Water Resources South East (WRSE) is developing a multi-sector, regional resilience plan to secure water supplies for the South East until 2100. We are taking a long-term view and considering the water we need to use at home and at work, as well as that required by agriculture, to generate electricity, for industry, recreation, the environment and to support the well-being of society.
- 6.2 Customer engagement is an important part of developing the South East (SE) regional plan and water companies' respective WRMP24s. We need to understand, and take account of, both customers and stakeholders' priorities and preferences in developing a balanced regional resilience plan which ensures a secure water supply for customers and other water users, whilst protecting the environment.
- 6.3 In this customer engagement Method Statement, we have set out the process by which we have engaged with customers and the packages of work that will support the triangulation of customers views. We have done this taking account of best practice and feedback from CCGs and CCW representatives to ensure this engagement is inclusive and effective.
- 6.4 Our approach will evolve both in response to strategic and technical developments and also feedback from stakeholders.
- 6.5 Companies' WRMP24s will be closely aligned with the regional plan. It will be important for the companies to clearly set out this alignment, and any changes or deviations from the regional plan and the reason for this, in their WRMP24s. This will aid customers and their representatives to maintain a line of sight through the stages of engagement and consultation. Companies will manage the statutory consultation on their draft WRMP24s in line with legislation.

7 Next steps

- 7.1 We have updated this Method Statement to respond to comments from the consultation in July 2020 and also to reflect the development of the approach to our customer engagement plan. We will plan to update this methodology further to reflect the remainder of phase 2 customer engagement work.
- 7.2 If any other relevant guidance notes or policies are issued, then we will review the relevant Method Statement(s) and see if they need to be updated.
- 7.3 When we have finalised our Method Statement, we will ensure that we explain any changes we have made and publish an updated Method Statement on our website.

8 Appendices

Appendix 1 – Methodology for calculation of Customer Preference metric to inform WRSE investment modelling.



Introduction

The customer preference metric is an input to the WRSE investment model. The model identifies the least cost programme for satisfying the supply-demand balance across water resource zones. Alternative objective functions are also considered based on a range of cost, environment, resilience and customer metrics. The objective of the customer preference metric is to identify the best ‘scoring’ programme based on customer preference for option types proportional to the volume supplied by each type³.

Customer preference for option types

Customer preference for option types is measured quantitatively by the preference weight (odds ratios) results from the model estimations for the paired comparison choice task included in the Part C Quantitative Research customer survey. Aggregated results are reported in Table A1 which combines the household and non-household results based on the proportion of household connections (95%) versus non-household connections (5%)⁴.

Application in WRSE investment model

³ See WRSE (2020) Method Statement: Investment Programme Development and Assessment - Consultation Version, July 2020.

⁴ Source: DiscoverWater (July 2020). Household properties connected 2019-20 in South East / Total properties connected in South East.

The combined preference weights reported in Table A1 are mapped to the generic option types featured in the WRSE investment model as shown in Table A2. Where two or more preference weights map to a single generic option type, an equal proportional share is applied (i.e. if 2 weights map, each is assigned 50% share of the weight for the generic option type). This allocation can be revised in future iterations of the programme appraisal by WRSE when the likely proportional share in an investment programme is better understood.

The input parameter values for the WRSE investment model are shown in Table A3 (customer preference weight by generic option type). The weights are applied to volume of water (Ml/d) produced by the respective option type:

Example

Customer preference weight for leakage (loss reduction) = Ml/d x 5.24 [based on combined weight result]

Note that both the combined preference weight and normalised weight are reported in Table A3. The choice between applying either in the WRSE programme appraisal is presentational – e.g. whether loss reduction is shown as x5 preferred to river abstraction, or x2 preferred. Regardless of the metric selected there is no change in the relative ordering of options.

Table A.1: Customer preference weights for option type (odd ratios)

Option	Preference weight (odds ratio)		Combined weight	Normalised weight
	Household	Non-household		
Leakage detection and reduction	5.34	3.53	5.24	2.00
Improvements to the current water supply system	2.66	1.80	2.61	1.46
Extra drought measures	0.42	0.46	0.42	1.00
Universal metering	2.25	2.16	2.25	1.38
Using tariffs to encourage water saving	1.84	1.95	1.84	1.29
More efficient use of water in homes	2.55	2.26	2.53	1.44
Using grey water or rainwater collection and use	1.81	2.12	1.83	1.29
Reservoir to store water	1.69	1.36	1.67	1.26
Taking water from rivers and groundwater	1.00	1.00	1.00	1.12
Storing water underground	1.20	1.48	1.22	1.17
Taking water from the sea (desalination)	0.46	0.73	0.47	1.01
Recycling treated wastewater for household use	1.25	1.39	1.26	1.17
Recycling treated wastewater for industrial use	1.10	1.42	1.12	1.15
Transferring water from other regions	0.57	0.43	0.56	1.03
Transferring water within the South East region	1.23	1.04	1.22	1.17
Catchment management	1.97	1.98	1.97	1.32

Notes

1. Preference weights (odd ratios) reported for MXL model estimations (central parameter estimates) – see Main Report (Figure 3.x; Figure 3.x; Appendix X).
2. Combined weight calculated as weighted average of household and non-household weights; weighting by customer base in terms of proportion of total connections.
3. Normalised weight scales all combined weights to value between 1 and 2 [= (combined weight – min. weight.) / max. weight – min. weight) +1].

Table A.2: Mapping customer preference weights to WRSE model generic option types

Option	Combined weight	Normalised weight	WRSE model generic type	% share
Leakage detection and reduction	5.24	2.00	Loss reduction	100%
Improvements to the current water supply system	2.61	1.46	Outage reduction	100%
	2.61	1.46	Removal of constraints	100%
Extra drought measures	0.42	1.00	Drought permits	50%
		1.00	Drought orders	50%
Universal metering	2.25	1.38	Consumption reduction	25%
Using tariffs to encourage water saving	1.84	1.29	Consumption reduction	25%
More efficient use of water in homes	2.53	1.44	Consumption reduction	25%
Using grey water or rainwater collection and use	1.83	1.29	Consumption reduction	25%
Reservoir to store water	1.67	1.26	Reservoir	100%
Taking water from rivers and groundwater	1.00	1.12	River abstraction	100%
Storing water underground	1.22	1.17	Groundwater	100%
Taking water from the sea (desalination)	0.47	1.01	Desalination	100%
Recycling treated wastewater for household use	1.26	1.17	Re-use	50%
Recycling treated wastewater for industrial use	1.12	1.15	Re-use	50%
Transferring water from other regions	0.56	1.03	Import	100%
Transferring water within the South East region	1.22	1.17	Transfer	100%
Catchment management	1.97	1.32	Catchment management	100%

Notes

1. Where two or more preference weights map to a single generic option type (consumption reduction; re-use) an equal proportional share is applied.

2. Preference weight for “Improvements to the current water supply system” maps to outage reduction and removal of constraints.
3. Preference weight for “Extra drought measures” maps to drought permits and drought orders.

Table A.3: WRSE customer preference metric - generic option type weights

Option	Combined weight	Normalised weight
Loss reduction	5.24	2.00
Outage reduction	2.61	1.46
Removal of constraints	2.61	1.46
River abstraction	2.61	1.46
Drought permits	0.42	1.00
Drought orders	0.42	1.00
Desalination	0.42	1.00
Consumption reduction	2.11	1.35
Reservoir	1.65	1.26
River abstraction	1.00	1.12
Groundwater	1.22	1.17
Desalination	0.49	1.01
Re-use	1.13	1.15
Import	0.56	1.03
Transfer	1.22	1.17
Catchment management	1.97	1.32
Other	5.24	2.00

Notes

Both combined weight and normalised weight reported. Choice of scalar to use in WRSE model is presentational.

Appendix 2 – Methodology for calculation of Best Value Criteria weights to inform WRSE investment modelling.

Note: to be updated in November 2021

Appendix 3 – Co-creation exercise

Note: to be updated in November 2021