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Outcome Delivery Incentive Research:

Pilot Report

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Executive Summary

Introduction

Accent and PJM economics were commissioned jointly by Ofwat and CCW to develop and test a methodology for obtaining the customer evidence needed to support outcome delivery incentive (ODI) rate setting for common performance commitments (PC) at PR24.

The first stage of the study comprised a review of methodology options to deliver research to inform ODIs, and the development of a preferred option/s for PR24 ODI research. This stage culminated in the 'Stage 1' report delivered to Ofwat and CCW, and shared with water companies, in January 2022. The methodology was supported by peer review by two leading academics, Prof. Ken Willis (Newcastle University) and Prof. Giles Atkinson (LSE), and the study proceeded to Stage 2 to further develop and test the methodology with customers.

The first stage of testing involved a series of cognitive depth interviews with customers to test the language used and the overall survey performance. Following this stage, which was reported on separately, a number of changes were made to the survey materials, although none that substantially impacted the core structure of the design.

The present report covers the subsequent quantitative pilot stage of the study. This phase has allowed for tests of design performance not available in small cognitive interview samples and is a necessary part of the development of the research instrument.

In addition to testing the survey design, the pilot also presents the opportunity to test the sampling and fieldwork methodology. This is particularly important for the present study as the household survey has utilised a method not previously adopted in the water sector – an approach based on sampling addressed from the Postcode Address File (PAF), covering all households in England and Wales – alongside the commonly used method of sampling from online commercial panels (Panel). Additionally, the non-household survey (NHH) tested a telephone approach where the questions were read out over the phone as well as an approach where the non-household participants had the information provided via a weblink.

The report describes the survey design and methodology and presents key findings from analysis of the pilot data. The questionnaire used in the pilot survey is contained in Appendix A.

Methodology

The survey design was based around two linked stated preference exercises:

■ Impact exercise

A pairwise choice exercise, measuring the relative impact of 25 service issue scenarios

■ Compensation exercise

A contingent valuation exercise asking participants to choose between experiencing a service issue and being compensated for it, or not experiencing the issue and not receiving any compensation. Two service issues were included in this exercise: a short, unexpected supply interruption, and an external sewer flooding incident. These are referred to as ‘pivots’ because the valuations for all other service issues are obtained by pivoting off the values obtained for these two issues using the relative impacts derived from the impact exercise.

An experimental design was created for each exercise, which involved showing different sequences of choice questions to different participants.

A total of 1,058 household customers and 80 non-household customers completed the pilot survey.

The household sample was split 50:50 between the PAF and Panel sampling methods. No weighting was applied to either sample for the purposes of the pilot analysis, and so any observed differences could include differences in sample demographics.

The non-household survey was administered by telephone using a purchased sample of business telephone numbers. Potential participants were phoned, given brief details about the survey, and told it might be helpful in terms of speed and understanding if they were able to follow a short weblink that could be read out. If not, they were reassured that these could be read out over the phone. Of the full non-household sample, 33 took the link and 47 did not.

Findings

Household survey methodology

- Overall both the PAF and Panel methods were reasonably effective in achieving household sample targets by water/wastewater company combination.
- Both Panel and PAF samples had a somewhat older age profile than the Census
- The PAF sample was closer to the Census on gender
- The PAF sample and particularly the panel sample under-represented ethnic minorities
- The PAF sample had substantially more AB social grades than the Census, and much fewer DE. The Panel sample had a much more representative composition of social grades.
- Consistent with this, a greater proportion of the Panel sample said they usually or always struggled to pay their household bills

- However, both samples contained around the same proportion of vulnerable customers, broadly defined
- The PAF approach was able to capture those without access to the internet while the Panel approach was not. Of the PAF sample, 1% said they had never used the internet and 3% said they had used the internet but did not have regular access to it.

Overall, these findings do not conclusively point to an advantage of one method over the other, given the pre-known pros and cons of both methods. One option we put forward as worth considering is to split the main sample 50:50 between Panel and PAF methods. This would be substantially lower cost than a pure PAF approach, and achieve some of the benefits of the Panel method with respect to its improved ability to include lower social grade households and those with affordability concerns. It would also allow the ability to check for any biases attributable to a Panel sample due to its non-random selection.

Stated preference design

The results of the pilot tests provided mixed evidence with respect to the stated preference design approach.

In support of the approach:

- Participant feedback was good for both the impact and the compensation exercise.
- There were very few instances of non-trading behaviour in the scenario impact exercise (where participants always chose the same alternative throughout the exercise).
- The econometric models were well estimated, especially considering the small sample size for non-households.
- The impact rankings derived from the econometric models were highly consistent with prior expectations.
- Also as expected, participants were more likely to take the compensation offered when it was high than when it was low.

However, set against these positive findings, two key issues were identified:

- At the highest compensation levels shown there were still substantial proportions of participants choosing not to take the compensation offered. Because of this, mean valuation estimates from the pilot survey are unlikely to be accurate, and median valuations are imprecisely estimated.

This should be addressable by increasing the compensation levels used in the survey, and/or by choosing lower-impact service issues.

- Estimates of the relative value of the two ‘pivot’ scenarios included in the compensation exercise were significantly different when obtained from the compensation exercise than when obtained from the impact exercise. This indicates that participants were not choosing consistently across the two exercises in line with the assumed underlying preference function.

There are a number of changes that can be made to the survey to address the issues, including:

- Change the service issues to replace external sewer flooding with an issue that has a more precise description of its impact, such as a boil water notice. This should avoid the potential problem that compensation amount is interpreted as an indicator of the severity of the issue, rather than being evaluated on its own merits.
- Revise the compensation exercise to encourage participants not to see the amounts shown as indicating the severity of the issue – an issue identified in the parallel cognitive interviews, which are reported on separately.
- Revise the structure of the survey to include a single choice exercise combining the impact and compensation exercises. This would eliminate the possibility of any inconsistency in relative values between the two exercises altogether as there would only be one exercise. (This option was suggested by Ofwat’s peer reviewer Prof. Stephane Hess, Leeds University)

In light of the findings from the pilot survey, and the fact that the changes recommended are more substantial than are ideally compatible with proceeding straight to the main stage, it would be sensible to undertake a second pilot survey. The content of this second pilot survey should be agreed as soon as possible to minimise the delay to the overall programme caused by this additional necessary testing phase.

1 Introduction

1.1 Background and objectives

Accent and PJM economics were commissioned jointly by Ofwat and CCW to develop and test a methodology for obtaining the customer evidence needed to support outcome delivery incentive (ODI) rate setting for common performance commitments (PC) at PR24.

The first stage of the study comprised a review of methodology options to deliver research to inform ODIs, and the development of a preferred option/s for PR24 ODI research. This stage culminated in the 'Stage 1' report delivered to Ofwat and CCW, and shared with water companies, in January 2022. The methodology was supported by peer review by two leading academics, Prof. Ken Willis (Newcastle University) and Prof. Giles Atkinson (LSE), and the study proceeded to Stage 2 to further develop and test the methodology with customers.

The first stage of testing involved a series of cognitive depth interviews with customers to test the language used and the overall survey performance. Following this stage, which was reported on separately, a number of changes were made to the survey materials, although none that substantially impacted the core structure of the design.

The present report covers the subsequent quantitative pilot stage of the study. This phase has allowed for tests of design performance not available in small cognitive interview samples and is a necessary part of the development of the research instrument.

In addition to testing the survey design, the pilot also presents the opportunity to test the sampling and fieldwork methodology. This is particularly important for the present study as the household survey has utilised a method not previously adopted in the water sector – an approach based on sampling addressed from the Postcode Address File (PAF), covering all households in England and Wales – alongside the commonly used method of sampling from online commercial panels (Panel). Additionally, the non-household survey (NHH) tested a telephone approach where the questions were read out over the phone as well as an approach where the non-household participants had the information provided via a weblink.

The report describes the survey design and methodology and presents key findings from analysis of the pilot data.

1.2 Contents

This report describes the research design and presents key findings from analysis of the pilot data. It is structured as follows: Section 2 describes the design of the stated preference exercises and provides details of the pilot survey methodology and pilot sample characteristics. Section 3 presents descriptive statistics on survey response, scoping, and

demographics. Section 4 presents the results and findings of the scenario impact pairwise choice exercise, and Section 5 presents the results and findings of the service issue contingent valuation exercise. Section 6 presents conclusions and recommendations on how to take the research forward.

In addition, the report contains a number of appendices: Appendix A contains the pilot questionnaire; Appendix B contains the full set of service issue show material included in the design of the impact exercise; Appendix C and Appendix D contain the letter survey invitations and reminder letter respectively; Appendix E contains the full set of verbatim responses to the open-ended questions following the stated preference exercises.

2 Methodology

2.1 Introduction

This section sets out the methodology used for the pilot. It includes a description of the stated preference design, details of the household and non-household survey administration, and an explanation of how water and wastewater company was identified for each participant.

2.2 Stated preference design

Overview

Stated preference methods involve asking survey participants a series of carefully designed questions to explore their preferences in relation to the object of the study. When used for valuation purposes, such methods invariably involve participants having to make a trade-off between having more or less of the good or service in question and having to make, or receive, a higher or lower payment. It is the trade-off between money and the provision of the good or service that defines the value measure.

As described in the Stage 1 report, the survey questionnaire was constructed to include two linked stated preference exercises:

- **Impact exercise**

A pairwise choice exercise, measuring the relative impact of 25 service issue scenarios

- **Compensation exercise**

A contingent valuation exercise asking participants to choose between experiencing a service issue and being compensated for it, or not experiencing the issue and not receiving any compensation. Two service issues were included in this exercise: a short, unexpected supply interruption, and an external sewer flooding incident. These are referred to as ‘pivots’ because the valuations for all other service issues are obtained by pivoting off the values obtained for these two issues using the relative impacts derived from the impact exercise.

The remainder of this subsection describes each exercise in turn.

Impact exercise

The survey questionnaire was designed to include a pairwise choice exercise focusing on the impact on customers of 25 different scenarios which cover service issues and environmental damages. The scenarios are shown in Table 1 below, while Appendix B contains the full descriptions shown.

Table 1: Service issue scenarios included in the impact exercise

Scenario	
1	Unexpected water supply interruption (6h)
2	Unexpected water supply interruption (24h)
3	Planned water supply interruption (6h)
4	Planned water supply interruption (24h)
5	Unexpected low water pressure (6h)
6	Boil water notice (48h)
7	Do not drink notice (48h)
8	Discoloured water (24h)
9	Water taste and smell (24h)
10	Sewer flooding: inside your property (1 week)
11	Sewer flooding: outside your property (1 week)
12	Hosepipe ban (5 months)
13	Emergency drought restrictions (2 months)
14	Low flows in rivers nearby (2 months)
15	Low flows in rivers elsewhere (2 months)
16	Storm overflow nearby (4 hours)
17	Minor pollution incident nearby (1 day)
18	Significant pollution incident nearby (4 weeks)
19	Storm overflow elsewhere (4 hours)
20	Minor pollution incident elsewhere (1 day)
21	Significant pollution incident elsewhere (4 weeks)
22	River water nearby is not High quality
23	River water elsewhere is not High quality
24	Coastal bathing water is not Excellent quality
25	Coastal bathing water is neither Excellent nor Good quality

The scenarios were combined in an experimental design which was created to obtain the sequences of choices that participants faced in the survey. In each question, participants were shown two scenarios, and they were asked to indicate which one would have the most impact on their household/organisation.

- Figure 1 shows the introductory screen
- Figure 2 shows an example of a choice card from the survey, which illustrates the nature of the questions asked.

Participants each saw ten questions such as the one shown in Figure 2.

Figure 1: Impact exercise: introductory screen

Impact of service issues

You are now going to be shown a series of ten short questions where you will be asked to choose between two different scenarios for your water or wastewater service.

Please consider, and then compare the scenarios carefully, and then **choose the one which would have the most impact** on your household if it were to happen.

Some of the scenarios would affect your own property whereas others would affect your local area. When comparing the impact that each would have, please:

- **do** consider any concerns you may have for the local area or environment,
- **don't** consider any impacts on other people outside your household - other people will answer for themselves!

On some of the options you will see an ⓘ. Please click on this to see some more information about the option.

Figure 2: Impact exercise: example choice card

You're on choice 9 of 10
Which of these would have the most impact on your household?

Option A	Option B
<div style="background-color: #0056b3; color: white; padding: 5px; text-align: center;"> Significant pollution incident ELSEWHERE (4 weeks) </div> <ul style="list-style-type: none"> ▶ Untreated sewage spills into a stretch of river somewhere in your region, but not nearby ▶ This is due to sewerage equipment failure ▶ The damage to the river and visible pollution would be significant ▶ The spill begins on a Wednesday and lasts for 2 days. The river is then back to normal after 4 weeks <div style="display: flex; justify-content: center; align-items: center; gap: 10px;">   </div> <p style="text-align: center; color: red; font-weight: bold;">Elsewhere, 4 weeks</p> <p style="text-align: center; font-size: small;">21</p> <p style="text-align: center;">○</p>	<div style="background-color: #0056b3; color: white; padding: 5px; text-align: center;"> PLANNED water supply interruption (24 hours) </div> <ul style="list-style-type: none"> ▶ Your water company sends you a notice that in 2 days' time your tap water supply will stop for 24 hours ▶ This is due to planned maintenance in your local area ▶ As planned, it then stops from a Wednesday morning to a Thursday morning <div style="display: flex; justify-content: center; align-items: center; gap: 10px;">   </div> <p style="text-align: center; color: red; font-weight: bold;">Planned, 24 hours</p> <p style="text-align: center; font-size: small;">4</p> <p style="text-align: center;">○</p>

Hover buttons, represented by ⓘ, were included on some options. Clicking on these showed more information on the scenario. The full set of showcards and hover button texts is included in Appendix B.

A 'D-efficient' design approach was used to create the choice situations faced by each participant from the set of all possible combinations of scenarios. This approach attempts to maximise the precision of the preference parameter estimates, given some prior estimates of the true parameters. For the pilot, priors were obtained from PR19 research, with the intention being to revise the priors for the main stage based on analysis of the pilot data as reported herein.

The design comprised 30 blocks of 10 questions each (each participant being randomly allocated to one of the blocks) and was restricted to exclude dominant/dominated pairs of options, such as an unexpected and a planned water supply interruption of the same duration, to ensure that each choice required some meaningful trade-off. The design restrictions are shown in Table 2.

Table 2: Impact exercise design restrictions : Excluded pairs

	More impactful	Less impactful
1	Unexpected water supply interruption (6h)	Planned water supply interruption (6h)
2	Unexpected water supply interruption (24h)	Planned water supply interruption (6h)
3	Planned water supply interruption (24h)	Planned water supply interruption (6h)
4	Unexpected water supply interruption (24h)	Unexpected water supply interruption (6h)
5	Unexpected water supply interruption (24h)	Planned water supply interruption (24h)
6	Emergency drought restrictions (2 months)	Hosepipe ban (5 months)
7	Low flows in rivers nearby (2 months)	Low flows in rivers elsewhere (2 months)
8	Storm overflow nearby (4 hours)	Storm overflow elsewhere (4 hours)
9	Minor pollution incident nearby (1 day)	Minor pollution incident elsewhere (1 day)
10	Significant pollution incident nearby (4 weeks)	Significant pollution incident elsewhere (4 weeks)
11	River water nearby is not High quality	River water elsewhere is not High quality
12	Minor pollution incident nearby (1 day)	Storm overflow nearby (4 hours)
13	Significant pollution incident nearby (4 weeks)	Storm overflow nearby (4 hours)
14	Significant pollution incident nearby (4 weeks)	Minor pollution incident nearby (1 day)
15	Minor pollution incident nearby (1 day)	Storm overflow elsewhere (4 hours)
16	Significant pollution incident nearby (4 weeks)	Storm overflow elsewhere (4 hours)
17	Significant pollution incident nearby (4 weeks)	Minor pollution incident elsewhere (1 day)
18	Minor pollution incident elsewhere (1 day)	Storm overflow elsewhere (4 hours)
19	Significant pollution incident elsewhere (4 weeks)	Storm overflow elsewhere (4 hours)
20	Significant pollution incident elsewhere (4 weeks)	Minor pollution incident elsewhere (1 day)
21	Coastal bathing water is neither Excellent nor Good quality	Coastal bathing water is not Excellent quality

Note: The impact exercise was designed to exclude any choice sets that included the pairs of scenarios shown in the table.

Compensation exercise

The compensation exercise was design to value two service issue scenarios: an unexpected water supply interruption lasting 6 hours, and an external sewer flooding incident. Each service issue was valued by asking participants to choose between experiencing the service issue and being compensated for it, or not experiencing the issue and not receiving any compensation. Amounts for an initial question in each case were varied across the sample, and this compensation amount was either halved or doubled in a follow-up question, depending on the response to the first question. This is the so-called ‘double-bounded contingent valuation’ method.

Figure 3 shows the introductory screen and Figure 4 shows an example of a choice card from the survey.

Figure 3: Compensation exercise: introductory screen

Compensation for service issues

Water and wastewater companies pay their customers compensation in some cases when there are problems with their service. They also invest money to reduce the number of problems that happen in the first place.

The next few questions will each present you with a choice between experiencing a service issue and being compensated for it, or not experiencing the issue and not receiving any compensation. The purpose of these questions is to see if the amounts shown are enough to offset the impact on your household from the service issue shown.

In each question, the type of service problem and the compensation amount will vary. These amounts do not necessarily reflect current compensation entitlements, and compensation levels will not necessarily be influenced by answers to these questions.

The compensation levels for the first question of each exercise were randomly chosen from the sets shown in Table 3. The compensation amounts were shown in pounds for households and as a percentage of the annual water services bill for non-households.

Figure 4: Impact exercise: example choice card

Which option would you prefer?

Option A	Option B
<div style="background-color: #0056b3; color: white; padding: 5px; text-align: center;"> Sewer flooding: OUTSIDE your property (1 week) </div> <ul style="list-style-type: none"> ▶ Flooding from the sewer affects access to your front door / entrance ▶ This results from prolonged heavy rainfall in your local area ▶ It gives off a foul smell, and could cause damage ▶ It takes 1 week for your property to get back to normal <div style="display: flex; align-items: center; justify-content: center;">  </div> <p style="text-align: center; margin-top: 10px;">Compensation paid*: £1000</p> <p style="text-align: center; margin-top: 10px;"><input type="radio"/></p>	<div style="background-color: #0056b3; color: white; padding: 20px; text-align: center; font-weight: bold;"> NO Sewer flooding: OUTSIDE your property </div> <p style="text-align: center; margin-top: 10px;"><input type="radio"/></p>

* compensation would be paid either by applying a credit to your water bill, or by a sending a cheque to your household, whichever you prefer.

Table 3: Compensation levels for the first valuation question

	Household		Non-household	
	Unexpected supply interruption (6h)	External sewer flooding (1 week)	Unexpected supply interruption (6h)	External sewer flooding (1 week)
1	£5	£50	2.5% of your annual water services bill	25% of your annual water services bill
2	£10	£100	5% of your annual water services bill	50% of your annual water services bill
3	£20	£200	10% of your annual water services bill	100% of your annual water services bill
4	£50	£500	25% of your annual water services bill	2.5 times the amount of your annual water services bill
5	£100	£1,000	50% of your annual water services bill	5 times the amount of your annual water services bill
6	£200	£5,000	100% of your annual water services bill	25 times the amount of your annual water services bill

2.3 Household survey methodology

Two approaches to the household survey administration were proposed for the pilot study: an online commercial panel approach, which was widely used at PR19, and a novel approach (in the water sector) involving sampling from the Postcode Address File (PAF).

There are pros and cons to both approaches and hence it was agreed to test both sampling approaches as follows:

- 450 online commercial panel
- 450 PAF.

The pilot for the PAF approach tested the feasibility and practicality of the approach as well as assessing the nature of the resulting sample and results when compared with the panel sample.

PAF Method

The PAF approach involved purchasing address sample for each of the 17 water companies according to a matrix of water company and waste combinations which reflected the actual distribution of water and waste **within** each water company and sampled an equal number for each water company. With an assumption of a 7.5% response rate 6,000 letters were sent out to achieve the target 450 interviews as shown in Table 4.

Table 4: Numbers of letters sent by water company/wastewater company combination

		Wastewater											
		Anglian Water	Dwr Cymru	Hafren Dyfrdwy	Northumbrian Water	Severn Trent Water	South West Water	Southern Water	Thames Water	United Utilities	Wessex Water	Yorkshire Water	Grand Total
Water	Affinity Water	38						17	298				353
	Anglian Water	331			7	15							353
	Bristol Water										353		353
	Dwr Cymru		353										353
	Hafren Dyfrdwy		263	90									353
	Northumbrian Water	102			205					46			353
	Portsmouth Water							353					353
	SES Water							25	328				353
	Severn Trent Water					341						12	353
	South East Water							215	138				353
	South Staffordshire Water	70				283							353
	South West Water						279	11			63		353
	Southern Water							337	16				353
	Thames Water								353				353
	United Utilities									353			353
	Wessex Water										353		353
	Yorkshire Water					11						342	353
Grand Total	541	616	90	212	649	279	958	1179	353	769	354	6001	

We prepared postcode data that defined each water and waste water combination and then randomly sampled 353 addresses from each water company area (17x353=6,000). Such a sampling approach does not allow for detailed stratification of the sample beyond geographically-based aspects (eg urban v rural) although it would be possible, for example, to over sample deprived areas.

Participants did not need to be bill payers to be eligible. This brought into scope both dependents aged 18 and over as well as tenants in households that do not directly pay for water.

The PAF does not include named addressees so each letter was addressed to the occupier. Each envelope included a letter on headed paper, explaining the purpose of the survey and including an online link and QR code (see Appendix B). We offered an incentive to encourage participation. Different rates were used to gauge the impact. Some started at £5 and went to £10 on reminder whilst others were pitched at £10 throughout.

For those who were unable or didn't wish to respond online we offered the option of a paper version of the questionnaire.

Two methods for this were tested:

- A separate A5 Freepost card was included and referred to in the letter. If required, we asked the participant to enter the unique ID code (which enabled us to source the address) and post it back.
- We included a Freephone number in the letter. If required we asked participants to call the number and leave their name and unique ID.

For both we sent a paper version of the questionnaire by post along with another pre-paid envelope for its return. There were 30 versions of the questionnaire to cover the different designs and these were randomly allocated.



The initial invitation letters were sent out on 8 April 2022.

A reminder was sent out on 17 April 2022.

The interviews took place between 9 and 28 April. The average completion time was 16 minutes.

Panel method

We used the Kantar online panel for the other half of the HH sample.

The panel was provided with the following target (Table 5) and maximum (Table 6) number of interviews for the required water/wastewater combinations as well as a list of the postcodes for each combination.

No other quotas were applied.

Table 5: Target water company/wastewater company combination

		Wastewater											
		Anglian Water	Dwr Cymru	Hafren Dyfrdwy	Northumbrian Water	Severn Trent Water	South West Water	Southern Water	Thames Water	United Utilities	Wessex Water	Yorkshire Water	Grand Total
Water	Affinity Water	3						1	23				27
	Anglian Water	25			1	1							27
	Bristol Water										27		27
	Dwr Cymru		27										27
	Hafren Dyfrdwy		20	7									27
	Northumbrian Water	8			16				3				27
	Portsmouth Water							27					27
	SES Water							2	25				27
	Severn Trent Water					26						1	27
	South East Water							16	11				27
	South Staffordshire Water	5				22							27
	South West Water						21	1			5		27
	Southern Water							26	1				27
	Thames Water								27				27
	United Utilities									27			27
	Wessex Water										27		27
	Yorkshire Water					1						26	27
Grand Total	41	47	7	16	50	21	73	90	27	59	27	459	

Max quotas were set as shown below:

Table 6: Max water company/wastewater company combination

		Wastewater											
		Anglian Water	Dwr Cymru	Hafren Dyfrdwy	Northumbrian Water	Severn Trent Water	South West Water	Southern Water	Thames Water	United Utilities	Wessex Water	Yorkshire Water	Grand Total
Water	Affinity Water	4						2	29				34
	Anglian Water	32			1	1							34
	Bristol Water										34		34
	Dwr Cymru		34										34
	Hafren Dyfrdwy		25	9									34
	Northumbrian Water	10			20				4				34
	Portsmouth Water							34					34
	SES Water							2	31				34
	Severn Trent Water					33						1	34
	South East Water							21	13				34
	South Staffordshire Water	7				27							34
	South West Water						27	1			6		34
	Southern Water							32	2				34
	Thames Water								34				34
	United Utilities									34			34
	Wessex Water										34		34
	Yorkshire Water					1						33	34
Grand Total	52	59	9	20	62	27	92	113	34	74	34	459	

The panel interviews took place between 12 and 19 April. The average completion time for the panel interviews was 11 minutes.

No weighting was applied to either sample for the purposes of the pilot analysis, and so any observed differences could include differences in sample demographics.

2.4 Non household survey methodology

The original proposal suggested an online commercial panel for the 100 non-household customers for the pilot. This was an approach commonly followed for PR19.

As there were concerns around using online commercial panel samples for business interviews the method chosen for the pilot was a telephone survey approach using a purchased sample of business telephone numbers. This approach was also used during PR19.

As for the household methods the sample company was provided with the water/wastewater matrix, this time for 3,000 contacts. See Table 7.

Table 7: Non-household sample purchased for water company/wastewater company combination

		Wastewater											
		Anglian Water	Dwr Cymru	Hafren Dyfrdwy	Northumbrian Water	Severn Trent Water	South West Water	Southern Water	Thames Water	United Utilities	Wessex Water	Yorkshire Water	Grand Total
Water	Affinity Water	19	0	0	0	0	0	8	149	0	0	0	176
	Anglian Water	166	0	0	4	7	0	0	0	0	0	0	176
	Bristol Water	0	0	0	0	0	0	0	0	0	176	0	176
	Dwr Cymru	0	176	0	0	0	0	0	0	0	0	0	176
	Hafren Dyfrdwy	0	131	45	0	0	0	0	0	0	0	0	176
	Northumbrian Water	51	0	0	103	0	0	0	23	0	0	0	176
	Portsmouth Water	0	0	0	0	0	0	176	0	0	0	0	176
	SES Water	0	0	0	0	0	0	13	164	0	0	0	176
	Severn Trent Water	0	0	0	0	170	0	0	0	0	0	6	176
	South East Water	0	0	0	0	0	0	107	69	0	0	0	176
	South Staffordshire Water	35	0	0	0	142	0	0	0	0	0	0	176
	South West Water	0	0	0	0	0	139	6	0	0	32	0	176
	Southern Water	0	0	0	0	0	0	168	8	0	0	0	176
	Thames Water	0	0	0	0	0	0	0	176	0	0	0	176
	United Utilities	0	0	0	0	0	0	0	0	176	0	0	176
	Wessex Water	0	0	0	0	0	0	0	0	0	176	0	176
	Yorkshire Water	0	0	0	0	5	0	0	0	0	0	171	176
	Grand Total	271	308	45	106	325	139	479	589	176	384	177	3000

Potential participants were phoned.

During the interview participants were told that they would be offered a series of choice pairs, where they could choose whether they would rather Scenario A, or Scenario B to occur and that these were hosted online. They were told it might be helpful in terms of speed and understanding if they were able to quickly look at them via a short link that could be read out. If not they were reassured that these could be read out over the phone.

The link was in the following format: <https://acsvy.com/3524/s1> with 30 variants.

33 took the link and 47 did not.

The interviews took place between 5 and 26 April. The average completion time for the non-household interviews was 18 minutes.

2.5 Identifying water and wastewater company

For all three approaches the first part of the postcode was used to identify the water and wastewater company.

At the start of the questionnaire, participants were asked to provide the first half of their postcode. So, for example, if the full postcode was ME1 3BN, this would be ME1 3.

The questionnaire software then used a look up table to identify the water and wastewater service company and asked the participant if they agreed with that. If not, they were provided with the full list of water and/or wastewater companies and asked to identify the relevant company.

If they typed in another company, said don't know or that none provided the service (for example because they had a septic tank) then the interview was closed.

For some postcodes there was more than one water and/or wastewater company. In those situations, the questionnaire showed the possible companies and asked the participant to choose.

3 Descriptive Findings

3.1 Introduction

This section sets out descriptive findings from the pilot.

3.2 Survey response

The HH panel survey achieved the 450 interviews as targeted.

The non-household survey achieved 80 out of the 100 targeted

The HH PAF approach achieved 627 against a target of 450.

PAF response

In total 6,000 letter invites were posted out.

- 3,000 invites were sent with a £5 incentive. Between 9 and 18 April there were 138 completes, a response rate of 4.6%
- 3,000 invites were sent with a £10 incentive. Between 9 and 18 April there were 198 completes, a response rate of 6.6%

Reminders were sent out on 17 April and between 18 April and 28 April when the survey closed a further 272 interviews were completed on line. The overall response rates were 9.1% for the initial £5 incentive that changed to £10 for the reminders and 11.1% for the initial £10 incentive. The overall online response rate was 10.1%.

45 asked for paper questionnaires (18 via a phone message and 27 via the postcard). The paper questionnaires were posted out and 19 have been returned.

The overall response, including the paper questionnaires, was 10.5%

3.3 Scoping

Some participants were excluded from the questionnaire. These were as follows:

- Those who did not agree with the privacy statement¹ at Q1

¹ Any data collected over the course of this interview that could be used to identify you, such as your name, address, or other contact details, will be held securely and will not be shared with any third party, including your water company, unless you give permission (or unless we are legally required to do so). Our privacy statement is available at <https://www.accent-mr.com/privacy-policy/>.

- Those or any of their close family who work in market research or for a water company at Q2
- For non-households: Those who are not solely or jointly responsible as the decision maker for paying their organisation's water and wastewater bill at Q3
- For non-households: Those who refuse to give their postcode at Q4
- Those who answer Q6 on water company and either say other, don't know or none
- Those who answer Q7 on wastewater company and either say other, don't know or none

The numbers out of scope are shown below for the three samples:

Table 8: Out of scopes

	Panel	PAF	NHH
Total entered survey	570	777	197
Q1 privacy	16	1	0
Q2 work in MR or for water company	21	13	0
Q3 NHH not decision maker on bills			61
Q4 NHH refuse postcode			0
Q6 other for water company	5	4	2
Q6 don't know for water company	5	15	12
Q6 none for water company	2	3	2
Q7 other for wastewater company	2	14	3
Q7 don't know for wastewater company	10	31	2
Q7 none for wastewater company	3	24	8
Totals	64	105	287
Proportion of out of scopes	11%	14%	46%

Water Company

Participants were asked to provide the first half of their postcode.

Based on their postcode 40 PAF and 15 Panel participants had more than one potential water supplier and 7 PAF and 5 Panel participants had more than one wastewater supplier. One non-household participant had more than one wastewater supplier. These participants were shown the possible suppliers and asked to select the correct one.

The final allocation by water company for the household sample is shown in Table 9.

Table 9: HH water company

	PAF	Panel
Affinity Water	4	4
Anglian Water	6	5
Bournemouth Water	1	1
Bristol Water	5	6
Cambridge Water	1	*
Essex & Suffolk Water	2	1
Hafren Dyfrdwy	3	3
Hartlepool Water	0	*
Northumbrian Water	4	4
Portsmouth Water	7	6
Severn Trent Water	7	8
South East Water	5	4
Southern Water	7	7
South Staffs Water	4	8
South West Water	7	2
Sutton & East Surrey (SES) Water	6	6
Thames Water	6	8
United Utilities	6	6
Welsh Water/Dwr Cymru	5	8
Wessex Water	6	6
Yorkshire Water	8	7
Base	608	450

* = less than 0.5%

The final allocation of wastewater company for the household sample is shown in Table 10.

Table 10: HH wastewater company

	PAF	Panel
Anglian Water	8	6
Hafren Dyfrdwy	2	2
Northumbrian Water	4	4
Severn Trent Water	12	16
Southern Water	19	17
South West Water	7	1
Thames Water	16	20
United Utilities	6	6
Welsh Water/Dwr Cymru	6	9
Wessex Water	12	13
Yorkshire Water	8	7
Base	608	450

For the non-household sample the final samples by water company and wastewater company are shown below:

Water company	%
■ Affinity Water	5
■ Anglian Water	4
■ Bournemouth Water	0
■ Bristol Water	9
■ Cambridge Water	5
■ Essex & Suffolk Water	4
■ Hafren Dyfrdwy	6
■ Hartlepool Water	0
■ Northumbrian Water	6
■ Portsmouth Water	4
■ Severn Trent Water	6
■ South East Water	6
■ Southern Water	8
■ South Staffs Water	4
■ South West Water	10
■ SES Water	3
■ Thames Water	5
■ United Utilities	4
■ Welsh Water/Dwr Cymru	8
■ Wessex Water	1
■ Yorkshire Water	4

Wastewater company	%
■ Anglian Water	10
■ Hafren Dyfrdwy	1
■ Northumbrian Water	6
■ Severn Trent Water	10
■ Southern Water	19
■ South West Water	8
■ Thames Water	14
■ United Utilities	4
■ Welsh Water/Dwr Cymru	13
■ Wessex Water	13
■ Yorkshire Water	4

Base: 80 non-households

The achieved interviews against the targets for the combined water and wastewater companies are shown in Table 11.

Table 11: Achieved interviews against the targets for combined water and wastewater companies

Water	Wastewater	Target	Achieved	
			Panel	PAF
Affinity Water	Anglian Water	3	2	2
	Southern Water	1	2	2
	Thames Water	23	15	16
Anglian Water	Anglian Water	25	21	34
	Welsh Water/Dwr Cymru		1	
	Northumbrian Water	1	0	0
	Severn Trent Water	1	0	2
Bristol Water	Wessex Water	27	27	25
Welsh Water/Dwr Cymru	Welsh Water/Dwr Cymru	27	33	30
	Hafren Dyfrdwy		1	1
Hafren Dyfrdwy	Welsh Water/Dwr Cymru	20	4	6
	Hafren Dyfrdwy	7	9	10
	Wessex Water			1
Northumbrian Water	Anglian Water	8	1	7
	Northumbrian Water	16	16	20
	Thames Water	3	3	3
Portsmouth Water	Southern Water	27	27	38
SES Water	Southern Water	2	4	5
	Thames Water	25	24	26
Severn Trent Water	Welsh Water/Dwr Cymru		1	
	Severn Trent Water	26	34	41
	Wessex Water		1	
	Yorkshire Water	1	2	1
South East Water	South West Water			2
	Southern Water	16	12	24
	Thames Water	11	8	5
South Staffs Water	Anglian Water	5	1	3
	Severn Trent Water	22	34	20
	South West Water			1
South West Water	South West Water	21	6	34
	Southern Water	1	1	2
	Wessex Water	5	3	3
Southern Water	Southern Water	26	29	39
	Thames Water	1	2	1
Thames Water	Thames Water	27	38	32
United Utilities	United Utilities	27	28	33
Wessex Water	Wessex Water	27	26	30
Yorkshire Water	Severn Trent Water	1	1	1
	Yorkshire Water	26	30	44
Other	Other	0	3	3
Total		450	450	547

Key:

 Below target

 Substantially below target

3.4 Demographics

Age

The age profile of the two HH samples is shown in Table 12 compared to the Census 2011. Both samples have an older profile than the census with the PAF closer than the Panel.

Table 12: Age band

	Census %	PAF %	Panel %
18-29	20	10	4
30-64	57	61	64
65 or older	23	28	32
Prefer not to say	-	1	
Base		608	450

Gender

The gender profile of the two HH samples is shown in Table 13 compared to the Census 2011. The PAF samples is much closer than the Panel to the Census gender split.

Table 13: Gender

	Census %	PAF %	Panel %
Male	49	51	44
Female	51	47	56
Non binary	-	*	0
Prefer to self-identify	-	*	0
Base		608	450

* = less than 0.5%

Occupation of head of household

The household sample was asked how they would describe the occupation type of the main income earner in their household.

The PAF sample has far more in the 'Senior managerial or professional' category than the Census (19% compared to 7%) whereas the panel is much closer (5%).

For the Intermediate managerial, administrative or professional category the PAF sample is very close (20% PAF v 21% Census) whereas the panel sample is much lower (13%).

For the Supervisor; clerical; junior managerial, administrative or professional category the PAF sample is closer than the panel (11% PAF, 20% panel v 6% Census).

Manual worker (with no qualifications) is much lower in the PAF than in the Census.

Table 14: Occupation of head of household

	Census %	PAF %	Panel %
Senior managerial or professional	7	19	5
Intermediate managerial, administrative or professional	21	20	13
Supervisor; clerical; junior managerial, administrative or professional	6	11	20
Manual worker (with industry qualifications)	10	8	13
Manual worker (with no qualifications)	17	3	10
Unemployed	4	2	7
Retired	29	29	32
Student	6	2	*
Prefer not to say	-	5	*
Base		608	450

* = less than 0.5%

Those who stated that the head of household was retired was asked whether the main income earner had a state pension, a private pension or both. The panel sample had slightly more state only pensioners than the PAF sample: 13% v 10%

Table 15: Pension type

	PAF %	Panel %
State only	10	13
Private only	14	19
Both	67	66
Prefer not to say	10	2
Base: retired	177	146

Ethnic group

The ethnic group of the sample was compared with the Census. The PAF sample and particularly the panel sample under-represented non White people.

Table 16: Ethnic group

	Census %	PAF %	Panel %
English, Welsh, Scottish, Northern Irish or British	80	86	89
Irish	1	1	1
Gypsy or Irish Traveller	*	*	0
Any other White background	4	5	4
White and Black Caribbean	1	*	0
White and Black African	*	*	0
White and Asian	1	0	*
Any other Mixed background	1	1	0
Indian	3	1	1
Pakistani	2	1	1
Bangladeshi	1	*	*
Chinese	1	1	*
Any other Asian background	1	*	1
Caribbean	2	*	*
African	1	1	1
Any other Black background	1	0	*
Arab	*	*	*
Any other ethnic group	1	*	*
Prefer not to say	-	3	*
Base		608	450

* = less than 0.5%

Household size

62% of the PAF sample and 68% of the panel sample were 1 or 2 person households. See Table 17.

Table 17: People in household

	PAF %	Panel %
1-2	62	68
3 or 4	29	28
5 or more	7	5
Prefer not to say	2	0
Base	177	146

Vulnerability

The household sample was asked if they or another member of their household were:

- disabled or suffers from a debilitating illness
- has a learning difficulty
- relies on water for medical reasons
- is visually impaired (i.e. struggles to read even with glasses)
- is over the age of 75 years old
- speaks English as a second language
- is deaf or hard of hearing
- is a new parent

For six tenths (59% PAF and 60% panel) none of the factors applied. The main ones that did apply were disability or suffering from a debilitating illness, aged over 75 year old and deaf or hard of hearing for both samples.

Table 18: Vulnerability

	PAF %	Panel %
I or another member of my household is disabled or suffer(s) from a debilitating illness	11	17
I or another member of my household am/is over the age of 75 years old	11	12
I or another member of my household is deaf or hard of hearing	10	9
I or another member of my household speaks English as a second language	7	6
I or another member of my household relies on water for medical reasons	7	5
I or another member of my household have/has a learning difficulty	4	3
I or another member of my household is a new parent	4	1
I or another member of my household is visually impaired	2	2
None of these apply to me	59	60
Prefer not to say	4	2
Base	608	450

Ability to pay

The extent to which the household sample may have financial difficulties was probed by asking which of the following statements they most agreed with:

- I can always afford to pay my household bills
- I can usually afford to pay my household bills
- I sometimes struggle to pay my household bills
- I usually struggle to pay my household bills
- I always struggle to pay for my household bills

The majority (59% PAF and 55% panel) said they could always afford to pay their household bills. 4% of the PAF sample and 6% of the panel sample said they usually or always struggled to pay their household bills.

Table 19: Financial vulnerability

	PAF %	Panel %
I can always afford to pay my household bills	59	55
I can usually afford to pay my household bills	24	27
I sometimes struggle to pay my household bills	14	12
I usually struggle to pay my household bills	2	3
I always struggle to pay for my household bills	2	3
Base	608	450

Digital exclusion

The degree of digital exclusion for the PAF sample was explored by asking which of the following best described them:

- I have never used the internet
- I have used the internet but do not have regular access to it
- I have regular access to the internet

The panel sample was not asked this as they necessarily have internet access to be panel members.

95% of the PAF sample have regular access to the internet. 2% said they have used the internet but do not have regular access to it and 2% preferred not to say. This data was taken from the 608 who completed on line.

For the 19 who completed the paper questionnaires the figures were:

- | | |
|---|---|
| ■ I have never used the internet | 5 |
| ■ I have used the internet but do not have regular access to it | 5 |
| ■ I have regular access to the internet | 7 |
| ■ Prefer not to say | 2 |

Base: 608 PAF online completes

Combining these with the online completes gives us:

- | | |
|---|-----|
| ■ I have never used the internet | 1% |
| ■ I have used the internet but do not have regular access to it | 3% |
| ■ I have regular access to the internet | 93% |
| ■ Prefer not to say | 3% |

Base: 627 PAF

Water meter status

62% of the PAF sample and 54% of the panel sample had a water meter.

Table 20: Whether has water meter

	PAF %	Panel %
Yes	62	54
No	31	42
Don't Know	5	3
Prefer not to say	1	0
Base	608	450

Those who had a water meter were asked if they asked for it to be fitted: 31% of the PAF sample and 46% of the panel sample who had water meters said they did.

3.5 Non household sample characteristics

How organisation uses water

The main use of water was for normal domestic use for their organisation's customers and employees, mentioned by 93%.

The main uses in order were:

■ Normal domestic use for their organisation's customers and employees	93%
■ The supply of services your organisation provides (e.g. cleaning services etc.)	28%
■ An ingredient or part of the product or service your organisation provides	20%
■ The manufacturing process which is essential to the running of your organisation	18%

Base: 80 non-households

Number of sites

Seven tenths of the non-household sample operated from one site. 16% operated from four or more sites:

■ 1	70%
■ 2	11%
■ 3	1%
■ 4+	16%
■ Prefer not to say	1%

Base: 80 non-households

Number of employees

The number of employees the organisation has in the UK was probed. Eight per cent were sole traders and 16% had less than four employees. 6% were large organisations with 250 or more employees:

■ None, sole trader	8%
■ Fewer than 4 employees	16%
■ 4 to 49 employees	59%
■ 50 to 249 employees	10%
■ 250+ employees	6%
■ Prefer not to say	1%

Base: 80 non-households

Industry classification

The NHH sample was asked what the core activity of their organisation was. The main areas were wholesale and retail trade, manufacturing and hotels & catering:

■ Wholesale and retail trade (including motor vehicles repair)	23%
■ Manufacturing	16%
■ Hotels & catering	13%
■ Human health and social work activities	10%
■ Arts, entertainment and recreation	6%
■ Other service activities	6%
■ Professional, scientific and technical activities	5%
■ Construction	3%
■ Real estate activities	3%
■ Agriculture, forestry and fishing	1%
■ Transport and storage	1%
■ IT and Communication	1%
■ Finance and insurance activities	1%
■ Administrative and Support Service Activities	1%
■ Education	1%
■ Other	9%

Base: 80 non-households

Water Meter

75% of the NHH sample said their premise had a water meter. 5% did not know.

3.6 Billing

For households, 96% of the PAF sample and 95% of the panel sample were bill payers and the remaining proportions were non bill payers.

Table 21: Are you the person in your household who is responsible, either solely or jointly, for paying for your water services bill?

	PAF %	Panel %
I have complete responsibility for payment	65	61
I share responsibility for payment with others in my household	30	34
I have no responsibility	3	5
Don't know	1	0
Base	608	450

19% of those aged 18-29 were not bill payers compared to 3% aged 30 or older.

About four fifths of HH customers received combined bills (80% PAF and 83% panel). For the NHH sample 71% received combined bills and 16% separate bills. See Table 22.

Table 22: Whether separate water and wastewater bills

	NHH %	PAF %	Panel %
Separate bills	16	14	13
Combined bills	71	80	83
Don't know	13	6	4
Base bill payers	80	582	428

Household bill payers were asked how often they made payments for water and sewerage services. This was used to show participants the appropriate bands for the following question on water and sewerage bills. The majority (61% PAF sample and 54% panel sample) made payments monthly with about a fifth six monthly.

Table 23: How often do you make payment for water and sewerage services

	PAF %	Panel %
Annually	4	9
Every six months	19	20
Every month, over eight months of the year	9	14
Every month	61	54
Other	7	3
Base bill payers	582	428

The bill amount, disaggregated by the payment frequency is shown in Table 24 and the bill amount grouped into seven categories is shown in Table 25.

Table 24: Bill amount

	PAF %	Panel %
Less than £10 per month/Less than £120 per year	1	3
£10 - £19.99 per month/£120 - £239.99 per year	10	14
£20 - £29.99 per month/£240 - £359.99 per year	18	18
£30 - £39.99 per month/£360 - £479.99 per year	13	9
£40 - £59.99 per month/£480 - £719.99 per year	19	11
£60 - £79.99 per month/£720 - £959.99 per year	5	3
£80 or more per month /£960 or more per year	1	1
Less than £15 per month/Less than £120 per year	0	1
£15 - £29.99 per month/£120 - £239.99 per year	3	2
£30 - £39.99 per month/£240 - £359.99 per year	2	2
£40 - £59.99 per month/£360 - £479.99 per year	2	3
£60 - £89.99 per month/£480 - £719.99 per year	2	2
£90 - £199.99 per month/£720 - £959.99 per year		0
£120 or more per month /£960 or more per year		0
Less than £60 every 6 months/Less than £120 per year	1	1
£60 - £119.99 every 6 months /£120 - £239.99 per year	4	4
£120 - £179.99 every 6 months /£240 - £359.99 per year	6	7
£180 - £239.99 every 6 months /£360 - £479.99 per year	3	4
£240 - £359.99 every 6 months /£480 - £719.99 per year	3	2
£360- £479.99 every 6 months /£720 - £959.99 per year	1	0
£480 or more every 6 months /£960 or more per year	0	
Don't know	8	13
Base bill payers	582	428

Table 25: Grouped bill amount

	PAF %	Panel %
Less than £120 per year	2	5
£120 - £239.99 per year	16	20
£240 - £359.99 per year	25	27
£360 - £479.99 per year	18	16
£480 - £719.99 per year	23	15
£720 - £959.99 per year	6	3
£960 or more per year	1	1
I'm not sure	8	13
Base	582	428

The PAF sample has a higher proportion paying larger bills: 30% over £480 per year compared to 19% for panel.

For the NHH sample the bill distribution was:

- Less than £1,000 per year 56%
- £1,000 to £5,000 per year 25%
- £5,000 to £25,000 per year 6%
- More than £25,000 per year 3%
- I'm not sure 10%

Base: 80 NHH

3.7 Service issues

Participants were asked if they had ever experienced any of the following service issues:

- Unexpected water supply interruption
- Planned water supply interruption
- Unexpected low pressure
- Boil water notice
- Do not drink notice
- Discolouration of water coming out of your tap
- A change to the taste and/or smell of your tap water
- Sewer flooding: inside your property
- Sewer flooding: outside your property
- Hosepipe ban
- Emergency drought restrictions (e.g. tap water being cut off on a rota basis to conserve supplies)
- Pollution in a river
- Pollution in the sea near a beach

Overall, the PAF sample were more likely to have experienced service issues: 65% PAF compared to 54% panel experienced service issues.

For the non-household sample 51% experienced service issues.

The main service issues were hosepipe bans, planned water supply interruptions, unexpected low pressure and discolouration of water coming out of your tap. See Table 26.

Table 26: Whether experienced any of the following service issues

	NHH %	PAF %	Panel %
Hosepipe ban	19	25	21
Planned water supply interruption	19	25	21
Unexpected low pressure	16	21	19
Discolouration of water coming out of your tap	15	21	17
Unexpected water supply interruption	14	14	14
A change to the taste and/or smell of your tap water	10	15	10
Pollution in the sea near a beach	8	9	5
Sewer flooding: outside your property	5	6	4
Pollution in a river	6	6	3
Boil water notice	4	4	3
Do not drink notice	3	2	2
Emergency drought restrictions (e.g. tap water being cut off on a rota basis to conserve supplies)	3	1	2
Sewer flooding: inside your property	9	1	1
Other	3	4	1
I haven't experienced any of these	49	35	46
Base bill payers	80	608	450

All participants who had mentioned the following two service issues were then asked if they had experienced them in the last 12 months:

- Discolouration of water coming out of your tap
- A change to the taste and/or smell of your tap water

Table 27 shows the proportion that had experienced each in the last 12 months.

Table 27: Proportion who had experienced the following service issues in last 12 months

	NHH %	PAF %	Panel %
Discolouration of water coming out of your tap	6	10	6
A change to the taste and/or smell of your tap water	6	8	4
Base bill payers	80	608	450

3.8 Use of rivers and beaches in the UK

The household sample was asked if they or anyone in their household, used rivers in the UK for any of the following activities:

- Water contact activities (e.g. canoeing, rowing, rafting, paddleboarding, swimming, paddling)
- Fishing

- Walking, running, cycling or sitting nearby or other activities on or around the water (e.g. narrowboating, other types of boating)

Walking, running, cycling or sitting nearby or other activities on or around the water was the most frequently cited activity with 67% of the PAF sample and 49% of the panel sample doing it sometimes or often. Fishing was done least with 82% of both PAF and panel samples saying they never did it. See Table 28.

Table 28: Use of rivers in the UK

	Water contact activities		Fishing		Walking, running, cycling or sitting nearby or other activities on or around the water	
	PAF %	Panel %	PAF %	Panel %	PAF %	Panel %
Often	5	2	3	3	31	19
Sometimes	15	8	5	7	37	30
Rarely	23	12	10	8	13	15
Never	57	78	82	82	19	36
Base	608	450	608	450	608	450

Similarly, the household sample was asked if they or anyone in their household, used the beach or sea in the UK for any of the same activities.

Again, walking, running, cycling or sitting nearby or other activities on or around the water was the most frequently cited activity with 72% of the PAF sample and 46% of the panel sample doing it sometimes or often. Again, fishing was done least with 85% of the PAF and 84% of the panel sample saying they never did it. See Table 29.

Table 29: Use of beaches or the sea in the UK

	Water contact activities		Fishing		Walking, running, cycling or sitting nearby or other activities on or around the water	
	PAF %	Panel %	PAF %	Panel %	PAF %	Panel %
Often	8	4	2	3	26	16
Sometimes	23	11	4	5	44	30
Rarely	27	16	9	8	15	20
Never	42	69	85	84	15	34
Base	608	450	608	450	608	450

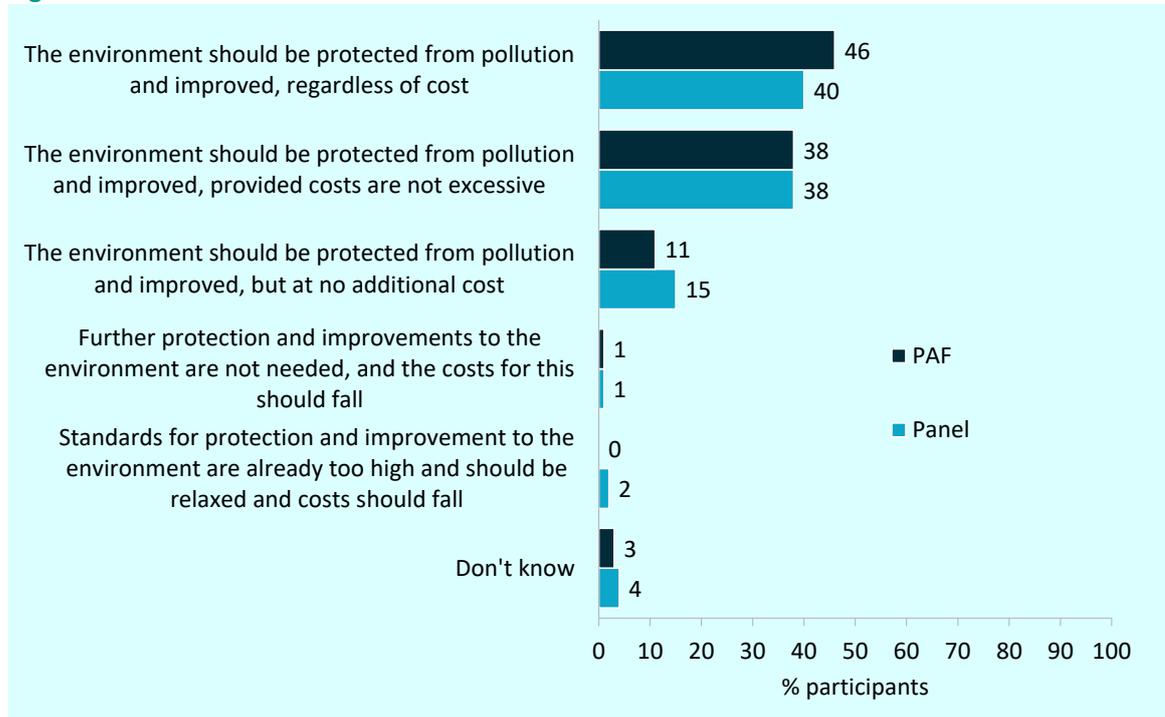
3.9 Attitudes to environmental costs

The household sample was asked to state which of a set of five statements about pollution control and the costs of pollution control they agreed with most. Figure 5 shows the findings.

Two statements ‘the environment should be protected from pollution and improved, **regardless of cost**’ and ‘The environment should be protected from pollution and

improved, **provided costs are not excessive**’ gained most support with 46% of the PAF sample compared to 40% for the panel sample agreeing most with the first and 38% of both samples agreeing most with the second.

Figure 5: Attitudes to environmental costs



Base: PAF 608, Panel 450

4 Impact Exercise Findings

4.1 Introduction

This section focuses on findings from the impact exercise. It includes feedback from pilot participants following the exercise, diagnostics concerning the choice data, econometric models, the impact scores generated from those models, and an analysis of the validity of these impact scores by comparing them against prior expectations.

4.2 Participant feedback

Feedback from participants following the impact exercise was positive. As shown in Figure 6, only very small proportions of participants disagreed a) that they were able to understand the choices, b) that they found the options believable, and c) that their choices were based on how much impact each option would have on their household/premises. This is true of all three sub-samples.

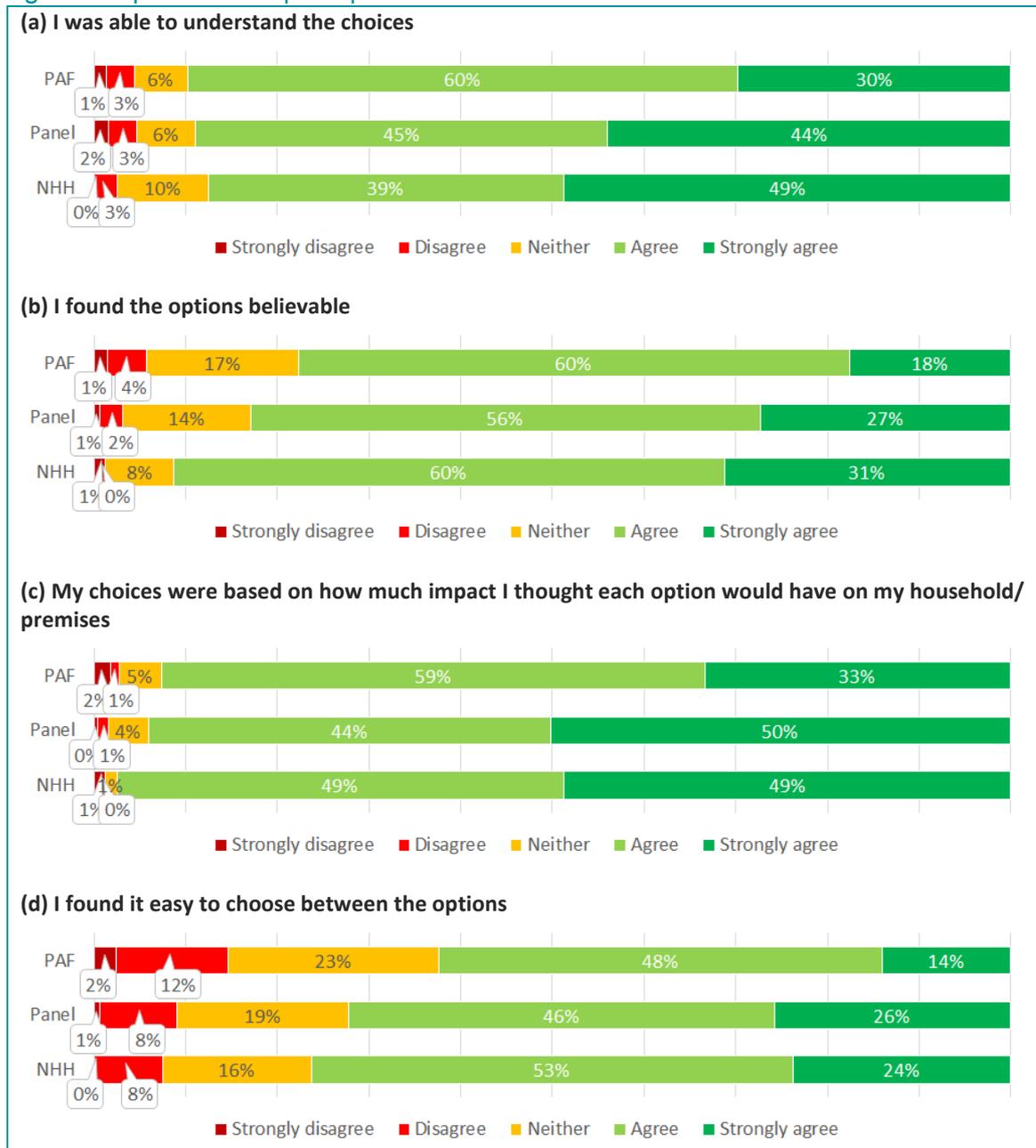
Furthermore, among those who did disagree that they were able to understand the choices, a number gave such reasons as 'I understood them all', 'They were explained clearly', 'Very clear questions', 'Written well, simple and easy to understand. Infographics helped too', suggesting that, in fact, they did not disagree at all (see Appendix E).

A larger proportion disagreed that that it was easy to choose between the options—between 8% and 14%, depending on the sample, with the largest proportion of 14% being recorded amongst the PAF participants. A variety of reasons were given by participants; (see responses to feedback follow-up questions in Appendix E). The main reasons were

- that one had to trade off the impact on the household against impacts on the environment, for example
 - *Because I was torn between environmental and what is better for my family*
 - *Whether to worry about the greater good or focus on own household.*
- that the impacts were negative under both scenarios, for example
 - *In some cases both options would impact us so it was necessary to work out which one would have the most impact*
- that neither scenario was seen as having a significant impact or that the impacts were similar, for example
 - *In some cases neither would really affect me.*
 - *Some were negligible*
 - *Impact appeared to be very similar in most cases.*
- that it was not easy to imagine the impacts in each scenario, for example
 - *On a couple of questions, I found it hard to gauge the impact of the 2 options.*
 - *because i am unsure of the exact consequences of some of the options*

The responses to the follow-up questions do not suggest any issues around the format or design of the exercise that need addressing. Overall, these findings provide support for considering the responses to the choice questions to be valid and meaningful in the vast majority of cases.

Figure 6: Impact exercise: participant feedback



Base: PAF = 608; Panel = 450; NHH = 80

The following table compares non-household feedback, in terms of the proportion disagreeing or strongly disagreeing, by the method of survey delivery. Although all were recruited by telephone and completed the interview by telephone, the non-household sample was split by whether the participant followed the weblink given by the interviewer to see the choices on the screen, or whether the choices were all read out by the interviewer over the phone.

The sample sizes are small in each case, but the results do seem to suggest some harmful impact due to the choices being read out by phone. More participants disagreed that they were able to understand the choices, and more disagreed that they found it easy to choose, when the choices were read out by phone. The results are inconclusive due to the small sample size, and the impacts are fairly small, but the mode of delivery does appear on this evidence to be having an effect.

Table 30: Non-household feedback to impact exercise by whether information was obtained from weblink or read out by interviewer

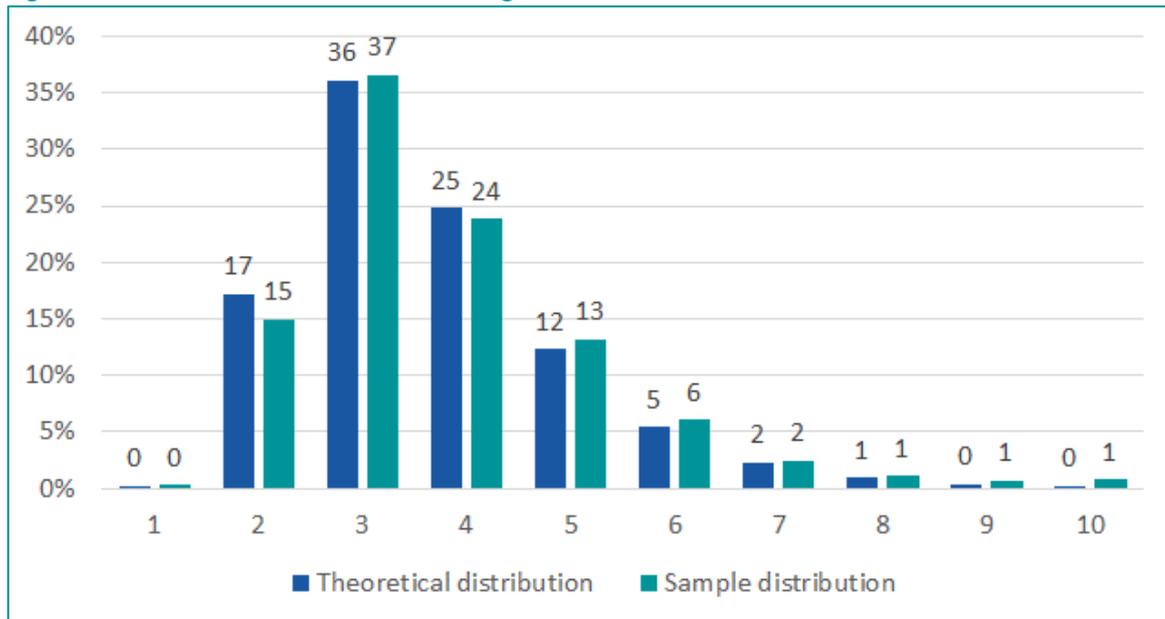
	% disagree or strongly disagree	
	Looked at website ¹	Read out by interviewer ²
I was able to understand the choices	0	4
I found the options believable	3	0
My choices were based on how much impact I thought each option would have on my premises	3	0
I found it easy to choose between the options	6	9

Bases: (1) 33, (2) 47

4.3 Diagnostics

Making the same choices repeatedly (e.g., Option A chosen nine times in a row) can be indicative of not engaging with the survey, and a large number of non-traders implies a poor-quality dataset for analysis. Figure 7 compares the sample distribution of the maximum length of runs of identical choices (e.g., same option chosen at most 5 times in a row) against the theoretical distribution that is obtained when there are equal choice probabilities for Option A and Option B in each question. The two distributions are nearly identical which confirms that non-trading is not a cause for concern. Moreover, only a tiny proportion (1%) chose the same option across all 10 choice occasions.

Figure 7: Distribution of the maximum length of runs of identical choices



Base: 1,138 participants (full sample)

4.4 Econometric modelling

The choices were analysed using a conditional logit model with choice as the dependent variable, a {1,0} variable indicating whether any given scenario was seen as having a greater impact than the other scenario available in any given choice occasion. The model estimates the impact of each scenario in comparison to a base scenario/variable (here, 'Unexpected water supply interruption (6h)') which is omitted. (The decision which variable is chosen as the base variable is arbitrary and has no influence on the final outcome.)

Separate models were estimated for the household PAF sample, the household Panel sample, and the non-household sample. Larger coefficients on any of the variables imply a greater impact of that scenario compared to scenarios that have smaller coefficients. The models are shown in Table 31 to Table 33 respectively.

Overall, the findings from the econometric analysis are positive. In the household models the vast majority of coefficients are highly statistically significant, i.e., most scenarios have a statistically larger or smaller impact than the omitted base scenario which is an unexpected water supply interruption lasting 6 hours. Most coefficients are statistically significant also in the non-household model. The models fit the data well for the household samples and very well for the non-household sample, as evidenced by the pseudo R^2 statistic.

Table 31: Household econometric model: PAF sample

	Coef.	Std. Err.	z	P>z
Sewer flooding: inside your property (1 week)	2.9364	0.2657	11.05	0.000
Sewer flooding: outside your property (1 week)	1.7430	0.1899	9.18	0.000
Emergency drought restrictions (2 months)	1.2442	0.1954	6.37	0.000
Do not drink notice (48h)	0.9774	0.1644	5.95	0.000
Unexpected water supply interruption (24h)	0.6344	0.1602	3.96	0.000
Discoloured water (24h)	0.1846	0.1742	1.06	0.289
Boil water notice (48h)	0.1363	0.1502	0.91	0.364
Significant pollution incident nearby (4 weeks)	0.1163	0.1590	0.73	0.465
Water taste and smell (24h)	0.0285	0.1353	0.21	0.833
Unexpected water supply interruption (6h)	0.0000			
Planned water supply interruption (24h)	-0.0483	0.1422	-0.34	0.734
Significant pollution incident elsewhere (4 weeks)	-0.3247	0.1608	-2.02	0.043
Unexpected low water pressure (6h)	-0.6862	0.1601	-4.29	0.000
Planned water supply interruption (6h)	-0.6946	0.1474	-4.71	0.000
River water nearby is not High quality	-0.7639	0.1478	-5.17	0.000
Minor pollution incident nearby (1 day)	-0.8397	0.1493	-5.63	0.000
Coastal bathing water is neither Excellent nor Good quality	-0.9126	0.1522	-6.00	0.000
Hosepipe ban (5 months)	-0.9315	0.1572	-5.92	0.000
River water elsewhere is not High quality	-0.9318	0.1589	-5.87	0.000
Storm overflow nearby (4 hours)	-0.9368	0.1432	-6.54	0.000
Storm overflow elsewhere (4 hours)	-1.0195	0.1460	-6.98	0.000
Minor pollution incident elsewhere (1 day)	-1.0843	0.1472	-7.36	0.000
Low flows in rivers nearby (2 months)	-1.1902	0.1452	-8.20	0.000
Coastal bathing water is not Excellent quality	-1.2055	0.1501	-8.03	0.000
Low flows in rivers elsewhere (2 months)	-1.4758	0.1508	-9.78	0.000
No of observations		12,160		
No of participants		608		
Pseudo R ²		0.14		

Note: Conditional logit estimates

Table 32: Household econometric model: Panel sample

	Coef.	Std. Err.	z	P>z
Sewer flooding: inside your property (1 week)	1.9888	0.2749	7.23	0.000
Emergency drought restrictions (2 months)	0.7449	0.2153	3.46	0.001
Sewer flooding: outside your property (1 week)	0.6806	0.1982	3.43	0.001
Do not drink notice (48h)	0.4749	0.1956	2.43	0.015
Unexpected water supply interruption (24h)	0.2547	0.1814	1.40	0.160
Boil water notice (48h)	0.0308	0.1753	0.18	0.861
Unexpected water supply interruption (6h)	0.0000			
Planned water supply interruption (24h)	-0.1260	0.1651	-0.76	0.445
Discoloured water (24h)	-0.1547	0.1942	-0.80	0.426
Water taste and smell (24h)	-0.2329	0.1675	-1.39	0.164
Significant pollution incident nearby (4 weeks)	-0.5187	0.1871	-2.77	0.006
Planned water supply interruption (6h)	-0.6244	0.1770	-3.53	0.000
Unexpected low water pressure (6h)	-0.6710	0.1842	-3.64	0.000
Significant pollution incident elsewhere (4 weeks)	-0.7015	0.1839	-3.81	0.000
Minor pollution incident nearby (1 day)	-0.9759	0.1689	-5.78	0.000
Storm overflow nearby (4 hours)	-1.1250	0.1789	-6.29	0.000
Hosepipe ban (5 months)	-1.1716	0.1827	-6.41	0.000
Minor pollution incident elsewhere (1 day)	-1.1837	0.1690	-7.00	0.000
River water nearby is not High quality	-1.2680	0.1754	-7.23	0.000
Low flows in rivers nearby (2 months)	-1.3356	0.1814	-7.36	0.000
Storm overflow elsewhere (4 hours)	-1.3763	0.1755	-7.84	0.000
Low flows in rivers elsewhere (2 months)	-1.4846	0.1726	-8.60	0.000
River water elsewhere is not High quality	-1.6151	0.1833	-8.81	0.000
Coastal bathing water is neither Excellent nor Good quality	-1.8759	0.1862	-10.07	0.000
Coastal bathing water is not Excellent quality	-1.8973	0.1690	-11.23	0.000
No of observations		9,000		
No of participants		450		
Pseudo R ²		0.15		

Note: Conditional logit estimates

Table 33: Non-household econometric model

	Coef.	Std. Err.	z	P>z
Sewer flooding: inside your property (1 week)	2.5544	0.8921	2.86	0.004
Sewer flooding: outside your property (1 week)	0.9375	0.6133	1.53	0.126
Emergency drought restrictions (2 months)	0.7297	0.5747	1.27	0.204
Unexpected water supply interruption (24h)	0.1641	0.4884	0.34	0.737
Unexpected water supply interruption (6h)	0.0000			
Do not drink notice (48h)	-0.2451	0.5081	-0.48	0.629
Planned water supply interruption (24h)	-0.6643	0.4352	-1.53	0.127
Boil water notice (48h)	-0.7969	0.5052	-1.58	0.115
Water taste and smell (24h)	-0.8291	0.5508	-1.51	0.132
Unexpected low water pressure (6h)	-0.8995	0.5864	-1.53	0.125
Planned water supply interruption (6h)	-0.9455	0.5629	-1.68	0.093
Discoloured water (24h)	-0.9893	0.5988	-1.65	0.099
Significant pollution incident nearby (4 weeks)	-1.1883	0.4966	-2.39	0.017
Significant pollution incident elsewhere (4 weeks)	-1.4136	0.4623	-3.06	0.002
Storm overflow nearby (4 hours)	-1.9231	0.4450	-4.32	0.000
Minor pollution incident nearby (1 day)	-1.9790	0.5087	-3.89	0.000
River water nearby is not High quality	-2.3396	0.4581	-5.11	0.000
Storm overflow elsewhere (4 hours)	-2.4068	0.5320	-4.52	0.000
Low flows in rivers nearby (2 months)	-2.4250	0.4357	-5.57	0.000
Minor pollution incident elsewhere (1 day)	-2.4871	0.5215	-4.77	0.000
Hosepipe ban (5 months)	-2.6323	0.5237	-5.03	0.000
Low flows in rivers elsewhere (2 months)	-2.6412	0.5775	-4.57	0.000
River water elsewhere is not High quality	-2.8143	0.5205	-5.41	0.000
Coastal bathing water is neither Excellent nor Good quality	-3.0046	0.5123	-5.86	0.000
Coastal bathing water is not Excellent quality	-3.6190	0.5647	-6.41	0.000
No of observations		1,600		
No of participants		80		
Pseudo R ²		0.27		

Note: Conditional logit estimates

4.5 Impact scores

Figure 8 and Figure 9 show the impact scores for each of the 25 scenarios for households and non-households, respectively.

Figure 8: Impact scores for the household sample: PAF vs Panel



Note: Stars * indicate statistically significant differences between PAF and Panel samples (5% level). The error bars show 95% confidence intervals calculated using the delta method.

The impact scores were calculated as exponentiated coefficients (odds ratios) based on the corresponding estimates in Table 31 to Table 33, and were scaled to sum to 100 across the full set of scenarios covered in the exercise. These scores are an index representing the relative impact of each scenario.

The highest impacts among household customers were associated with²:

- Sewer flooding: inside your property (1 week)
- Sewer flooding: outside your property (1 week)
- Emergency drought restrictions (2 months)
- Do not drink notice (48h)
- Unexpected water supply interruption (24h)

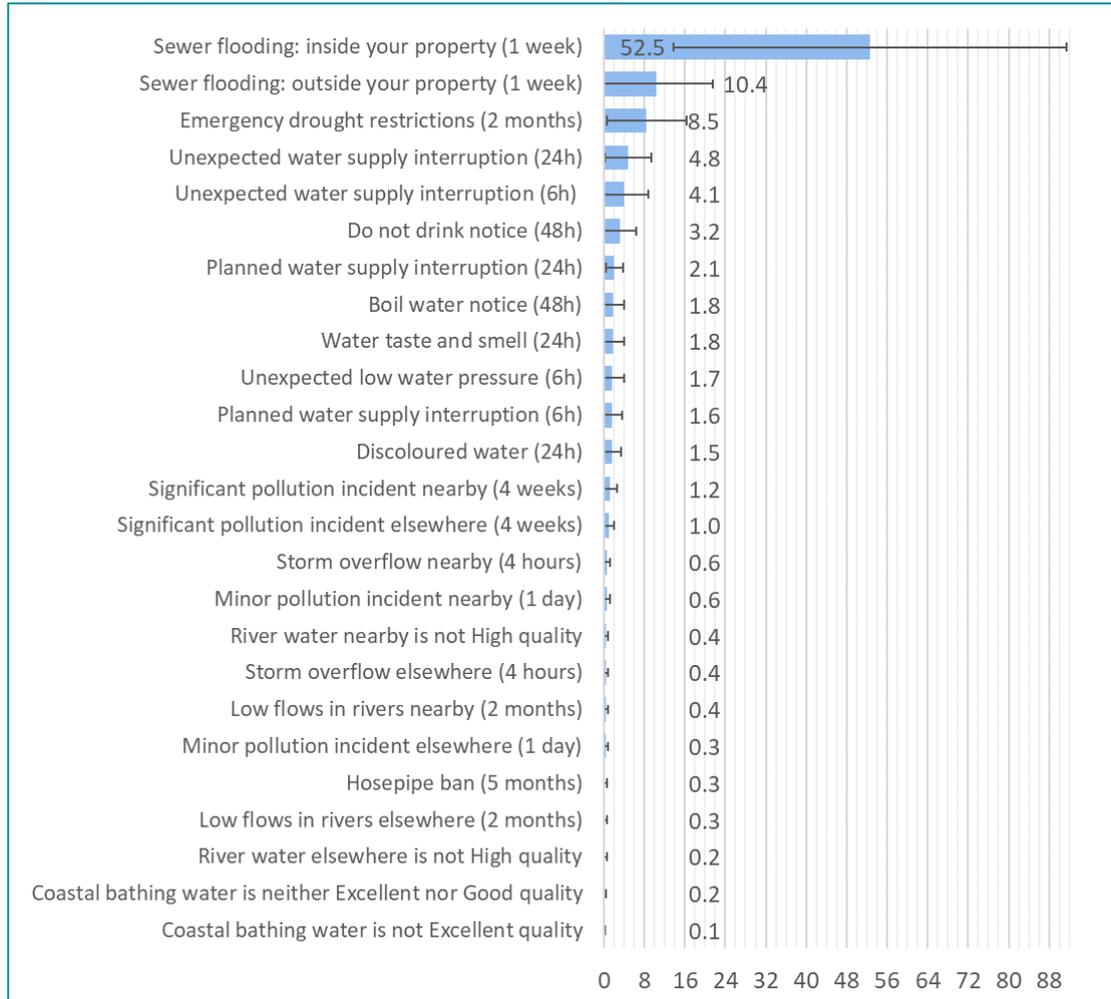
The rank correlation of 0.93 (on a 0-1 scale) between impact scores for the PAF and Panel samples indicates that views regarding the impacts of the service issues and environmental damages covered in the exercise were similar across samples.

No weighting was applied to either sample for the purposes of the pilot analysis, and so observed differences could include differences in sample demographics.

The five highest impact scenarios for non-households are the same as for the PAF household sample, the only exception to this being that 'Do not drink notice (48)' ranks in 6th place, while 'Unexpected water supply interruption (6h)' makes it to 5th place. The top five scenarios account for 80% of the 'total impact', compared to between 60%-73% for households, depending on sample.

² The rank order of internal sewer flooding and emergency drought restrictions was reversed in the Panel sample compared to PAF.

Figure 9: Impact scores for the non-household sample



Note: The error bars show 95% confidence intervals calculated using the delta method.

4.6 Expectation-based validity analysis

As a test of the validity of the rankings derived from the econometric models we checked the relative impacts between pairs of scenarios against prior expectations as laid out in Table 2, which were the basis for excluding choice sets that included the relevant pairs of scenarios from the design of the impact exercise on the grounds that, in each case, one scenario is 'dominant' in terms of impact.

We found three very minor 'violations' when comparing the restrictions shown in Table 2 against the impact score rankings.

- 'Minor pollution incident elsewhere' ranked lower (22nd) than 'Storm overflow elsewhere' (21st) in the PAF sample
- 'Minor pollution incident nearby' ranked lower (16th) than 'Storm overflow nearby' (15th) in the non-household sample
- 'Minor pollution incident elsewhere' ranked lower (20th) than 'Storm overflow elsewhere' (18th) in the non-household sample.

These are minor violations, both because the rank differences are small, and subject to sampling error, and because the descriptions do not necessarily imply there is any violation of expectation at all. These findings are therefore supportive of the validity of the impact scores obtained from the data.

5 Compensation Exercise Findings

5.1 Introduction

This section focuses on findings from the compensation exercise. It includes feedback from pilot participants following the exercise, analysis of the contingent valuation data, and derived valuations for all the service issue scenarios based on combining this analysis with the impact scores obtained in the previous section.

5.2 Participant feedback

Feedback from participants following the compensation exercise was positive as shown in Figure 10. Only very small proportions disagreed a) that they were able to understand the choices³, b) that their choices were based on how much impact each option would have on their household/premises and whether the amount of money shown was enough to compensate for, and c) that they found it easy to choose between the options.

Moreover, among those who disagreed that they were able to understand the choices, a number gave such reasons as 'I understood them all', 'They were explained clearly', 'Very clear questions', 'Written well, simple and easy to understand. Infographics helped too', suggesting that, in fact, they did not disagree at all (see Appendix E).

A somewhat greater proportion, although still fairly small, (9% in the PAF sample) disagreed that the options were believable. The main reasons cited by the 76 participants who disagreed were:

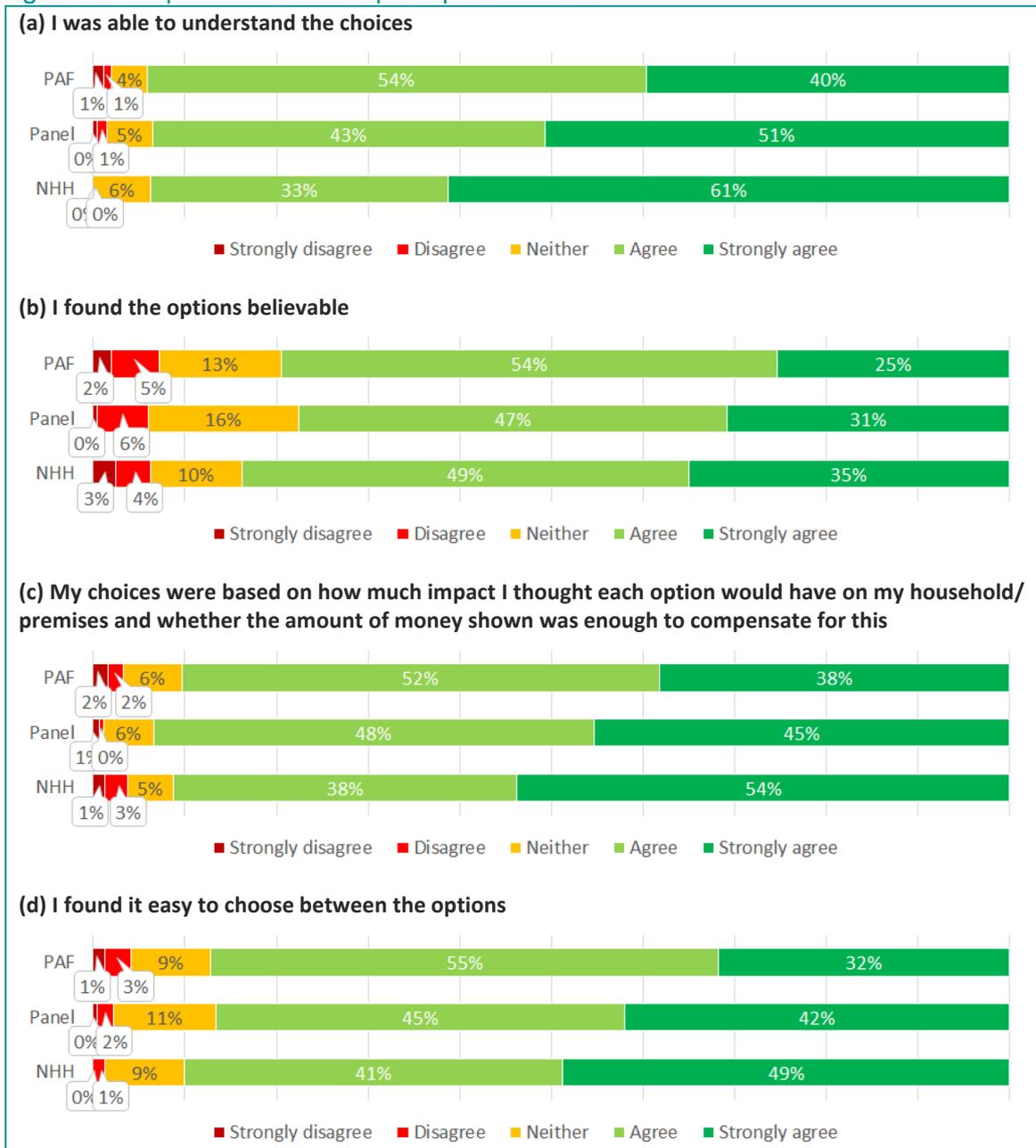
- that the compensation amounts were unbelievably high (around 30% of responses), for example⁴
 - *I don't believe the company would compensate that much.*
 - *I think the compensation amounts were higher than would be paid.*
 - *i cant imagine anglian water offering me £10k compo under any scenario.*
- that any compensation would be paid at all (around 10% of responses), for example
 - *Can't believe compensation would be offered*
 - *I can't believe those greedy inefficient b*****s at the water company would front up with compensation.*

³

⁴ However, note the following responses to the question of why it was difficult choosing between the options: 'I don't know how much damage would be caused by the flooding, could cost more than £2000!'; 'Not knowing what damage a sewer leak could do to our property made it hard to decide if £5000 compensation would be enough to cover any damage.'

- I've had issues with other companies and the compensation entitlements are non-existent, I would be very surprised if companies would compensate
- that the service issue would occur (around 10% of responses), for example
 - I don't believe that would happen where we currently live
 - I live on a hill it is very unlikely to ever happen.
 - Just from experience of where I am, I cant imagine we would have that problem outside out office for that period if time (sewer flooding).

Figure 10: Compensation exercise: participant feedback



Base: PAF = 608; Panel = 450; NHH = 80

The following table compares non-household feedback, in terms of the proportion disagreeing or strongly disagreeing, by the method of survey delivery. The results here seem to suggest that there were less substantial negative impacts caused by reading out the choices over the phone in comparison with the impact exercise. In both cases, for

example, there were no participants saying they disagreed with the statement that they were able to understand the choices. However, there were more people disagreeing that it was easy to choose between the options when read out by interviewer. The sample sizes are fairly small, however, and so the results are inconclusive as to whether there could be any significant harmful effects.

Table 34: Non-household feedback to compensation exercise by whether information was obtained from weblink or read out by interviewer

	% disagree or strongly disagree	
	Looked at website ¹	Read out by interviewer ²
I was able to understand the choices	0	0
I found the options believable	9	4
My choices were based on how much impact I thought each option would have on my premises	3	4
I found it easy to choose between the options	0	2

Bases: (1) 33, (2) 47

The feedback statistics are supportive overall with regard to the design of the compensation exercise despite there being a small number of cases where the validity of individual participants' responses could be questioned. These feedback questions should be retained in the main stage questionnaire to allow checking the robustness of key findings to the exclusion of participants who give feedback indicating invalid responses.

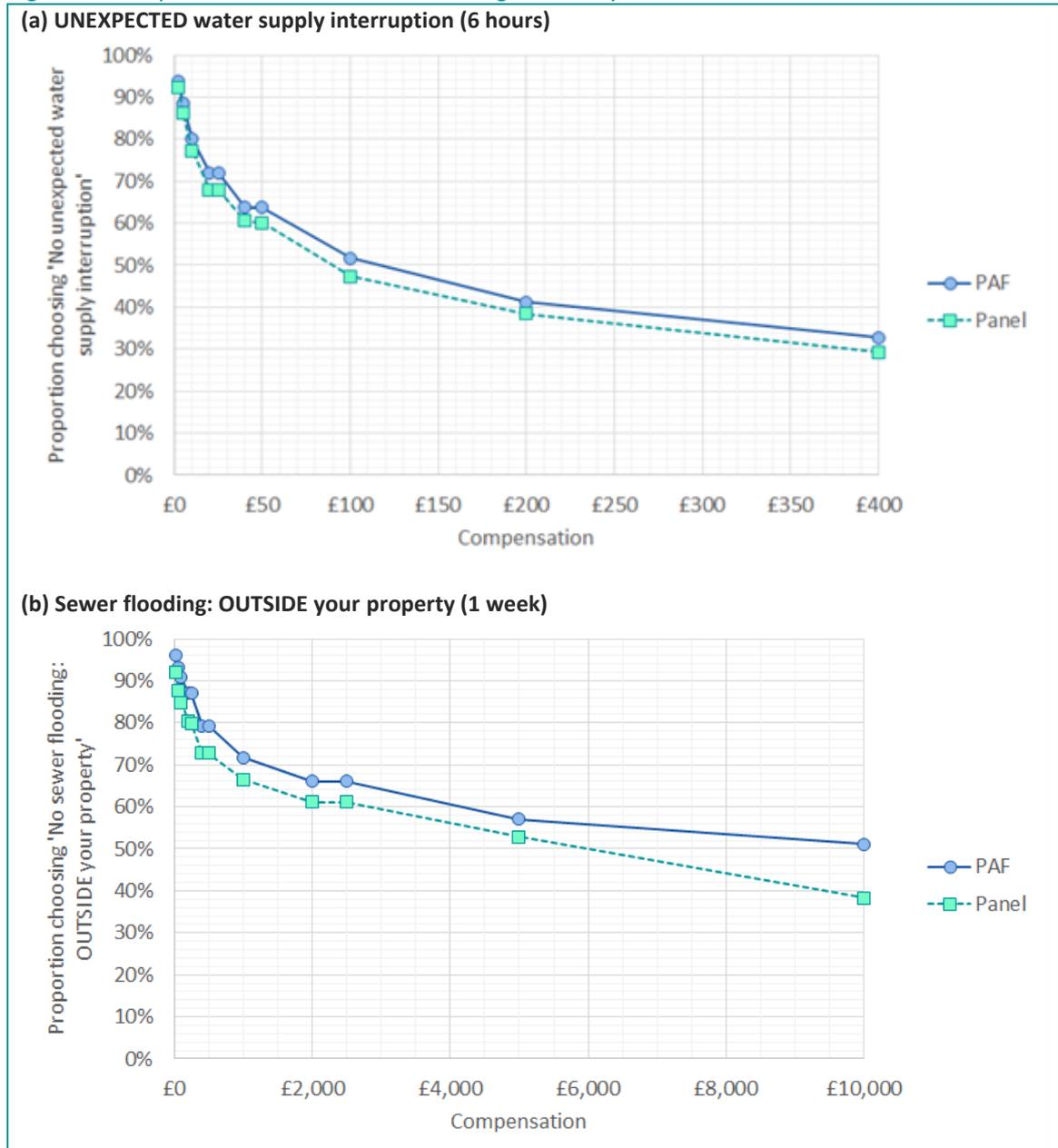
5.3 Contingent valuation results

Estimates of the proportions choosing not to experience the service issues covered in the compensation exercise are shown in Figure 11 for households and in Figure 12 for non-households⁵.

As expected, all curves are downward sloping, indicating that participants were more likely to choose not to experience the service issues when a low compensation was offered than when compensations were high. For households, the blue curve (PAF sample) lies above the green curve (Panel sample) indicating that PAF participants were somewhat more reluctant to accept compensation than Panel customers, but, overall, the two curves are similar.

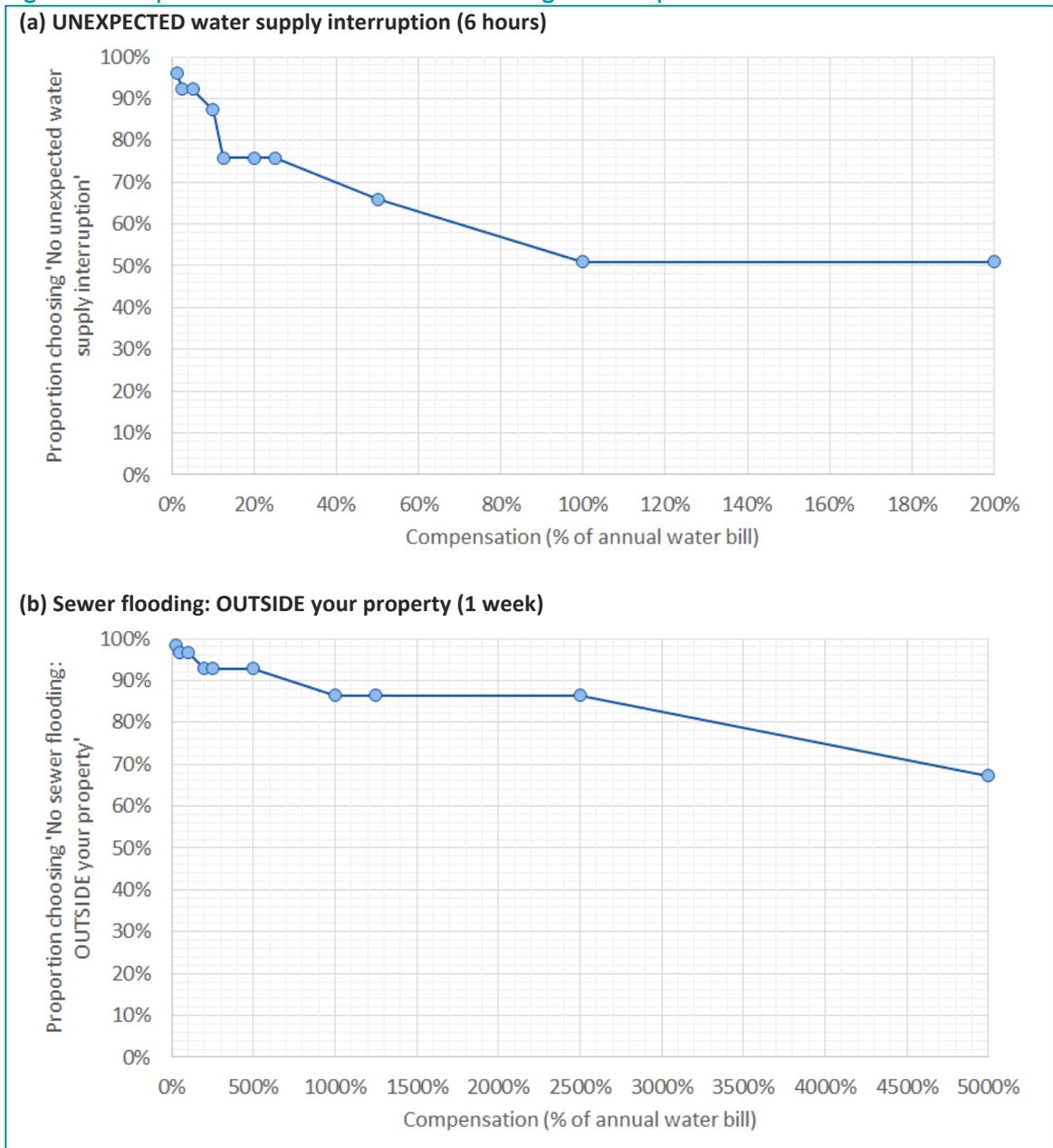
⁵ The estimates were obtained from the *DCchoice* package for the R environment (R Core Team 2021), and were checked against estimates obtained using several different algorithms available from the *Icens* package. See Nakatani, Tomoaki, Hideo Aizaki, and Kazuo Sato (2020). *DCchoice: An R Package for Analyzing Dichotomous Choice Contingent Valuation Data*. R package version 0.0.17 and Gentleman R., and Alain Vandal (2021). *Icens: NPMLE for Censored and Truncated Data*. R package version 1.64.0. The main advantage of the non-parametric approach over parametric estimates is that NPML estimation avoids a-priori specification of a functional form for the 'demand' function.

Figure 11: Proportions of households choosing not to experience the service issue



No weighting was applied to either sample for the purposes of the pilot analysis, and so observed differences could include differences in sample demographics.

Figure 12: Proportions of non-households choosing not to experience the service issue



The main concern regarding pilot testing of the compensation exercise is to make sure that the range of compensation amounts is appropriate. Too narrow a range would lead to downward bias in the estimated mean valuations. Too large a range could be wasteful in terms of statistical efficiency of the design.

The curves shown in Figure 11 and Figure 12 do not span the full range of probabilities given that even at the highest compensation levels a considerable proportion of customers chose not to experience the service issue. This is especially true for non-household customers.

Because of this, mean valuation estimates from the pilot survey are unlikely to be accurate, and median valuations are imprecisely estimated.

This should be addressable by increasing the compensation levels used in the survey, and/or by choosing lower-impact service issues. Improving the ‘offer’ to customers is necessary to encourage more participants to choose to accept the compensation payment and thereby ‘choke off demand’ for the non-occurrence of the service issues.

Though the samples are not necessarily representative of the customer base, as no weighting has been applied at the pilot stage and the non-household sample is small, it is indicative to note the implied valuations arising from the choice data. For example, based on the PAF curve in panel (a) of Figure 11 we estimate that just over 50% of customers are willing to forego a £100 compensation to avoid an unexpected water supply interruption lasting 6 hours, which indicates that these customers’ valuation of avoiding the service issue is £100 or higher.

Table 35 presents estimates of mean and median valuations of avoiding the service issues covered in the compensation exercise. The ‘mean’ valuations shown here are highly sensitive to the upper level chosen in the compensation exercise design in the pilot survey and are therefore not recommended to be trusted on even an indicative basis. The median valuations, by contrast are much more reliable.

Table 35: Valuations of avoiding service issues

Unexpected water supply interruption lasting (6 hours)

	PAF	Panel	NHH
Mean	£168	£154	113% of the annual water bill
Mean conf. interval	(£149, £187)	(£134, £176)	(86%, 141%)
Median	£116	£89	> 200% of the annual water bill

Sewer flooding outside one’s property (1 week)

	PAF	Panel	NHH
Mean	£5,755	£4,871	39 times the annual water bill
Mean conf. interval	(£5,141, £6,374)	(£4,262, £5,502)	
Median	> £10,000	£5,958	> 50 times the annual water bill

Note: The mean is a lower bound Turnbull estimate, as explained in the text. Bootstrap confidence intervals based on 10,000 replications. (Interval not reported for NHH ‘Sewer flooding’ due to convergence issues in non-parametric ML estimation.) The median was estimated by interpolating between the relevant probability estimates.

To estimate the implied mean valuation, we used the Turnbull approach, which calculates the lower-bound of the mean valuation and represents a highly conservative estimate of the true mean. It is a conservative estimate as it assumes that the valuation of those who prefer ‘no service issue’ to, say, a £100 compensation, but prefer experiencing the service issue ‘in return for’ a £200 compensation, is £100 and no more, instead of attempting to smooth out the distribution between compensation levels. The Turnbull approach effectively treats the piecewise linear curves shown in Figure 11 and Figure 12 as ‘step functions’.

Looking across the sample columns of Table 35, we find that the lower bound mean valuation of avoiding external sewer flooding lasting 1 week is at least 30 times higher than the valuation of avoiding an unexpected water supply interruption lasting 6 hours. The median valuations of not experiencing a) an unexpected supply interruption and b) an

external sewer flooding similarly differ by an order of magnitude. These differences are considerably larger than the corresponding differences in the estimated impact of these service issues on customers. For example, using choice data from the PAF sample (see Figure 8), we found that the impact of 1 week of external sewer flooding (12.8 on a 0-100 scale) was less than 6 times as large as the impact of a 6-hour unexpected water supply interruption (2.2 on a 0-100 scale). This suggests that valuations of avoiding service issues and impacts of service issues are not being measured consistently.

Possible explanations for the inconsistency include:

- The impact exercise fails to accurately measure relative impact;
- The compensation exercise fails to accurately measure required compensation; or
- People evaluate impact differently when asked the compensation question than when asked about relative impacts

There are a number of changes that can be made to the survey to address the issues, including:

- Change the service issues to replace external sewer flooding with an issue that has a more precise description of its impact, such as a boil water notice. This should avoid the potential problem that compensation amount is interpreted as an indicator of the severity of the issue, rather than being evaluated on its own merits.
- Revise the compensation exercise to encourage participants not to see the amounts shown as indicating the severity of the issue – an issue identified in the parallel cognitive interviews, which are reported on separately.
- Revise the structure of the survey to include a single choice exercise combining the impact and compensation exercises. This would eliminate the possibility of any inconsistency in relative values between the two exercises altogether as there would only be one exercise. (This option was suggested by Ofwat’s peer reviewer Prof. Stephane Hess, Leeds University)

5.4 Scenario valuations

Table 36 presents household valuations for individual scenarios obtained by combining a) impact scores, which provide a measure of the relative values of the scenarios, and the value estimates for ‘Unexpected water supply interruption (6h)’ and ‘Sewer flooding: outside your property (1 week)’. The table also includes comparisons against a compilation⁶ of valuations from several studies undertaken for PR19. Given the large difference between relative valuations and relative impacts for the latter two scenarios, the choice of pivot scenario has a major impact on the calculation of scenario valuations. Even so, in the majority of cases in which a comparison against PR19 valuations is feasible, we find that regardless of the choice of pivot attribute, the estimates from the present study lie within the range of PR19 valuations, although valuations pivoted on ‘Unexpected water supply interruption (6h)’ tend to be closer to the median (across studies) of PR19 valuations.

⁶ Accent/PJM, June 2018, ‘Comparative Review of PR19 WTP Results’

Table 36: Scenario valuations (households)

Scenario	Pivot scenario: Unexpected water supply interruption (6h)				Pivot scenario: Sewer flooding: outside your property (1 week)				PR19 comparative review ^(a)		
	Mean ^(b)		Median ^(b)		Mean ^(b)		Median ^(b)		Min	Max	Median ^(c)
	PAF	Panel	PAF	Panel	PAF	Panel	PAF ^(d)	Panel			
Sewer flooding: inside your property (1 week) ⁽¹⁾	£3,163	£1,128	£2,184	£653	£18,983	£18,021		£22,041	£1,772	£123,477	£50,970
Sewer flooding: outside your property (1 week) ⁽²⁾	£959	£305	£662	£176	£5,755	£4,871		£5,958	£714	£8,317	£4,422
Emergency drought restrictions (2 months) ⁽³⁾	£582	£325	£402	£188	£3,495	£5,195		£6,354	£43	£730	£491
Do not drink notice (48h) ⁽⁴⁾	£446	£248	£308	£144	£2,676	£3,966		£4,850	£431	£63,964	£548
Unexpected water supply interruption (24h) ⁽⁵⁾	£317	£199	£218	£115	£1,899	£3,182		£3,892	£90	£332	£295
Discoloured water (24h) ⁽⁶⁾	£202	£132	£139	£77	£1,211	£2,113		£2,584	£60	£314	£139
Boil water notice (48h) ⁽⁷⁾	£192	£159	£133	£92	£1,154	£2,543		£3,111			
Significant pollution incident nearby (4 weeks) ⁽⁸⁾	£189	£92	£130	£53	£1,131	£1,468		£1,796			
Water taste and smell (24h) ⁽⁹⁾	£173	£122	£119	£71	£1,036	£1,954		£2,390	£147	£38,235	£266
Unexpected water supply interruption (6h) ⁽¹⁰⁾	£168	£154	£116	£89	£1,007	£2,466		£3,017	£136	£3,822	£515
Planned water supply interruption (24h) ⁽¹¹⁾	£160	£136	£110	£79	£960	£2,174		£2,659	£154	£175	£175
Significant pollution incident elsewhere (4 weeks) ⁽⁸⁾	£121	£77	£84	£44	£728	£1,223		£1,496			
Unexpected low water pressure (6h) ⁽¹²⁾	£85	£79	£58	£46	£507	£1,261		£1,542	£21	£158,790	£421
Planned water supply interruption (6h) ⁽¹³⁾	£84	£83	£58	£48	£503	£1,321		£1,616	£91	£226	£157
River water nearby is not High quality ⁽¹⁴⁾	£78	£43	£54	£25	£469	£694		£849			
Minor pollution incident nearby (1 day) ⁽⁸⁾	£72	£58	£50	£34	£435	£929		£1,137			
Coastal bathing water is neither Excellent nor Good quality ⁽¹⁵⁾	£67	£24	£47	£14	£404	£378		£462			
Hosepipe ban (5 months) ⁽¹⁶⁾	£66	£48	£46	£28	£397	£764		£935	£32	£325	£97
River water elsewhere is not High quality ⁽¹⁴⁾	£66	£31	£46	£18	£397	£490		£600			
Storm overflow nearby (4 hours) ⁽⁷⁾	£66	£50	£45	£29	£395	£801		£979			
Storm overflow elsewhere (4 hours) ⁽⁷⁾	£61	£39	£42	£23	£363	£623		£762			
Minor pollution incident elsewhere (1 day) ⁽⁸⁾	£57	£47	£39	£27	£341	£755		£924			
Low flows in rivers nearby (2 months) ⁽¹⁷⁾	£51	£41	£35	£23	£306	£649		£793			
Coastal bathing water is not Excellent quality ⁽¹⁵⁾	£50	£23	£35	£13	£302	£370		£452			
Low flows in rivers elsewhere (2 months) ⁽¹⁷⁾	£38	£35	£26	£20	£230	£559		£684			

Notes:

(a) Accent/PJM Economics, June 2018, 'Comparative Review of PR19 WTP Results'. Only attributes valued on a per-property basis are considered.

(b) Mean and median values are reported on a per-incident basis, with the value being contemporaneous with the timing of the incident. Observed differences between PAF and Panel could be due to differences in sample demographics as there was no weighting applied to either sample.

(c) Median across studies

(d) Median not determined

(1) PR19: duration of incident not indicated; extent of damage varies across studies

(2) PR19: two estimates referring to flooding on peoples' land and in gardens not considered

(3) PR19: 'Rota cuts and/or standpipes'; duration of incident, where indicated, varies across studies ranging from 2-4 weeks to 2 months

(4) PR19: 'Water not safe to drink'; duration of incident is 2 weeks, where indicated

(5) PR19: includes 'unexpected'/'unplanned' interruptions of 'up to 24 hours', '12-24 hours', '>24 hours'

(6) PR19: duration of incident: 'few hours', '24 hours', not indicated (for one study)

(7) PR19: not covered

(8) PR19: valuations are per incident

(9) PR19: duration of incident: 'few days', '3 days'

(10) PR19: duration of incident: '3-6 hours', 'around 6 hours', '4-8 hours', '6-12 hours'

(11) PR19: duration of incident: '12-24 hours' (one study), '>24 hours' (one study)

(12) PR19: 'Low water pressure'; duration of incident not indicated except for one study (3-6 hours)

(13) PR19: duration of incident: '3-6 hours', '6-12 hours'

(14) PR19: valuations are per km of river

(15) PR19: valuations are per bathing water site

(16) PR19: 'Temporary use ban'

(17) PR19: valuations are per mile of river

6 Conclusions and Recommendations

6.1 Household survey methodology

- The PAF and Panel methods were both reasonably effective in achieving household sample targets by water/wastewater company combination.
- Both Panel and PAF samples had a somewhat older age profile than the Census
- The PAF sample was closer to the Census on gender
- The PAF sample and particularly the panel sample under-represented ethnic minorities
- The PAF sample had substantially more AB social grades than the Census, and much fewer DE. The Panel sample had a much more representative composition of social grades.
- Consistent with this, a greater proportion of the Panel sample said they usually or always struggled to pay their household bills
- However, both samples contained around the same proportion of vulnerable customers, broadly defined
- The PAF approach was able to capture those without access to the internet while the Panel approach was not. Of the PAF sample, 1% said they had never used the internet and 3% said they had used the internet but did not have regular access to it.

Overall, these findings do not conclusively point to an advantage of one method over the other, given the pre-known pros and cons of both methods. One option we put forward as worth considering is to split the main sample 50:50 between Panel and PAF methods. This would be substantially lower cost than a pure PAF approach, and achieve some of the benefits of the Panel method with respect to its improved ability to include lower social grade households and those with affordability concerns. It would also allow the ability to check for any biases attributable to a Panel sample due to its non-random selection.

6.2 Stated preference design

The results of the pilot tests provided mixed evidence with respect to the stated preference design approach.

In support of the approach:

- Participant feedback was good for both the impact and the compensation exercise.
- There were very few instances of non-trading behaviour in the scenario impact exercise (where participants always chose the same alternative throughout the exercise).
- The econometric models were well estimated, especially considering the small sample size for non-households.
- The impact rankings derived from the econometric models were highly consistent with prior expectations.
- Also as expected, participants were more likely to take the compensation offered when it was high than when it was low.

However, set against these positive findings, two key issues were identified:

- At the highest compensation levels shown there were still substantial proportions of participants choosing not to take the compensation offered. Because of this, mean valuation estimates from the pilot survey are unlikely to be accurate, and median valuations are imprecisely estimated.

This should be addressable by increasing the compensation levels used in the survey, and/or by choosing lower-impact service issues.

- Estimates of the relative value of the two ‘pivot’ scenarios included in the compensation exercise were significantly different when obtained from the compensation exercise than when obtained from the impact exercise. This indicates that participants were not choosing consistently across the two exercises in line with the assumed underlying preference function.

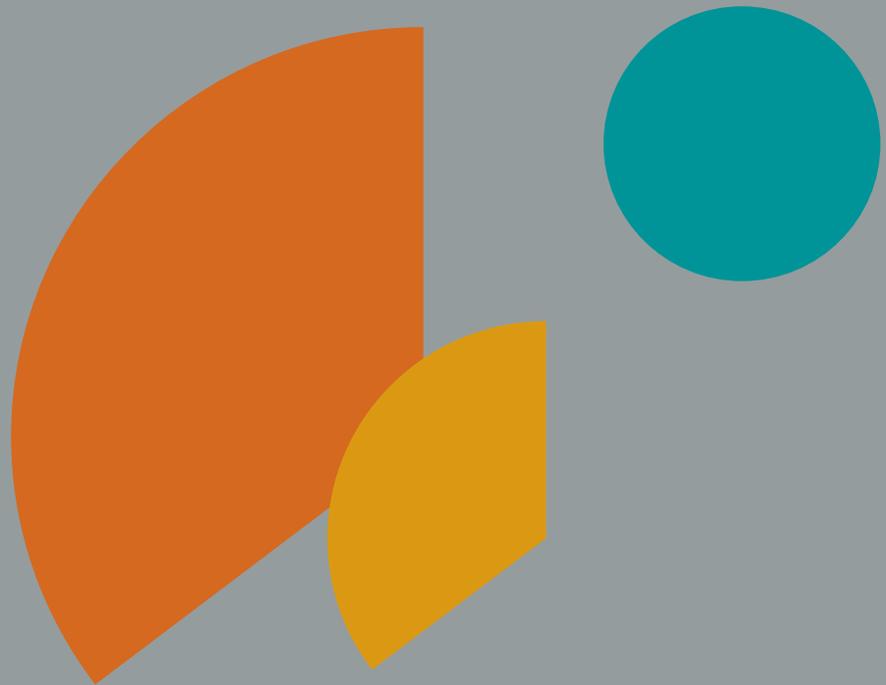
There are a number of changes that can be made to the survey to address the issues, including:

- Change the service issues to replace external sewer flooding with an issue that has a more precise description of its impact, such as a boil water notice. This should avoid the potential problem that compensation amount is interpreted as an indicator of the severity of the issue, rather than being evaluated on its own merits.
- Revise the compensation exercise to encourage participants not to see the amounts shown as indicating the severity of the issue – an issue identified in the parallel cognitive interviews, which are reported on separately.
- Revise the structure of the survey to include a single choice exercise combining the impact and compensation exercises. This would eliminate the possibility of any inconsistency in relative values between the two exercises altogether as there would only be one exercise. (This option was suggested by Ofwat’s peer reviewer Prof. Stephane Hess, Leeds University)

In light of the findings from the pilot survey, and the fact that the changes recommended are more substantial than are ideally compatible with proceeding straight to the main stage, it would be sensible to undertake a second pilot survey. The content of this second pilot survey should be agreed as soon as possible to minimise the delay to the overall programme caused by this additional necessary testing phase.

Appendix A

Pilot Questionnaire





Water Company Research

This survey is designed to get your views on water and sewerage services. It is being undertaken on behalf of Ofwat, the regulator, and Consumer Council for Water (CCW), the consumer organisation which represents the interests of water and sewerage customers in England and Wales.

The research will be used to help water companies plan investment in their service from 2025, and will influence your future water services and bills.

This research is being conducted by Accent, an independent research agency on behalf of Ofwat and CCW.

NOT PANEL: Anyone completing the survey will be eligible for a £10 voucher (either an Amazon voucher, an M&S voucher, Love2Shop voucher). Alternatively we can donate your incentive to WaterAid. Details on how claim your voucher are given at the end of the survey.

The questionnaire will take about 15 minutes.

Any answer you give will be treated in confidence in accordance with the Code of Conduct of the Market Research Society. If you would like to confirm Accent's credentials type Accent in the search box at: <https://www.mrs.org.uk/researchbuyersguide>.

Q1 Any data collected over the course of this interview that could be used to identify you, such as your name, address, or other contact details, will be held securely and will not be shared with any third party, including your water company, unless you give permission (or unless we are legally required to do so). Our privacy statement is available at <https://www.accent-mr.com/privacy-policy/>.

Do you agree to proceeding with the interview on this basis?

Yes

No **THANK AND CLOSE IF ONLINE**

Q2 **ASK HH ONLY:** Do you or any of your close family work in market research or for a water company?

Yes **THANK & CLOSE**

No

Q3 **IF NHH ASK:** Are you solely or jointly responsible as the decision maker for paying your organisation's water and wastewater bill?

Yes

No **THANK AND CLOSE**

Q4 IF POSTCODE DATA NOT AVAILABLE FROM SAMPLE Please tell us the first half of your postcode. So if your full postcode is ME1 3BN please just tell us ME1 3. (This will be used to check who supplies your water and wastewater services) **NHH ONLY If your organisation operates across multiple sites, please answer for the site you typically work from**

IF HH AND REFUSE GO TO Q6
IF NHH AND REFUSE THANK AND CLOSE

Q5 IF HH AND DIFFERENT WATER AND WASTEWATER: Based on your postcode area, we believe your water service company should be #WATER COMPANY# and your wastewater service company should be #WASTEWATER COMPANY#. You may receive separate bills from each organisation or one combined bill. Is that correct?
IF SAME WATER AND WASTEWATER: Based on your postcode area, we believe your water service and wastewater service company should be #WATER COMPANY#. Is that correct?

Yes **GO TO Q8**
 No **GO TO Q6**
 Don't know **GO TO Q8**

Q6 IF HH: Which water company supplies water to your home?
IF NHH: Which of the following companies bill you for water services at your premises?

Affinity Water
 Anglian Water
 Bournemouth Water
 Bristol Water
 Cambridge Water
 Essex & Suffolk Water
 Hafren Dyfrdwy
 Hartlepool Water
 Northumbrian Water
 Portsmouth Water
 Severn Trent Water
 South East Water
 Southern Water
 South Staffs Water
 South West Water
 Sutton & East Surrey (SES) Water
 Thames Water
 United Utilities
 Welsh Water/Dŵr Cymru
 Wessex Water
 Yorkshire Water

IF NHH SHOW FOLLOWING TITLE AND LIST: Retailers

ADSM
 Berendsen UK Limited
 Blackpool Borough Council
 BT
 Business Stream
 Castle Water
 Clear Business Water
 ConservAqua Ltd
 Everflow
 First Business Water

Greene King Brewing & Retailing
 Heineken UK Limited
 Independent Water Networks
 J Sainsbury
 John Lewis PLC
 Kellogg Company of Great Britain Limited
 LEEP Utilities
 Marston's PLC
 Nottingham City Council
 Pennon Water Services
 Regent Water
 Sefton Council
 SES Business Water
 Smarta Water
 Stonegate Pub Company
 The Water Retail Company
 Veolia Water Projects
 Veolia Water Retail (UK) Limited
 Water Plus
 Wave
 Wave 2 Business
 Whitbread Group
 YU Water

Other (Please specify) THEN THANK AND CLOSE

Don't know THANK AND CLOSE

None THANK AND CLOSE

Q6B IF NHH: Do these bills include wastewater services or do you receive separate bills for wastewater?

Include wastewater services

Receive separate bill for waste water

Q7 IF HH: Which company provides wastewater (sewerage) services to your home?
 IF NHH AND Q6B=2: Which of the following companies bill you for wastewater services at your premises?

Anglian Water

Hafren Dyfrdwy

Northumbrian Water

Severn Trent Water

Southern Water

South West Water

Thames Water

United Utilities

Welsh Water/Dŵr Cymru

Wessex Water

Yorkshire Water

IF NHH SHOW FOLLOWING TITLE AND LIST: **Retailers**

ADSM

Berendsen UK Limited

Blackpool Borough Council

BT

Business Stream

Castle Water

Clear Business Water

ConservAqua Ltd

Everflow
 First Business Water
 Greene King Brewing & Retailing
 Heineken UK Limited
 Independent Water Networks
 J Sainsbury
 John Lewis PLC
 Kellogg Company of Great Britain Limited
 LEEP Utilities
 Marston's PLC
 Nottingham City Council
 Pennon Water Services
 Regent Water
 Sefton Council
 SES Business Water
 Smarta Water
 Stonegate Pub Company
 The Water Retail Company
 Veolia Water Projects
 Veolia Water Retail (UK) Limited
 Water Plus
 Wave
 Wave 2 Business
 Whitbread Group
 YU Water

Other (please specify) **THEN THANK AND CLOSE**

Don't know **THANK AND CLOSE**

None **THANK AND CLOSE**

Q8 IF HH: Are you the person in your household who is responsible, either solely or jointly, for paying for your water services bill?

I have complete responsibility for payment
 I share responsibility for payment with others in my household
 I have no responsibility
 Don't know

BILLPAYER: = CODE 1 OR 2

NONBILLPAYER: = CODE 3-4

Q9 IF HH Which of the following age groups do you fall into?

18-29
 30-64
 65 or older
 Prefer not to say
USE HH QUOTA IF PANEL

Q10 IF HH Are you....

Male
 Female
 Non binary
 Prefer to self-identify
 Prefer not to say
USE HH QUOTA IF PANEL

Q11 IF HH & BILLPAYER: Do you receive separate bills for water and sewerage services or one bill for both services?

IF NHH: Does your organisation receive separate bills for water and sewerage services or one bill for both services?

Separate bills
Combined bills
Don't know

Q12b IF HH & BILLPAYER: How often do you make payment for water and sewerage services?

Annually
Every six months
Every month, over eight months of the year
Every month
Other (please specify)

Q13 IF HH & BILLPAYER AND Q12B=1, 4-5 ASK: How much, roughly, do you pay for water and sewerage services each month, or in total for a year? The month amounts assume that the bills are paid evenly over a 12-month period, but some customers pay over a different number of months.

IF HH & BILLPAYER AND Q12B=3 ASK: How much, roughly, do you pay for water and sewerage services for each of the eight months, or in total for a year?

IF HH & BILLPAYER AND Q12B=2 ASK: How much, roughly, do you pay for water and sewerage services every 6 months, or in total for a year?

IF NHH: Which of the following bands do you estimate that your organisation's annual total water bill at your premises falls into – that's the amount for both water and sewerage services.

IF HH and 12B=1, 4 or 5: Less than £10 per month/Less than £120 per year

IF HH and 12B=1, 4 or 5: £10 - £19.99 per month/£120 - £239.99 per year

IF HH and 12B=1, 4 or 5: £20 - £29.99 per month/£240 - £359.99 per year

IF HH and 12B=1, 4 or 5: £30 - £39.99 per month/£360 - £479.99 per year

IF HH and 12B=1, 4 or 5: £40 - £59.99 per month/£480 - £719.99 per year

IF HH and 12B=1, 4 or 5: £60 - £79.99 per month/£720 - £959.99 per year

IF HH and 12B=1, 4 or 5: £80 or more per month /£960 or more per year

IF HH and 12B=3: Less than £15 per month/Less than £120 per year

IF HH and 12B=3: £15 - £29.99 per month/£120 - £239.99 per year

IF HH and 12B=3: £30 - £39.99 per month/£240 - £359.99 per year

IF HH and 12B=3: £40 - £59.99 per month/£360 - £479.99 per year

IF HH and 12B=3: £60 - £89.99 per month/£480 - £719.99 per year

IF HH and 12B=3: £90 - £199.99 per month/£720 - £959.99 per year

IF HH and 12B=3: £120 or more per month /£960 or more per year

IF HH and 12B=2: Less than £60 every 6 months/Less than £120 per year

IF HH and 12B=2: £60 - £119.99 every 6 months /£120 - £239.99 per year

IF HH and 12B=2: £120 - £179.99 every 6 months /£240 - £359.99 per year

IF HH and 12B=2: £180 - £239.99 every 6 months /£360 - £479.99 per year

IF HH and 12B=2: £240 - £359.99 every 6 months /£480 - £719.99 per year

IF HH and 12B=2: £360 - £479.99 every 6 months /£720 - £959.99 per year

IF HH and 12B=2: £480 or more every 6 months /£960 or more per year

IF NHH: Less than £1,000 per year

IF NHH: £1,000 to £5,000 per year

IF NHH: £5,000 to £25,000 per year

IF NHH: More than £25,000 per year

I'm not sure

Service issues

Q14 Have you ever experienced any of the following? **ROTATE**

Please tick one or more

Unexpected water supply interruption

Planned water supply interruption

Unexpected low pressure

Boil water notice

Do not drink notice

Discolouration of water coming out of your tap

A change to the taste and/or smell of your tap water

Sewer flooding: inside your property

Sewer flooding: outside your property

Hosepipe ban

Emergency drought restrictions (e.g. tap water being cut off on a rota basis to conserve supplies)

Pollution in a river

Pollution in the sea near a beach

Other (please specify)

I haven't experienced any of these GO TO Q15

Q14b **IF ONE BELOW IN Q14 ASK:** Have you experienced the following in the last 12 months?

IF BOTH BELOW IN Q14 ASK: Have you experienced any of the following in the last 12 months?

IF TICKED IN Q14: Discolouration of water coming out of your tap

IF TICKED IN Q14: A change to the taste and/or smell of your tap water

IF HH: We would like to now find out a bit more about your use of rivers and beaches in the UK.

Use of Rivers in the UK

Q15 **IF HH:** Do you, or does anyone in your household, use rivers in the UK for any of the following activities? **Please state if you do these Often (more than six times a year); Sometimes (between one and five times a year); Rarely (less than once a year); or Never.**

	Often	Sometimes	Rarely	Never
Water contact activities (e.g. canoeing, rowing, rafting, paddleboarding, swimming, paddling)				
Fishing				
Walking, running, cycling or sitting nearby or other activities on or around the water (e.g. narrowboating, other types of boating)				

Use of Beaches in the UK

Q16 **IF HH:** Do you, or does anyone in your household, use the beach or sea in the UK for any of the following activities? **Please again state if you do these Often (more than six times a year); Sometimes (between one and five times a year); Rarely (less than once a year); or Never.**

	Often	Sometimes	Rarely	Never
Water contact activities (e.g. surfing, windsurfing, dinghy sailing, canoeing, paddleboarding, swimming, paddling)				
Fishing				

Walking, running, cycling or sitting or playing nearby or other activities on or around the water (e.g. other types of boating)				
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Impact of service issues

You are now going to be shown a series of ten short questions where you will be asked to choose between two different scenarios for your water or wastewater service.

Please consider, and then compare the scenarios carefully, and then **choose the one which would have the most impact** on your **IF HH: household IF NHH: organisation** if it were to happen

Some of the scenarios would affect your own property whereas others would affect your local area. When comparing the impact that each would have, please:

- **do** consider any concerns you may have for the local area or environment,
- **don't** consider any impacts on other people outside your **IF HH: household IF NHH: organisation** - other people will answer for themselves!

On some of the options you will see an **i**. Please click on this to see some more information about the option.

Q17 Which of these would have the most impact on your **IF HH: household IF NHH: organisation**?

<p>PLANNED water supply interruption (24 hours)</p> <ul style="list-style-type: none"> ▶ Your water company sends you a notice that in 2 days' time your tap water supply will stop for 24 hours ▶ This is due to planned maintenance in your local area ▶ As planned, it then stops from a Wednesday morning to a Thursday morning   <p>Planned, 24 hours</p>	<p>Discoloured water (24 hours)</p> <ul style="list-style-type: none"> ▶ Your tap water starts running light brown, without warning ▶ This is due to traces of sediment from pipes being disturbed ▶ The water is safe to drink, but you shouldn't use a dishwasher or washing machine until the water runs clear again ▶ This happens for 24 hours from a Wednesday morning   <p>24 hours</p>
<input type="radio"/>	<input type="radio"/>

Q18 Which of these would have the most impact on your **IF HH: household IF NHH: organisation**?

Q19 Which of these would have the most impact on your **IF HH: household IF NHH: organisation**?

Q20 Which of these would have the most impact on your **IF HH: household IF NHH: organisation**?

Q21 Which of these would have the most impact on your **IF HH: household IF NHH: organisation**?

Q22 Which of these would have the most impact on your **IF HH: household IF NHH: organisation**?

Q23 Which of these would have the most impact on your **IF HH**: household **IF NHH**: organisation?

Q24 Which of these would have the most impact on your **IF HH**: household **IF NHH**: organisation?

Q25 We would now like to ask you a few questions about the choices you have just made. How strongly do you agree or disagree with the following statements about the choices you have just made?

	Strongly disagree	Disagree	Neither	Agree	Strongly agree
I was able to understand the choices					
I found the options believable					
My choices were based on how much impact I thought each option would have on my [IF HH] household [IF NHH] premises.					
I found it easy to choose between the options					

Q26 **ASK IF Q25.1 = 1 OR 2. OTHERS GO TO Q27:** Why were you unable to understand the choices?

Q27 **ASK IF Q25.2 = 1 OR 2. OTHERS GO TO Q28:** What was not believable about the options shown?

Q28 **ASK IF Q25.3 = 1 OR 2. OTHERS GO TO Q29:** What were the main factors driving your choices if not the impact that each would have on your **[IF HH]** household **[IF NHH]** premises?

Q29 **ASK IF Q25.4 = 1 OR 2. OTHERS GO TO NEXT SECTION:** Why was it difficult choosing between the options?

Compensation for service issues

Water and wastewater companies pay their customers compensation in some cases when there are problems with their service. They also invest money to reduce the number of problems that happen in the first place.

The next few questions will each present you with a choice between experiencing a service issue and being compensated for it, or not experiencing the issue and not receiving any compensation. The purpose of these questions is to see if the amounts shown are enough to offset the impact on your **[IF HH]** household **[IF NHH]** premises from the service issue shown.

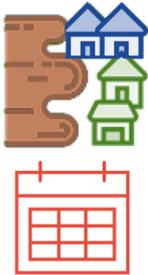
In each question, the type of service problem and the compensation amount will vary. These amounts do not necessarily reflect current compensation entitlements, and compensation levels will not necessarily be influenced by answers to these questions.

Q30 Which option would you prefer?

Option A	Option B
<p>UNEXPECTED water supply interruption (6 hours)</p> <ul style="list-style-type: none"> ▶ Your tap water supply stops working without warning ▶ This is due to a burst pipe in your local area ▶ It stops for 6 hours, between 12:00 and 18:00 on a Wednesday afternoon   <p>Compensation paid*: £100</p> <p><input type="radio"/></p>	<p>No unexpected water supply interruption</p> <p><input type="radio"/></p>

* compensation would be paid either by applying a credit to your water bill, or by a sending a cheque to your IF HH household IF NHH organisation, whichever you prefer.

Q31 Which option would you prefer?

Option A	Option B
<p>Sewer flooding: OUTSIDE your property (1 week)</p> <ul style="list-style-type: none"> ▶ Flooding from the sewer gets inside your property boundary, affecting access to your front door ▶ This results from extreme weather causing prolonged heavy rainfall in your local area ▶ It gives off a foul smell, and could damage your front path ▶ It takes 1 week for your property to get back to normal  <p>Compensation paid*: £200</p> <p><input type="radio"/></p>	<p>NO Sewer flooding: OUTSIDE your property</p> <p><input type="radio"/></p>

* compensation would be paid either by applying a credit to your water bill, or by a sending a cheque to your IF HH household IF NHH organisation, whichever you prefer.

Q32 We would now like to ask you a few questions about the choices you have just made. How strongly to do you agree or disagree with the following statements about the choices you have just made?

	Strongly disagree	Disagree	Neither	Agree	Strongly agree
I was able to understand the choices					
I found the options believable					
My choices were based on how much impact I thought each option would have on my [IF HH] household [IF NHH] premises and whether the amount of money shown was enough to compensate for this.					
I found it easy to choose between the options					

Q33 ASK IF Q32.1 = 1 OR 2. OTHERS GO TO Q34: Why were you unable to understand the choices?

Q34 ASK IF Q32.2 = 1 OR 2. OTHERS GO TO Q35: What was not believable about the options shown?

Q35 ASK IF Q32.3 = 1 OR 2. OTHERS GO TO Q36: What were the main factors driving your choices?

Q36 ASK IF Q32.4 = 1 OR 2. OTHERS GO TO NEXT SECTION: Why was it difficult choosing between the options?

Attitudes to environmental costs

Q37 **IF HH:** Please look at the following five statements about pollution control and the costs of pollution control. Which one do you agree with most? **SINGLE CHOICE**

The environment should be protected from pollution and improved, **regardless of cost**

The environment should be protected from pollution and improved, **provided costs are not excessive**

The environment should be protected from pollution and improved, **but at no additional cost**

Further protection and improvements to the environment are not needed, and the costs for this should fall

Standards for protection and improvement to the environment are already too high and should be relaxed, and costs should fall

Don't know

Q38 Please use this box to leave any further comments about this topic or this survey. Please note, your water company will be unable to respond to individuals.

Classification Questions

We will now ask you a few questions about you and your **IF HH** household **IF NHH** organisation. These will only be used to ensure we have spoken to a wide range of customers. All responses you give will be kept strictly confidential.

Q39 **IF HH:** How would you describe the occupation type of the main income earner in your household?

Senior managerial or professional

Intermediate managerial, administrative or professional

Supervisor; clerical; junior managerial, administrative or professional

Manual worker (with industry qualifications)
 Manual worker (with no qualifications)
 Unemployed
 Retired
 Student
 Prefer not to say **GO TO Q42**

Q40 IF Q39=7 (RETIRED) ASK: Does the main income earner have a state pension, a private pension or both?

State only
 Private only
 Both
 Prefer not to say **GO TO Q42**

Q41 IF Q40= PRIVATE OR BOTH ASK: How would you describe the main income earner's occupation type before retirement?

Senior managerial or professional
 Intermediate managerial, administrative or professional
 Supervisor; clerical; junior managerial, administrative or professional
 Manual worker (with industry qualifications)
 Manual worker (with no qualifications)
 None of these
 Prefer not to say

Q44 IF HH: To which of these ethnic groups do you consider you belong to? **We would like to collect this to ensure that people of all backgrounds are represented in the study, but you do not have to answer if you do not wish to. This information will not be shared with any third party and will be destroyed within 12 months of project completion.**

WHITE

English, Welsh, Scottish, Northern Irish or British
 Irish
 Gypsy or Irish Traveller
 Any other White background

MIXED

White and Black Caribbean
 White and Black African
 White and Asian
 Any other Mixed background

ASIAN OR ASIAN BRITISH

Indian
 Pakistani
 Bangladeshi
 Chinese
 Any other Asian background

BLACK OR BLACK BRITISH

Caribbean
 African
 Any other Black background

OTHER ETHNIC GROUP

Arab
 Any other ethnic group
 Prefer not to say

Q45 **IF HH:** Thinking about all the people in your household, including yourself, how many people live here?

- 1-2
- 3 or 4
- 5 or more
- Prefer not to say

Q46 Please let us know if any of the following apply to you. *RANDOMISE ROWS*
We would like to collect this to ensure that with a variety of particular needs are represented in the study, but you do not have to answer if you do not wish to. This information will not be shared with any third party and will be destroyed within 12 months of project completion.

- I or another member of my household is disabled or suffer(s) from a debilitating illness
- I or another member of my household have/has a learning difficulty
- I or another member of my household relies on water for medical reasons
- I or another member of my household is visually impaired (i.e. struggles to read even with glasses)
- I or another member of my household am/is over the age of 75 years old
- I or another member of my household speaks English as a second language
- I or another member of my household is deaf or hard of hearing
- I or another member of my household is a new parent
- None of these apply to me
- Prefer not to say

Q47 **IF HH:** Which of the following statements do you most agree with? Please remember, this research is entirely confidential and that it is only by understanding the views of people who are struggling to pay their household bills (eg gas, electricity, telephone etc) that change can be made.

- I can always afford to pay my household bills
- I can usually afford to pay my household bills
- I sometimes struggle to pay my household bills
- I usually struggle to pay my household bills
- I always struggle to pay for my household bills
- Prefer not to say

Q47b **IF NHH:** How does your organisation mainly use water? **You can choose more than one answer**

- The manufacturing process which is essential to the running of your organisation (e.g. to power machinery, agricultural production etc.)
- The supply of services your organisation provides (e.g. cleaning services etc.)
- An ingredient or part of the product or service your organisation provides (e.g. food or drink, chemical, cosmetics manufacturer etc.)
- Normal domestic use for your organisation's customers and employees (e.g. customer toilets, supply of drinking water)
- None of the above
- Don't Know

Q48 **IF NHH:** How many sites does your organisation operate from?

- 1
- 2
- 3
- 4+
- Prefer not to say

Q49 IF NHH: How many employees does your organisation have in the UK?

- None, sole trader
- Fewer than 4 employees
- 4 to 49 employees
- 50 to 249 employees
- 250+ employees
- Prefer not to say

Q50 IF NHH: Which of the following best defines the core activity of your organisation?

- Agriculture, forestry and fishing
- Mining and quarrying
- Energy or water service & supply
- Manufacturing
- Construction
- Wholesale and retail trade (including motor vehicles repair)
- Transport and storage
- Hotels & catering
- IT and Communication
- Finance and insurance activities
- Real estate activities
- Professional, scientific and technical activities
- Administrative and Support Service Activities
- Public administration and defence
- Education
- Human health and social work activities
- Arts, entertainment and recreation
- Other service activities
- Other (please specify)
- Prefer not to say

Q52 IF HH: Do you have a water meter?

IF NHH: Does your premises have a water meter?

- Yes
- No
- Don't Know
- Prefer not to say

Q53 IF Q52=1 ASK: Did you ask to have a water meter fitted for your household?

- Yes
- No
- Prefer not to say

Q54 IF HH AND POSTAL: Which of these best describes you?

- I have never used the internet
- I have used the internet but do not have regular access to it
- I have regular access to the internet
- Prefer not to say

Q55 IF HH NON PANEL: We mentioned that there would be a £10 incentive for completing this survey. This incentive will be administered by Accent, within 4 weeks.

This can be sent as an Amazon, Marks & Spencer or Love2Shop voucher by email or by post. Alternatively we can donate your incentive to WaterAid. Which would you prefer?

Amazon voucher by email COLLECT EMAIL ADDRESS

M&S Voucher by email COLLECT EMAIL ADDRESS

Love2Shop by email COLLECT EMAIL ADDRESS

Amazon voucher by post COLLECT ADDRESS

M&S voucher by post COLLECT ADDRESS

Love2Shop by post COLLECT ADDRESS

Donation to Water Aid

If you have any queries about your incentive, please contact us on 0131 220 8770.

Q56 Thank you. Would you be willing to be contacted again if we need to clarify any of the answers you have given today?

Yes

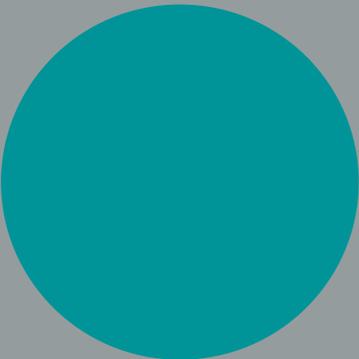
No

Thank you. This research was conducted under the terms of the MRS code of conduct and is completely confidential.



Appendix B

Attributes



UNEXPECTED water supply interruption (6 hours)

- ▶ Your tap water supply stops working without warning
- ▶ This is due to a burst pipe in your local area
- ▶ It stops for 6 hours, between 12:00 and 18:00 on a Wednesday afternoon




6 hours

PLANNED water supply interruption (6 hours)

- ▶ Your water company sends you a notice in the post that in 2 days' time your tap water supply will stop for 6 hours
- ▶ This is due to planned maintenance in your local area
- ▶ As planned, it then stops between 12:00 and 18:00 on a Wednesday afternoon




**Planned,
6 hours**

UNEXPECTED water supply interruption (24 hours)

- ▶ Your tap water supply stops working without warning
- ▶ This is due to a burst pipe in your local area
- ▶ It stops for 24 hours, from a Wednesday morning to a Thursday morning




24 hours

PLANNED water supply interruption (24 hours)

- ▶ Your water company sends you a notice that in 2 days' time your tap water supply will stop for 24 hours
- ▶ This is due to planned maintenance in your local area
- ▶ As planned, it then stops from a Wednesday morning to a Thursday morning




**Planned,
24 hours**

UNEXPECTED low water pressure (6 hours)

- ▶ Your tap water supply starts running with a low pressure, without warning
- ▶ This is due to a burst pipe in your local area
- ▶ It takes longer to fill a kettle, sink or bath and a shower would be weak. Some appliances like dishwashers and washing machines may not work properly
- ▶ This happens for 6 hours, between 12:00 and 18:00 on a Wednesday afternoon




6 hours

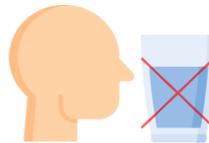
Boil water notice (48 hours)

- ▶ Your water company sends you a notice saying you need to boil tap water before drinking, cooking or preparing food to avoid the risk of becoming ill
- ▶ This is due to traces of e-coli being found in the water supply in your area
- ▶ You can still safely use tap water for washing and cleaning
- ▶ The notice arrives on a Wednesday. After two days the water will be safe to drink again



Do not drink notice (48 hours)

- ▶ Your water company sends you a notice saying not to drink your tap water, or use it for cooking or preparing food, to avoid the risk of becoming ill
- ▶ This is due to traces of a harmful chemical being found in the water supply in your area
- ▶ You can still safely use tap water for washing and cleaning
- ▶ The notice arrives on a Wednesday. After two days the water will be safe to drink again



Discoloured water (24 hours)

- ▶ Your tap water starts running light brown, without warning
- ▶ This is due to traces of sediment from pipes being disturbed
- ▶ The water is safe to drink, but you shouldn't use a dishwasher or washing machine until the water runs clear again
- ▶ This happens for 24 hours from a Wednesday morning



Water taste and smell (24 hours)

- ▶ Your tap water starts tasting or smelling different, without warning
- ▶ This is due to traces of chlorine, and the taste and smell is like a swimming pool
- ▶ The water is safe to drink, and for use in the dishwasher or washing machine
- ▶ This happens for 24 hours from a Wednesday morning




24 hours

Sewer flooding: INSIDE your property (1 week)

- ▶ Flooding from the sewer gets inside your property, affecting your living areas
- ▶ This results from prolonged heavy rainfall in your local area
- ▶ It gives off a foul smell, and damages floors, walls and furniture.
- ▶ It takes 1 week for your property to get back to normal




1 week

Sewer flooding: OUTSIDE your property (1 week)

- ▶ Flooding from the sewer affects access to your front door / entrance
- ▶ This results from prolonged heavy rainfall in your local area
- ▶ It gives off a foul smell, and could cause damage
- ▶ It takes 1 week for your property to get back to normal




1 week

Hosepipe ban (5 months)

- ▶ Your water company sends you a notice saying you must not use a hosepipe or sprinkler
- ▶ This is due to an extended period of dry weather leading to a water shortage
- ▶ The hosepipe ban begins in May and lasts for 5 months




5 months

Emergency drought restrictions (2 months)

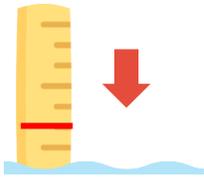
- ▶ Your water company cuts off the tap water supply from 2pm to 7am every day
- ▶ This is due to a severe drought leading to an extreme water shortage in your area
- ▶ Standpipes would be available nearby to collect water in buckets or bottles
- ▶ The restrictions begin in July and last for 2 months




2 months

Low flows in rivers NEARBY (2 months)

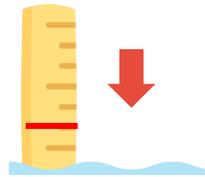
- ▶ The water level in a nearby stretch of river (less than 5 miles away) has a flow that is lower than the minimum it should be naturally
- ▶ This is due to a combination of extended dry weather and water being taken from it for public water supply
- ▶ This happens from July and lasts for 2 months




**Nearby,
2 months**

Low flows in rivers ELSEWHERE (2 months)

- ▶ The water level in a stretch of river somewhere in your region, but not nearby, has a flow that is lower than the minimum it should be naturally
- ▶ This is due to a combination of extended dry weather and water being taken from it for public water supply
- ▶ This happens from July and lasts for 2 months



**Elsewhere,
2 months**

Storm overflow NEARBY (4 hours)

- ▶ Rainwater mixed with untreated sewage regularly spills into a nearby stretch of river (less than 5 miles away)
- ▶ This is due to prolonged heavy rainfall and is allowed by the regulator to reduce the risk of sewer flooding
- ▶ There is no damage to the river and visible pollution is minor



**Nearby,
4 hours**

Minor pollution incident NEARBY (1 day)

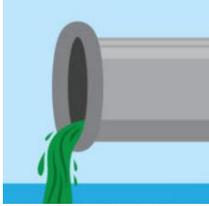
- ▶ Untreated sewage spills into a nearby stretch of river (less than 5 miles away)
- ▶ This is due to sewerage equipment failure
- ▶ The damage to the river and visible pollution would be minor
- ▶ The spill begins on a Wednesday and lasts for 4 hours. The river is then back to normal after 1 day



**Nearby,
1 day**

Significant pollution incident NEARBY (4 weeks)

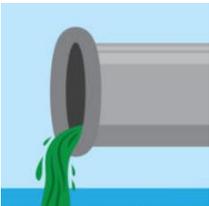
- ▶ Untreated sewage spills into a nearby stretch of river (less than 5 miles away)
- ▶ This is due to sewerage equipment failure
- ▶ The damage to the river and visible pollution would be significant
- ▶ The spill begins on a Wednesday and lasts for 2 days. The river is then back to normal after 4 weeks




**Nearby,
4 weeks**

Storm overflow ELSEWHERE (4 hours)

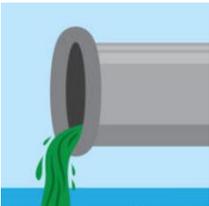
- ▶ Rainwater mixed with untreated sewage regularly spills into a stretch of river somewhere in your region, but not nearby
- ▶ This is due to prolonged heavy rainfall and is allowed by the regulator to reduce the risk of sewer flooding
- ▶ There is no damage to the river and visible pollution is minor




**Elsewhere,
4 hours**

Minor pollution incident ELSEWHERE (1 day)

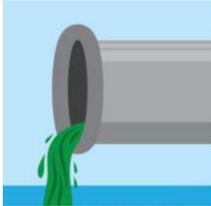
- ▶ Untreated sewage spills into a stretch of river somewhere in your region, but not nearby
- ▶ This is due to sewerage equipment failure
- ▶ The damage to the river and visible pollution would be minor
- ▶ The spill begins on a Wednesday and lasts for 4 hours. The river is then back to normal after 1 day




**Elsewhere
1 day**

Significant pollution incident ELSEWHERE (4 weeks)

- ▶ Untreated sewage spills into a stretch of river somewhere in your region, but not nearby
- ▶ This is due to sewerage equipment failure
- ▶ The damage to the river and visible pollution would be significant
- ▶ The spill begins on a Wednesday and lasts for 2 days. The river is then back to normal after 4 weeks





Elsewhere

4 weeks

River water NEARBY is not High quality

- ▶ A nearby stretch of river (less than 5 miles away) meets Medium rather than High quality standards, as defined by the government ⓘ
- ▶ This is due to a variety of factors, including the quality of treated wastewater, the river flow level, and the run-off from the surrounding area
- ▶ This has some effect on habitats for fish and wildlife, and leads to occasional algal blooms



Local

River water ELSEWHERE is not High quality

- ▶ A stretch of river **in your region**, **but** not nearby, meets Medium rather than High quality standards, as defined by the government ⓘ
- ▶ This is due to a variety of factors, including the quality of treated wastewater, the river flow level, and the run-off from the surrounding area
- ▶ This has some effect on habitats for fish and wildlife, and leads to occasional algal blooms



Elsewhere

ⓘ button show card:

River water quality level	Definition
High	<ul style="list-style-type: none"> ▪ There will be a diverse and natural range of plants, insects, fish, birds and other animals. ▪ Water will generally have the right degree of clarity and there will be no noticeable pollution. ▪ Water will generally be suitable for contact activities, such as rowing or swimming
Medium	<ul style="list-style-type: none"> ▪ There will be plants, insects, fish, birds and other animals, but there will be some fish and other wildlife missing. ▪ Water will be slightly murky or discoloured in parts, and there will sometimes be visible pollution in some places, and some algal blooms. ▪ Water may be suitable for contact activities in some areas but not others.
Low	<ul style="list-style-type: none"> ▪ There may be limited or no plants or wildlife, or the water may be dominated by a single plant species. ▪ Water will generally be murky or discoloured, and may sometimes be bad-smelling in some places. There may also regularly be visible pollution in some places, and frequent algal blooms. ▪ Water will be unsuitable for contact activities.

Coastal bathing water is not Excellent quality

- ▶ The sea water at the beach you would be most likely to visit meets Good rather than Excellent quality standards, as defined by the government ⓘ
- ▶ This is due to the quality of treated wastewater entering the water nearby
- ▶ You could still swim in the sea, but there would be a small increase in the chance that you might get ill if you swallowed some water



Water not Excellent

ⓘ button show card:

Bathing water quality level	Definition
Excellent	The highest standard which means the bathing water is consistently very clean, with less than a 3%, or 3 in 100, chance of a stomach upset.
Good	Between 'Sufficient' and 'Excellent'. This means there is between a 3% and a 5% chance of a stomach upset.
Sufficient	The minimum standard required for bathing water which means there is between a 5% and an 8% chance of a stomach upset.

Coastal bathing water is neither Excellent nor Good quality

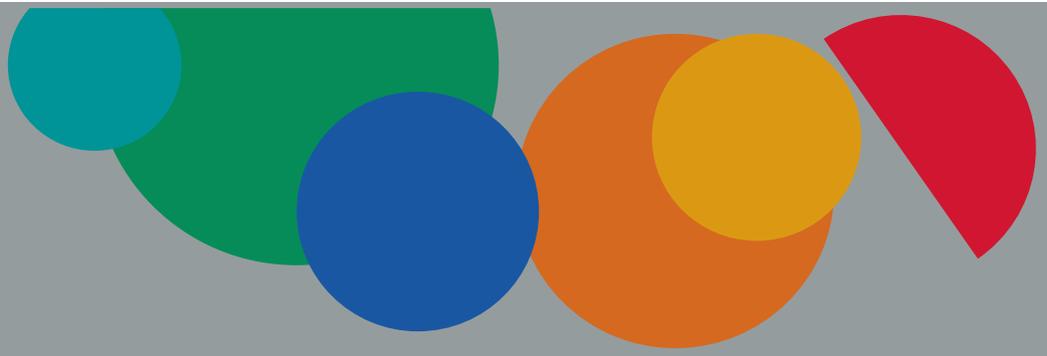
- ▶ The sea water at the beach you would be most likely to visit meets Sufficient rather than Good or Excellent quality standards, as defined by the government ⓘ
- ▶ This is due to the quality of treated wastewater entering the water nearby
- ▶ You could still swim in the sea, but there would be a small increase in the chance that you might get ill if you swallowed some water



Water not Excellent

ⓘ button show card:

(Same as for previous bathing water quality card)



Appendix C

Letter survey invites

Invite with £10 voucher and Freephone method for accessing paper questionnaire







Southside
105 Victoria Street
London
SW1E 6QT

ID number: XXXX

Dear Sir/Madam

Water services research: complete a 10 minute survey and receive a £10 voucher

This letter has been sent to you by Accent, an independent market research company, on behalf of Ofwat, the water regulator, and Consumer Council for Water (CCW), the consumer organisation which represents the interests of water and sewerage customers in England and Wales.

We are looking for people to complete a survey about their views on water and sewerage services. The research will be used to help water companies plan investment in their service from 2025 and will influence your future water services and bills.

Anyone completing the survey will be eligible for a £10 voucher (an Amazon voucher, an M&S voucher or a Love2Shop voucher). Alternatively we can donate your incentive to WaterAid. Details on how claim your voucher are given at the end of the survey.

How to take part

The questionnaire will take about 10 minutes to complete. You can complete the survey online by entering the following link or scanning the QR code:
<https://acsvy.com/3524A2survey>



Alternatively you can fill the survey in by pen and paper. To request a paper version of the survey please call FREEPHONE 0800 099 6245. You will be asked to leave your name and the 4 digit unique ID number which you can find at the top right hand corner of this letter. We will send a paper version of the survey by post, and include a FREEPOST return envelope for you to post it back.

The final date for us to receive completed surveys is **15th April 2022**. Ofwat and CCW will be very grateful if you are able to complete the survey, but taking part is completely optional.

If you have any questions, please don't hesitate to contact the research team at WaterResearch@accent-mr.com

Yours faithfully



Chris Heywood on behalf of the study team









Registered in London No.
2231083. Accent Marketing &
Research Limited
Registered Address: 30 City
Road, London, EC1Y 2AB

Invite with £5 voucher and postcard method for accessing paper questionnaire





The voice for water consumers
Llwyd ydyddymr ddi



Southside
105 Victoria Street
London
SW1E 6QT

ID number: XXXX

Dear Sir/Madam,

Water services research: complete a 10 minute survey and receive a £5 voucher

This letter has been sent to you by Accent, an independent market research company, on behalf of Ofwat, the water regulator, and Consumer Council for Water (CCW), the consumer organisation which represents the interests of water and sewerage customers in England and Wales.

We are looking for people to complete a survey about their views on water and sewerage services. The research will be used to help water companies plan investment in their service from 2025 and will influence your future water services and bills.

Anyone completing the survey will be eligible for a £5 voucher (an Amazon voucher, an M&S voucher or a Love2Shop voucher). Alternatively we can donate your incentive to WaterAid. Details on how claim your voucher are given at the end of the survey.

How to take part

The questionnaire will take about 10 minutes to complete. You can complete the survey online by entering the following link or scanning the QR code:
<https://acsvy.com/3524A1survey>



Alternatively you can fill the survey in by pen and paper. To request a paper version of the survey please enter your details on the enclosed card (including the 4 digit unique ID code which you can find at the top right hand corner of this letter), put it in the FREEPOST envelope and post it to us. We will post you a paper version of the survey along with another pre paid envelope for its return.

The final date for us to receive completed surveys is 15th April 2022. Ofwat and CCW will be very grateful if you are able to complete the survey, but taking part is completely optional.

If you have any questions, please don't hesitate to contact the research team at WaterResearch@accent-mr.com

Yours faithfully



Chris Heywood on behalf of the study team



Cert No. 0482



036



Company Partner

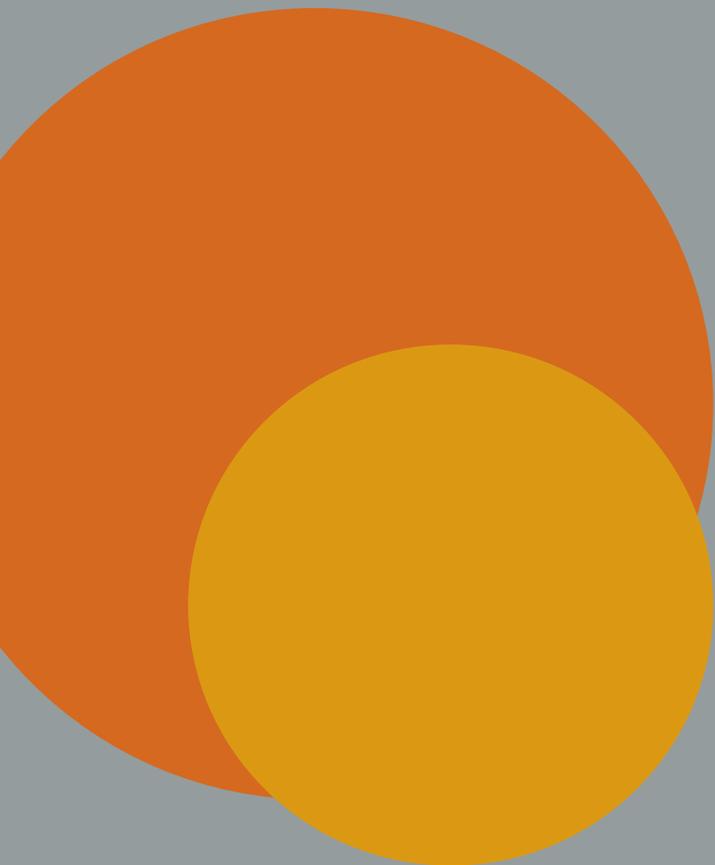




Registered in London No. 2231083. Accent Marketing & Research Limited
Registered Address: 30 City Road, London, EC1Y 2AB

Appendix D

Reminder letter





Southside
105 Victoria Street
London
SW1E 6QT

ID number: XXXX

Dear Sir/Madam,

Water services research: still time to complete a 10 minute survey and receive a £10 voucher - REMINDER

We are writing to you on behalf of Ofwat, the water regulator, and Consumer Council for Water (CCW), the consumer organisation which represents the interests of water and sewerage customers in England and Wales.

We are still looking for people to complete a survey about their views on water and sewerage services. The research will be used to help water companies plan investment in their service from 2025 and will influence your future water services and bills. If you have already completed or attempted to complete the questionnaire please ignore this letter.

If you complete the survey you will be eligible for a £10 voucher (an Amazon voucher, an M&S voucher or a Love2Shop voucher). Alternatively we can donate your incentive to WaterAid. Details on how claim your voucher are given at the end of the survey.

How to take part

The questionnaire will take about 10 minutes to complete. You can complete the survey online by entering the following link or scanning the QR code:

<https://acsvy.com/3524A1survey>



Please complete the survey within 3 days of receiving this letter. We have extended the final date for us to receive completed surveys to 27th April 2022. Ofwat and CCW will be very grateful if you are able to complete the survey, but taking part is completely optional.

If you have any questions, please don't hesitate to contact the research team at WaterResearch@accent-mr.com

Yours faithfully

Chris Heywood on behalf of the study team



Registered in London No.
2231083. Accent Marketing &
Research Limited
Registered Address: 30 City
Road, London, EC1Y 2AB

Appendix E

Verbatim responses to feedback follow-up questions

Impact Exercise

Table 37: Feedback follow-up questions: impact exercise

Sample	Why were you unable to understand the choices?
PAF	Because of the technical language
PAF	But if a crappy question in all honesty. I was able to understand them because I read them... basic English.
PAF	Could not see the relevance.
PAF	Didn't fully understand the impact to me or my household for some of the choices
PAF	Difficulty making up mind
PAF	I understood the questions however my answers were solely based on the impact of my house and environment which made me realise that more thought should have been given to the wider environment and impact on wild life hence would have preferred
PAF	I understood them all
PAF	I wasn't unable to understand.
PAF	Lots to read, ideas that concern me may not impact directly on my household
PAF	Most of them were not relevant as we live on the summit of a hill with no significant nearby rivers and no chance of flooding
PAF	No sense
PAF	Questions were logical
PAF	Seem far fetched
PAF	Some seemed to be unrelated
PAF	The difference between excellent, good, minor, major etc.
PAF	They were explained clearly
PAF	This is difficult to choose as some of them don't seem true to life
PAF	Too many words
PAF	Unlikely to happen
PAF	Very clear questions
PAF	Very confusing way to list
PAF	Written well, simple and easy to understand. Infographics helped too.
PAF	Yes easy to understand.
PAF	Yes quite easy
PAF	I would have no idea why a river with low levels would affect me
PAF	partially
PAF	unrealistic.
Panel	Cause I'm thick
Panel	I CHOSE WHAT WAS MORE RELEVANT TO MYSELF
Panel	I DIDN'T HAVE A PROBLEM WITH THE CHOICES
Panel	I couldn't understand how some of the scenarios would affect me in any way personally
Panel	I did understand the choices quite well
Panel	I felt in some circumstances they did not apply to my household
Panel	I never said that at all!
Panel	I understood
Panel	I was sorry
Panel	I wasn't sure how I would be affected
Panel	I wasn't
Panel	I wasn't
Panel	Na
Panel	None
Panel	Nope
Panel	STUPID CHOICES
Panel	They were not clear. Too long winded.
Panel	Wording was too similar with some of the options
Panel	everything works fine with water

Sample	Why were you unable to understand the choices?
Panel	some were confusing
Panel	yes they were very clear
NHH	I didn't really understand what it was about
NHH	It was too much information to try and give people over the phone (he didn't take the link as he wasn't in front of a computer, so it had to be read out to him).

Table 38: Feedback follow-up questions: impact exercise

Sample	What was not believable about the options shown?
PAF	All seem feasible
PAF	Answers were based on location whether they would have an effect on our life directly, not necessarily my overall concern.
PAF	As previous reply
PAF	Don't know
PAF	Global warming
PAF	Hardly any of those things have happened to my household
PAF	I do not believe that it is acceptable that we should need to chose between polluting rivers and \or the sea and having a clean uninterrupted water supply. Rivers flow to the sea therefore a pollution incident on a river will affect the quali
PAF	I don't live anywhere near a river
PAF	I feel it was underplaying the environmental impact of raw sewage going into rivers.
PAF	I haven't experienced those scenarios and the scenarios about the beach wouldn't impact me
PAF	I would always consider the costal water dirty and make us ill if we swallowed it. I don't believe it's ever high quality and I believe sewerage in the river is disgusting but if it means the drains not overflowing then it shouldn't be a choice
PAF	In my experience some of the options did not appear realistic.
PAF	In some instances but not all, I couldn't understand how one option related to the other. Having untreated water running into a river isn't acceptable at all. how this relates to excessive chlorine in my drinking water needs explaining.!
PAF	It seemed
PAF	N/A
PAF	No connection between options.
PAF	Not clear
PAF	Not everyone considers wider context of problems. Sewage leak the problem does not last only 4 hours. Low water during a drought does affect household by using less water to not waste reserves. Also always keep bottled drinking water so do not
PAF	Not sure some of the river/beach issues were believable
PAF	Nothing
PAF	Nothing :)
PAF	Seemed to be a disproportionate focus on nudging me towards deciding my water provider not testing sewage/runoff was the lesser of two evils.
PAF	Sewer issues
PAF	So obvious
PAF	Some of them have never happened and will never happen
PAF	The sewer cannot overflow into my property
PAF	They didn't seem relevant at all for the area
PAF	To confusing
PAF	Turn off water from 2pm
PAF	You asked if the options were believable or not in the multi choice questions prior. Again a crappy question.
PAF	choice of my house being inundated with sewage versus pollution in river. Answers seem to be skewed towards outcomes wanted as no-one would prefer such damage to their home.
PAF	n/a
PAF	no mains drainage in are so pollution low chance

Sample	What was not believable about the options shown?
PAF	seemed to bear little relation to each other
PAF	the choices were set to show the supply or cleansing. not really comparable
Panel	Don't know
Panel	Dunno
Panel	EVERYTHING
Panel	HOW A RIVER COULD EFFECT TOWN DWELLERS. REMEMBER I LIVE NEAR THE THAMES AND WE HAVE SEWAGE, WATER WORKS NEARBY. IN 30 YEARS WE HAVE ONLY SUFFERED A COUPLE OF LOSSES OF WATER DUE TO BURST PIPES. NEVER HAD A SEWAGE PROBLEM. PERHAPS WE ARE
Panel	There should be more options
Panel	They use the right service for water
Panel	Weighted option choices
Panel	Yes
Panel	Your property being flooded with sewage
Panel	dunno
Panel	having no running water
Panel	life does not give binary choices
Panel	na
Panel	we don't have a river near us
NHH	It's not that I didn't find them believable - they're not issues you have when when you have a business- we have tidal drainage and we have never had a problem with sewerage flooding - the questions are irrelevant. Boiling water: every compa

Table 39: Feedback follow-up questions: impact exercise

Sample	What were the main factors driving your choices if not the impact that each would have on your household/premises?
PAF	Affect on wildlife and river pollution
PAF	Clean water
PAF	Concern for the environment
PAF	Effects on my disabled husband
PAF	Environmental
PAF	How it would affect my house personally.
PAF	Impact on my household
PAF	Infant Child.
PAF	Larger environmental impact versus personal inconvenience
PAF	Personal
PAF	Sewerage pollution from old drainage,Victorian net works unable to cope.
PAF	Supply of water
PAF	The household impact is minimum in many cases. Eg tap water that tastes unpleasant is irrelevant, as we buy bottled water. For us, the environment is extremely important. More needs to be done to protect the rivers and oceans.
PAF	The tap water tastes so awful
PAF	Water quality both in seas and rivers
PAF	bills
PAF	effect on the local rivers and environment
Panel	Don't know
Panel	Impact on community
Panel	Impact on my family
Panel	Nope
Panel	how much incavenss
Panel	outer expire of invoice
Panel	paying the bills for water
NHH	The impact on the environment is absolutely everything.

Table 40: Feedback follow-up questions: impact exercise

Sample	Why was it difficult choosing between the options?
PAF	Again far fetched
PAF	As an environment conscious family, both the options bother me.
PAF	As it wasn't clear on the impact to me or my household
PAF	As previous reply
PAF	Bad thins on both
PAF	Because I know the one that impacts me hardest could be avoid by sorting out the other one .wake up call
PAF	Because I was torn between environmental and what is better for my family
PAF	Because eventually they all affect us!
PAF	Because its an either or not question
PAF	Because my household only occasionally goes to the seaside but I do think it matters. I would have found it easier if there had been some reference to the effect on fish in our local river.
PAF	Because the impact of both choices were sometimes equal in my opinion
PAF	Both options were detrimental, I had to opt for the one that was most impactful
PAF	Choosing between concern for the local environment and inconvenience for my household
PAF	Choosing between minor personal inconvenience and a suspicion that ANY sewage leak will cause SOME damage to wildlife, fish, plants and no pollution of water I want to swim in should be acceptable
PAF	Choosing between my personal disruption and the environmental impact
PAF	Choosing between what effe s me directly.
PAF	Circumstances change all the time and choice depends on circumstances at the time.
PAF	Clean wayer
PAF	Common sense should answer this question
PAF	Detailed, and taking me longer to complete your survey than you said it would.
PAF	Difficult to imagine which option would be the most impactful
PAF	Difficult to know which would affect more between nearby and regional rivers
PAF	Difficult to predict exactly what impact either scenario would have.
PAF	Easy to decide on the impact of the household but hard when also taking into account the impact on the environment
PAF	Effects on self or environmental impact a difficult choice
PAF	Feel like trick questions. Are you asking to what inconveniences the consumer in order to justify environmental concerns? Water is precious, we need an educated consumer and responsible operator
PAF	Hard to assess what the impact would be on my self. Felts like concerns for the environment should outweigh shorter more immediate impacts on myself.
PAF	I felt that the environmental issues with sewage in rivers nearby were extremely important, but would not appear to impact my household directly, so it was difficult to decide. I also felt that the idea of tap water being unsafe to use would
PAF	I got tired of reading them. Some options may have other kind of outcomes I might not know about
PAF	I was putting my convenience above the environment. I would like to be able to do both.
PAF	I worry about the impact to the wildlife and the environment but also my household
PAF	I would have preferred an option of selecting both as it made ,me question the importance of the wider environment and the future for my grandchildren
PAF	IT WOULD ALL HAVE AN IMPACT ON MY HOUSEHOLD
PAF	Impact appeared to be very similar in most cases.
PAF	Impact could be the same
PAF	Impact was difficult to discern based upon the vague descriptions
PAF	In some cases both options would impact us so it was necessary to work out which one would have the most impact

Sample	Why was it difficult choosing between the options?
PAF	In some cases neither would really affect me.
PAF	It something that needs thinking about and some unbelievable
PAF	It was a choice of being selfish sometimes -
PAF	It was difficult to clearly quantify and compare the two options in some of the scenarios. I appreciate that this is part of the point of the exercise though
PAF	It was not
PAF	It wasn't
PAF	It wasn't
PAF	It's hard to choose between pollution which affects everyone and not having water for a set time
PAF	Neither questions about rivers or beaches would impact our household. An option asking about sewage leaks around households would have been better
PAF	No reason
PAF	Not easy to read
PAF	Not sure
PAF	Of equal impact
PAF	On a couple of questions, I found it hard to gauge the impact of the 2 options.
PAF	Questions appeared to be choosing between personal circumstances or damage to the wider local environment. Both are important and would prefer neither to occur if possible
PAF	See previous answers.
PAF	Situations not comparable
PAF	Some aren't applicable to my household
PAF	Some choices didn't directly affect me at all. Or affected household to the same extent. Hard to choose between low impact for me direct but large impact on environment therefore myself indirectly
PAF	Some had minimal impact on me
PAF	Some of the choices would have affected me nearly equally.
PAF	Some of the options do not really have any impact on our household at all.
PAF	Some of the options were similar and some of the options would impact me in only slightly different ways.
PAF	Some of them didn't seem comparable with each other. I would have chosen both options in one case.
PAF	Some options both would affect the household
PAF	Some were negligible
PAF	Some were very similar
PAF	Some would have no impact with both options
PAF	Some would both have an impact and choosing the option with most impact was sometimes difficult.
PAF	Sometimes I was thinking 'It depends'. If water was off and it was nice weather I might decide to go out anyway so no problem. Or if I was desperate for a cuppa and weather really bad it would be very inconvenient.
PAF	Sometimes both options could be a problem
PAF	TO pick between environment and affect on household.
PAF	The choice was hard to make. The inconvenience of not having water at home was less than the worry of letting our dog swim in the sea and rivers. We care about flora and fauna and wildlife but also like having a safe domestic water supply
PAF	The impact of each on my household was low, so I had to consider carefully which would impact me the most
PAF	The options were not realistic alternatives, nor were the estimates of recovery time after damage in the home, for example. I don't believe it should be a choice between discharging raw sewage in rivers/sea OR having water supply in the home.
PAF	The options were set to decide between pollution incidents and supply. Anything that occurs that directly impacts your home is always going to impact directly the household. Waste water, spills etc tend to be in public places and will have less

Sample	Why was it difficult choosing between the options?
PAF	They had been designed to offer fine distinctions
PAF	They were too generalised and it was not easy to relate them to this particular household.
PAF	They're quite odd scenarios aren't they and it is hard to compare two quite different events and to really think through which would be worse
PAF	Thought neither would impact much for some of them
PAF	Time to read and take in
PAF	To confusing
PAF	Too many options
PAF	Unusual choices
PAF	When there was a risk to my health eg sewer flooding inside the house and also risk to wildlife health
PAF	Whether to worry about the greater good or focus on own household.
PAF	Yes
PAF	because i am unsure of the exact consequences of some of the options
PAF	because the options didn't always seem to be related to each other.
PAF	neither were very good
PAF	the non local scenarios might have a local impact and should not be less important because not on doorstep.
Panel	ASSESSING THE TRUE EFFECT.
Panel	All of them were not ideal for a service I'm paying for especially with a baby at home
Panel	BECAUSE SOMETIMES NEITHER AFFECTED ME AND FOR OTHERS BOTH CHOICES DID
Panel	Because I didn't have the choice to say "Neither would affect my household"
Panel	Because both weren't good
Panel	Because certain options would have significant ramifications with either choice.
Panel	Because directly it can affect you not to have water from your pipes one day. Anyway, you will survive. However, contamination somewhere else it will end affecting you too, even though it's more difficult to see it straight away
Panel	Because most seemed irrelevant to me.
Panel	Don't know
Panel	Dont know what has a worse impact
Panel	Hard to visualise
Panel	Have never experienced problems so difficult to choose
Panel	I didn't think either would affect me at all
Panel	Impact on household is debatable
Panel	It was difficult to concentrate on the impact for just the household.
Panel	Just felt difficult as we do not have a river close by
Panel	Lots of choice
Panel	Not sure which wud b worse with some of them
Panel	Options confused me
Panel	STUPID CHOISES
Panel	Some didn't have much effect on me and mine
Panel	Some were equally disruptive
Panel	They were quite closely matched, and the degree to which I chose one over the other was fairly small.
Panel	Tough to pick
Panel	Well some were more of a nuisance than others
Panel	Where both scenarios seemed bad it was quite hard to choose between my own convenience and my beliefs about the environment
Panel	Working out what would impact me More
Panel	Yes
Panel	any incident can affect my home sooner or later
Panel	because in some cases both options would impact my household
Panel	both thing ould happen

Sample	Why was it difficult choosing between the options?
Panel	did not know how much impact on household some choices would have
Panel	just difficult to assess impact
Panel	just found some harder than others
Panel	na
Panel	no
Panel	often both didn't really apply
Panel	on some scenarios there are shorter term impacts but closer to home and some longer term impacts further from my home. At what point does the longer term impact affect me?
Panel	seemed most were around 5 miles away
Panel	situations were not like for like, between some environmental issues and a few hours inconvenience to me personally
Panel	the rates are all comparative
NHH	Because were a commercial organisation and a negative effect on the river can be a positive effect on us, because people swim in our lake and also in the river, so if the river was polluted, then they would swim in the lake - it's complex - not a
NHH	Going back to what I said it is like choosing a red hot needle in one part of your body or a cold needle in a more sensitive part. You can't compare apples and oranges. You can't dissociate something that will be terrible for the environment b
NHH	I don't know
NHH	None of them would affect me - especially the rivers - I'm far away from them - the taste of the water would affect me.
NHH	There was a lot of options and I had to think quickly to answer them.
NHH	Wasn't bothered about either one.

Compensation exercise

Table 41: Feedback follow-up questions: compensation exercise

Sample	Why were you unable to understand the choices?
PAF	Again clearly explained
PAF	Because I feel a great loss of investing if this was to happen. Would rather have money invested in improving
PAF	Because the wording was unclear
PAF	Clearly laid out
PAF	Don't know
PAF	I was able to clearly understand all choices.
PAF	I wasn't
PAF	I would like £10 c
PAF	It said compensation for either choice. Why would I be compensated for something that didn't happen
PAF	Options was easy
PAF	Unclear
PAF	Yes
Panel	No
Panel	Ridiculous options
Panel	The choices were fine.
Panel	I would never want a problem with my water or sewage
Panel	it's great
Panel	they were unrelated
Panel	you asked the same question 3 times with a difference of how much is paid

Table 42: Feedback follow-up questions: compensation exercise

Sample	What was not believable about the options shown?
PAF	A problem with compensation or no problem at all, who isn't going to prefer there to not be a problem?
PAF	Anything I'd believe this day and age
PAF	Can't believe compensation would be offered
PAF	Compensation amount too high
PAF	Compensation for 6 hours of water loss is unbelievable
PAF	Dk
PAF	Don't know
PAF	Everyone prefers to have no disruption but inevitable it would happen for many reasons, compensation would be better used supplying alternative water to customers. Most sewage problems are caused by customers so we can't understand why you wo
PAF	Extreme examples
PAF	Hope to think it would happen
PAF	I can't believe those greedy inefficient bastards at the water company would front up with compensation.
PAF	I don't believe that would happen where we currently live
PAF	I don't believe the company would compensate that much.
PAF	I just don't believe water companies care enough about individuals to pay that much in compensation.
PAF	I think the compensation amounts were higher than would be paid.
PAF	I would never expect compensation for any of these issues
PAF	I've never heard of anyone receiving compensation in this way
PAF	In all scenarios, either it happened or it didn't - obviously I would prefer no interruption of water supply or sewage outside my house, so it is obvious which scenario would be chosen (although in the case of any compensation £100 is preferabl
PAF	It was hard to distinguish what to choose
PAF	Likelihood of getting compensation
PAF	N/A all believable scenarios.
PAF	Not on mains drainage . I would prefer the system to be updated rather paying compensation
PAF	Nothing
PAF	Noting
PAF	See before
PAF	Sometimes things go wrong-it is better to work together to remedy issues. There needs to be third opption-work quickly to resolution-keep customer up to date on progress so arrangements can be made
PAF	"Sounds a bit weird
PAF	,
PAF	That it would take one week to resolve
PAF	That you are going to pay me money
PAF	The amount of money ascompensation
PAF	The amounts offered were too high
PAF	The compensation offered would not be easy to access!
PAF	The fact u would rather pay out than sort the problem or prevent it in the first place with regular maintenance
PAF	The information about the stoppage or damage is unlikely to be available in an incident.
PAF	Time frame
PAF	Wasn't about being believable - it was about being understandable
PAF	We have experienced sewage outside our property for the last few years. It has taken a lot of visits, investigations and pumping until the problem was hopefully

Sample	What was not believable about the options shown?
	resolved during Christmas 2021. We have not received any compensation whatsoever,
PAF	We live on a hill
PAF	Who would choose compensation for a sewage leak over no sewage leak?
PAF	Would they really give me that much money? I feel they would want to give the bare minimum to keep people quiet.
PAF	You have no problems.
PAF	compensation levels were not credible
PAF	too much compensation on offer
Panel	Do they really pay that much compensation
Panel	Don't believe the company would pay the amount of compensation shown
Panel	Don't think they wud offer that amount of comp
Panel	Don't know
Panel	I cannot envisage such high compensation payments (such as £5000)
Panel	I couldn't believe that the water company would pay over £2K in compensation
Panel	I do not think my water company would offer compensation
Panel	I live in a tower block
Panel	I live on a hill it is very unlikely to ever happen.
Panel	It wouldn't happen in my area
Panel	See previous
Panel	The amount of money being offered as compensation.
Panel	The compensation amounts were very high
Panel	The compensation part
Panel	The level of compensation
Panel	The scenarios were not realistic or authentic. They also would not apply to the location that I live in.
Panel	The sewage one happening
Panel	Yes
Panel	You wouldn't get that much compensation
Panel	i cant imagine anglian water offering me £10k compo under any scenario
Panel	life is not either or, it is mainly both or none
Panel	na
Panel	no idea
Panel	none
Panel	the amount of compensation
Panel	they are unlikely to happen
Panel	you cant have a problem or not
NHH	I was given options for the level of compensation for level of effect, then asked what would you prefer: to get compensation or for event not to happen, but of course I would prefer for the event not to happen - if they it were to happen then
NHH	I've had issues with other companies and the compensation entitlements are non-existent, I would be very surprised if companies would compensate
NHH	Just from experience of where I am, I cant imagine we would have that problem outside our office for that period of time (sewer flooding).
NHH	The idea that water companies would be giving out 25% or 50% compensation for things going wrong - if they run out of money then they would start running sewerage into the rivers.
NHH	The level of compensations, which was about 5-10 times the annual water bill, I don't find believable. It's not the way it's happened in the past.

Table 43: Feedback follow-up questions: compensation exercise

Sample	What were the main factors driving your choices?
PAF	Affect on us
PAF	Bills
PAF	Common sense and logic

Sample	What were the main factors driving your choices?
PAF	Ensuring a continuous supply of water and no sewage spills
PAF	Ese of compensation pid but also would rather not hbe sewage thn £1000
PAF	How it impacts my family is most important
PAF	I am 89yrs old with limited vision and very limited walking ability. I rely heavily on support from family. So not having water and needing to get bottles or standpipe refills would be unattainable.
PAF	I would prefer not to have foul sewage near my property regardless of the amount of compensation potentially being offered
PAF	Importance of reliability of service
PAF	Inconvenience versus compensation
PAF	Maintaining a clean water supply
PAF	Nothing
PAF	Personal
PAF	Prevention is better than a cure in most cases
PAF	Sewerage issues
PAF	The fact I'm at work for 60 hours a week so am rarely at home
PAF	WE CAN LIVE WITHOUT WATER DURING THAT PERIOD AS WE WOULD BE AT WORK SO IT WOULD NOT EFFECT OUR HOUSEHOLD. THERE IS NO WAY I WOULD LIKE SEWAGE IN MY HOUSE WHATEVER THE COMPENSATION.
PAF	Whether the compensation amount was enough for the inconvenience.
PAF	compensation payments drive up bills. some households would be affected worse than others ie, with lots of small children. For my household I would rather that southwest water did its job well and these incidents did not occur in the first plac
Panel	I DID NOT WANT A PROBLEM. COMPENSATION IS NOT THE ANSWER. SOMETIMES PROBLEMS ARE INEVITABLE AND ONE HAS TO ACCEPT THAT IT WAS NOT DELIBERATE. ALSO THE COMPANIES CONCERNED ARE NOT EXPECTING THESE PROBLEMS AND TAKE STEPS TO PREVENT IF POSSIBLE
Panel	I would prefer not to have any disruption. Money isn't everything
Panel	Less upheaval
Panel	Nope
Panel	its nice getting something back for your loyalty
NHH	Common sense.
NHH	It's about patient care and providing a service. We have a duty of care for our staff and patients. We don't want sewer flooding or the associated health risks.
NHH	The compensation wasn't driving my choices. We want a continuous supply of water and don't want sewerage running down the road outside the property. The figures didn't sound realistic.

Table 44: Feedback follow-up questions: compensation exercise

Sample	Why was it difficult choosing between the options?
PAF	????
PAF	Bills
PAF	Did not know the extent of how bad sewer flooding is.
PAF	Finely balanced options
PAF	I don't know how much damage would be caused by the flooding, could cost more than £2000!
PAF	I would not want any of the incidents to occur. I already pay a significant amount each month for a good reliable service. The options implied whether I would accept a 'reactive' service or a 'proactive' service. Both have a cost but only the r
PAF	It wasn't difficult
PAF	It wasnt
PAF	It's hard to put monetary value on inconvenience.
PAF	Ju
PAF	N/A

Sample	Why was it difficult choosing between the options?
PAF	N/a
PAF	NOT SURE
PAF	Need third option
PAF	No
PAF	No not all
PAF	No perspective was given
PAF	None
PAF	Not knowing what damage a sewer leak could do to our property made it hard to decide if £5000 compensation would be enough to cover any damage.
PAF	Not sure
PAF	Obviously we would all prefer not to have issues at all, but for the money offered it was sometimes worth it, if the disruption was very manageable. Also , I have never experienced a sewerage spill, so I was finding it difficult to know the d
PAF	See previous answers!
PAF	Stupid, obviously would prefer no problems with services!
PAF	frustration with the time it was taking
Panel	Because I couldn't decide wether it would be better for it to not happen or for the compensation
Panel	Don't know
Panel	I didn't understand some
Panel	It was only the sewerage leak I found difficult. I am on a low income and was tempted by the compensation package.
Panel	No
Panel	The questions were too ambiguous.
Panel	had to think how it would affect me
Panel	na
Panel	none
Panel	the amount
NHH	Because it's quite hard to put a value on things like that.