Surface Water Flooding Social Research

On behalf of the National Infrastructure Commission

August 2022

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BMG success decoded

Executive Summary

Executive Summary: Overview of key findings (1 of 2)

1. How aware are the public about the issue of surface water flooding?

- **Low awareness:** Awareness and understanding of the term “surface water flooding” is relatively low - just 20% say they are confident that they know what the term means. Understanding is lower among younger groups, those on lower incomes, and renters.
- **River flooding tends to be ‘top-of-mind’:** People tend to think about large-scale floods usually involving rivers and seas rather than surface water flooding. Discussions in the focus groups suggested this is a result of hearing about protection measures like coastal dykes and flood plains as well as prominent cognitive images of rivers bursting their banks.
- **Limited understanding of the causes:** Only 2 in 5 were able to correctly define surface water flooding, with most responses either vague or incorrect. One common misconception was that surface water flooding was “low level”, likely as a result of the term “surface”. Qualitative participants were also light on detail around what surface water flooding means and were often only able to hazard a guess.
- **Confusion and conflation between river and the sea and surface water flooding:** Even when prompted, many misattribute the causes. The vast majority were able to identify one correct cause, but only a third exclusively selected correct answers. Commonplace misconceptions include a river bursting its banks (37%), poor river management (24%) and rising sea levels (23%) – highlighting widespread confusion between flooding types.
- **Over-development, lack of regulation, and climate change**: Despite wider confusion, in the focus groups respondents were able to lead relatively informed discussions on the causes once given the opportunity to deliberate. Three main causes emerged: 1) Over-development (i.e. new builds putting pressure on drainage systems); 2) Lack of regulation from councils/government on developers; and 3) Climate change causes exasperating the issue.

2. Are the public concerned about the problem of surface water flooding and do they perceive themselves as at risk?

- **6% say their home has flooded since they have lived in the property:** 6% of adults in England say their home has flooded since they have lived in the property. Meanwhile, a total of 11% have direct experience of flooding (i.e. current or previous house flooded).
- **Flooding is a lower-tier concern:** Aside from those with prior experience, flooding ranks relatively low down in terms of issues that could impact property or cause disruption, with concerns such as fire, burglary, and appliance breakdown much more salient. Most focus group participants simply felt flooding was unlikely to impact them and also tended to underestimate the damage it would cause to their homes.
- **Few think they are at high risk from flooding:** 5% of the population say they are at high or very high risk from flooding. Those who have had a prior experience with flooding are more likely to rate themselves in the survey as at risk than those who have no prior experience and few other factors appear to influence this risk assessment.
- **People have a poor understanding of risk, leading to contradictory views depending on how risk is framed:** Discussions in the focus groups revealed that when presented in a 'once in X' number of years format, most did not think once in every 30 years sounded very risky, despite this being the threshold for high risk. However, when conveyed as a 64% chance of being flooded in the next 30 years" - which equates to the same as an annual risk of once every thirty years - respondents suggested this sounded much more risky and much less tolerable. This contradiction highlights that understanding of risk is generally very weak, and framing is often pivotal to the level of urgency people to different flood risk scenarios.

Executive Summary: Overview of key findings (2 of 2)

3. How much are people willing to pay to reduce the risk of surface water flooding and what factors influence this?

- **Resistance to paying anything additional:** Only a small minority (27%) say they are willing to pay anything additional to maintain or reduce the current level of risk from surface water flooding, including just 7% who said they would be willing to pay an extra £50 annually. Willingness to pay increases as household incomes rise, but a substantial share still say they would not be willing to pay anything additional in all income groups.
- **Prior experience of flooding drives wiliness to pay:** As is the case elsewhere, prior experience of flooding is the key to people's attitudes. As many as 54% of those with direct prior experience of flooding would willing to pay extra on taxes or on water bills – more than double that of those with no prior experience (22%). There is also variation by region, with those in London more likely to be willing to pay extra (34%), possibly as a result of prominent flash floods in the last year or so.
- **Those on higher incomes should pay more:** The survey results suggest more people tend to think those on higher incomes should pay more, but many have fairly balanced views suggesting most believe the differential should not be excessive. **Four key barriers:** Four key barriers to paying additional taxes or on water bills to emerged: 1) Lack of relevance, responsibility or belief in the necessity for interventions 2) A belief that paying more won't lead to tangible change/benefits; 3) Wider pressures on household bills and the rising cost of living; and 4) Lack of trust as to how the money would be spent.
- **Risk should be spread:** There is a general sense in the survey that everyone should pay the same for surface water flooding regardless of their level of risk. In focus groups, people tended to choose a balance where those more at risk were paying more (i.e. £100 compared to £15) but avoided completely placing the burden on those at greater risk.
- **Willingness increased when presented with additional information:** After being shown information about the levels of risk in the UK and the potential for this to increase, there was an increase in those willing to pay more (41%, up from 27%).

4. What other protective measures and actions do the public believe they themselves and other actors should take?

- **Relatively high levels of awareness of mitigation measures:** Prompted awareness of the interventions against SWF is relatively high – as many as 81% are aware of water butts and 53% are aware of retention ponds for example. However, the focus groups highlighted that knowledge about each was relatively low except for water butts (higher awareness of water butts may be because they are also a drought resilience water storage measure).
- **Ownership higher among those who perceive themselves at risk:** The numbers undertaking each mitigation measure are, as you would expect, much lower, but the small proportion of the population who think they are at high risk of surface water flooding is much more likely to have done so. For example, 41% of those who perceive themselves at high risk report having a permeable surface, which compares to just 13% who perceive themselves at low risk.
- **Lack of necessity is the main barrier to uptake:** Of the various potential barriers to taking up each mitigation, a belief that the measure is not necessary is the most cited for all 6 interventions. This is likely explained by many simply believing the risks are not great enough to warrant action.
- **Not my responsibility:** Focus group participants conveyed that the responsibility for tackling surface water flooding largely with the government and other authorities is driving an unwillingness to do anything additional. National government, Local Authorities, private developers and water companies are often cited as more culpable actors.
- **Mixed views around risk levels and targeted spending:** When it comes to how the government targets spending this money, the public has mixed views. Asked to choose where they are on a scale between the government prioritising reducing the risk levels for 100 properties at high risk or 500 properties at any risk level, the public is fairly evenly spread along the scale, suggesting most believe some sort of balance should be stuck.

Background & Methodology

Background to the research requirement

Policy context

Surface water flooding is the most common flood risk in England, with 3.2 million properties at risk. Surface water flooding occurs when heavy rainfall overwhelms drainage infrastructure (which includes combined sewers) or does not soak into the ground, resulting in water ponding or surface overflow.

In October 2021 the government commissioned the National Infrastructure Commission to undertake a study into surface water flooding to assess the current approaches to managing surface water and consider the role of a range of interventions including both traditional built infrastructure and nature-based solutions.

The programme will form part of a wider evidence review to which a range of stakeholders will contribute. The review will place particular emphasis on understanding the size of the problem and the infrastructure solutions needed to mitigate this problem.

A core part of the National Infrastructure Commission's role is to engage with users of infrastructure when developing its policy recommendations. This is the objective of this programme of research, exploring the public's priorities in this area. It focuses on the public acceptability of measures to reduce the likelihood and risk of surface water flooding, including willingness to pay.

We have broken down this core research question into four more specific questions, each with sub-questions underneath – *see the breakdown on page 8*. This framework also forms the structure of the report, with a section for each of the four strands.

Use of Environment Agency risk ratings

This report includes an analysis using the Environment Agency's flood risk rating classifications for both surface water flooding and rivers and sea flooding. This was derived by collecting address details for each survey respondent and then appending the corresponding risk classification provided on the GOV.UK risk calculator website. A breakdown of the unweighted sample counts for each risk rating is provided in the table below (data could not be appended for 2 cases).

Risk rating	Estimated risk level	SWF sample count	River & sea sample count
High	Greater than 1 in 30 (3.3%)	310	9
Medium	Between 1 in 100 (1%) and 1 in 30 (3.3%)	319	33
Low	Between 1 in 1000 (0.1%) and 1 in 100 (1%)	651	60
Very low	Lees than 1 in 1000 (0.1%)	720	1,898

Please note that this report used the risk rating classifications sparingly, with results instead summarised in the appendix. These results should be **treated with caution**. Flooding from surface water is typically more dispersed and fragmented than flooding from rivers or the sea. It can be concentrated in narrow corridors between and around buildings and therefore it is more challenging to assign a risk level to individual properties.

The above estimates imply a combined 64% of households are at high, medium or low risk, but this is likely a considerable overestimate of this number. Using a more complex and sophisticated model, the Environment Agency estimate that households at either high, medium or low risk account for approximately 10% of households.

This report structured around four overarching research questions

This report is structured around four overarching research questions. Each of these key research questions is answered by addressing a series of sub-questions covered within each section.

How willing are the public to pay more and take measures to tackle the problem of surface water flooding?

1 How aware are the public about the issue of surface water flooding?

Are people aware of the term 'surface water flooding' and what do they associate the term with?

Is there an understanding as to the causes of surface water flooding?

Are people able to clearly distinguish surface water flooding from river and sea flooding?

2 Are the public concerned about the problem of surface water flooding and do they perceive themselves as at risk?

How salient is the issue of flooding relative to other issues that can impact households?

How do the public understand, think about and frame the risk of surface water flooding?

Do the public view themselves at risk and are those at greater risk able to identify this?

What is viewed as an 'acceptable' level of risk and protection?

3 How much are people willing to pay to reduce the risk of surface water flooding and what factors influence this?

Are people willing to pay more?

What are the emotional and practical barriers and enablers to paying more?

What level of trade-off do people hold between different amounts and levels of protection/reductions in risk?

Are higher earners and those at greater risk be expected to contribute more?

4 What other protective measures and actions do the public believe they themselves and other actors should take?

To what extent do people see themselves as actors that can or should take action on the issue?

What individual actions and measures are people aware of? And what measures are viewed as effective and worthwhile?

What individual actions and measures are people currently taking? What are the barriers and enablers?

And what about wider community or local/national government – what actions could/should they take?

Methodology (1 of 2)

The programme comprised 3 research phases. The primary qualitative phase was exploratory and helped us to perfect the quantitative questionnaire. The final follow up qualitative phase was to complement and explore further the quantitative data.

1 Phase 1: Exploratory qual

Methodology:
2 online focus groups

Fieldwork:
8th – 9th June 2022

Number of interviews:
A total of 13 participants took part.

Sample design:
Groups split by social grade (one ABC1 and one C2DE group). Mix of genders ages, bill payer status, tenures, urban rural classifications and regions.

Purpose: An initial exploration of the public's understanding of surface water flooding and the associated risks, as well as gauging willingness to pay to mitigate these risk. Included cognitive testing of draft survey questions.

2 Phase 2: Quantitative survey

Methodology:
Online survey using blend of online research panels

Fieldwork:
1st – 6th July 2022

Number of interviews:
Nationally representative sample of 2,002 adults in England aged 18+.

Sample design:
Representative quotas set on age by gender and region, with additional weights applied on ethnicity, education, Index of Multiple Deprivation (IMD), and urban-rural. An overview of the weighted sample profile is provided in the appendix.

Purpose: Understand attitudes and behaviours from a representative sample of the public, with questions covering all core objectives.

3 Phase 3: Follow up qual

Methodology:
3 online focus groups

Fieldwork:
20th – 21st July 2022

Number of interviews:
A total of 24 participants took part.

Sample design:
Split by social grade (one ABC1 and one C2DE group), and mixed group. 2 groups with at least 2 participants with prior flooding experience, the other group with no experience. All bill payers with mix across other demographic criteria.

Purpose: To explore further the public priorities in the area of surface water flooding, including the acceptability of measures to reduce the likelihood and risk of surface water flooding.

Methodology (2 of 2)

The below boxes detail the reporting conventions used throughout this report.

1 Quantitative and Qualitative symbols

As detailed in the previous slide, this programme used both qualitative and quantitative methodologies. To aid both navigation of the report and interpretation of the findings, the insights from each methodology are signified with the following symbols:

Quantitative:
Analysis based on the quantitative survey (phase 2) will be accompanied by the following symbol throughout the report.

Qualitative:
Analysis based on the qualitative components (phases 1 and 3) will be accompanied by the following symbol throughout the report.

2 Significance testing

Throughout the quantitative elements of this report, results are discussed in terms of differences between sub-groups and the result for the total (average for all respondents). Differences are considered to be significant at the 95% confidence level, meaning that there is only a 5% possibility that the difference occurred by chance rather than by being a real difference. This is a commonly accepted level of confidence.

Please be aware that the size of the sample affects the percentage difference required for significant changes. The bigger the sample size, the smaller the difference required to be statistically different.

Significant differences between a sub-group and the total are shown with the use of the below arrows. Up means that the sub-group is significantly higher than the total, and down means it is significantly lower.

↑ Significantly higher @ 95% **↓ Significantly lower @ 95%**

3 Rounding of percentages

The data used in this report are rounded up or down to the nearest whole percentage. It is for this reason that, on occasion, tables or charts may add up to 99% or 101%. Results that do differ in this way should not have a sum-total deviance that is larger than around 1 to 2%.

4 Definitions

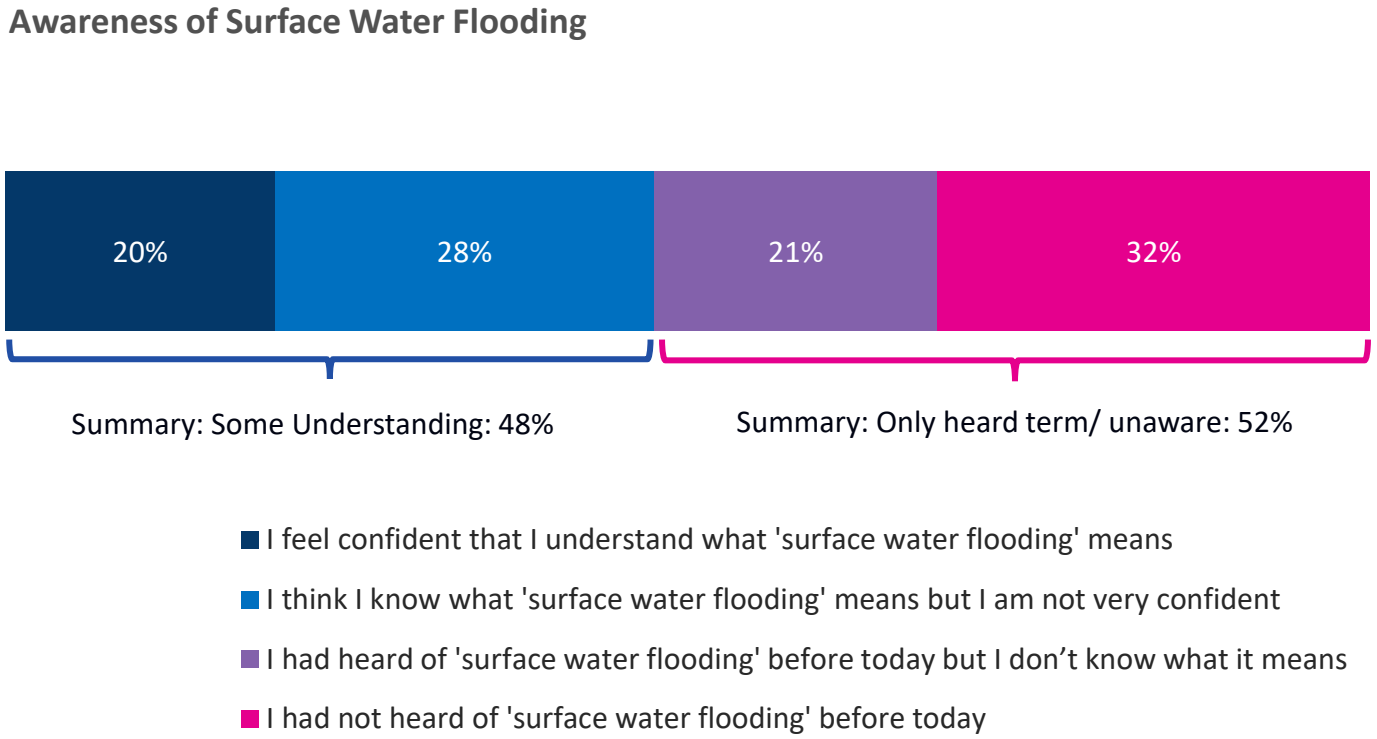
Direct flooding = Those who have direct experience of flooding either where they currently live, or in a previous home.

Indirect flooding = Those who live or use to live in a home that they know has been flooded, but who have not experienced flooding themselves.

Risk perception = Respondents who have defined as part of this survey that they believe they are at high (very high + high) or low (low + very low) risk of flooding.

Section 1 – Awareness of surface water flooding

Awareness and understanding of the term ‘surface water flooding’ is relatively low – just 20% are confident that they know what the term means



The following demographic groups are significantly less likely than average (48%) to say they have “some understanding” of surface water flooding:

- SEG DE: 40% ↓
- Renters: 38% ↓
- Age 18-24: 37% ↓
- Income £0-£9,999: 32% ↓

Q05: Which of the following statements best reflects your knowledge of the term 'surface water flooding’? Base: 2002 (All respondents)

↑↓ Significantly higher or lower than the average. 95% confidence interval.

Low awareness was also evident in the focus groups - coastal and river flooding was generally top of mind

When thinking about flooding, respondents' minds went first to large-scale floods, usually involving rivers and seas, rather than rapid surface water floods. This was mostly due to prior knowledge, as well as prominence in the media, relating to each. Prominent protection measures (e.g., flood plains, coastal dykes) were mentioned when spontaneously talking about flooding, suggesting that these schemes drive knowledge of different kinds of flooding amongst the general public.

Most commonly mentioned → **Least commonly mentioned**

River flooding

- Generally top of mind with strong cognitive imagery of rivers bursting banks
- Linked to low-lying ground, known to be prone to flooding
- Many had prior knowledge of river flooding having happened near to them, or near to people they know
- Perceptions of new developments ruining flood plains and destabilising rivers leading to a belief it is getting worse
- Considered to be the most prominent cause of flooding in the UK

Coastal flooding

- Fewer knew of coastal flooding having happened near to them…
- …but the proximity to a large body of water led respondents to see it as the second most common reason for flooding
- Some knowledge of sea defence schemes driving higher levels of knowledge and a perception of it as high risk

Surface water flooding

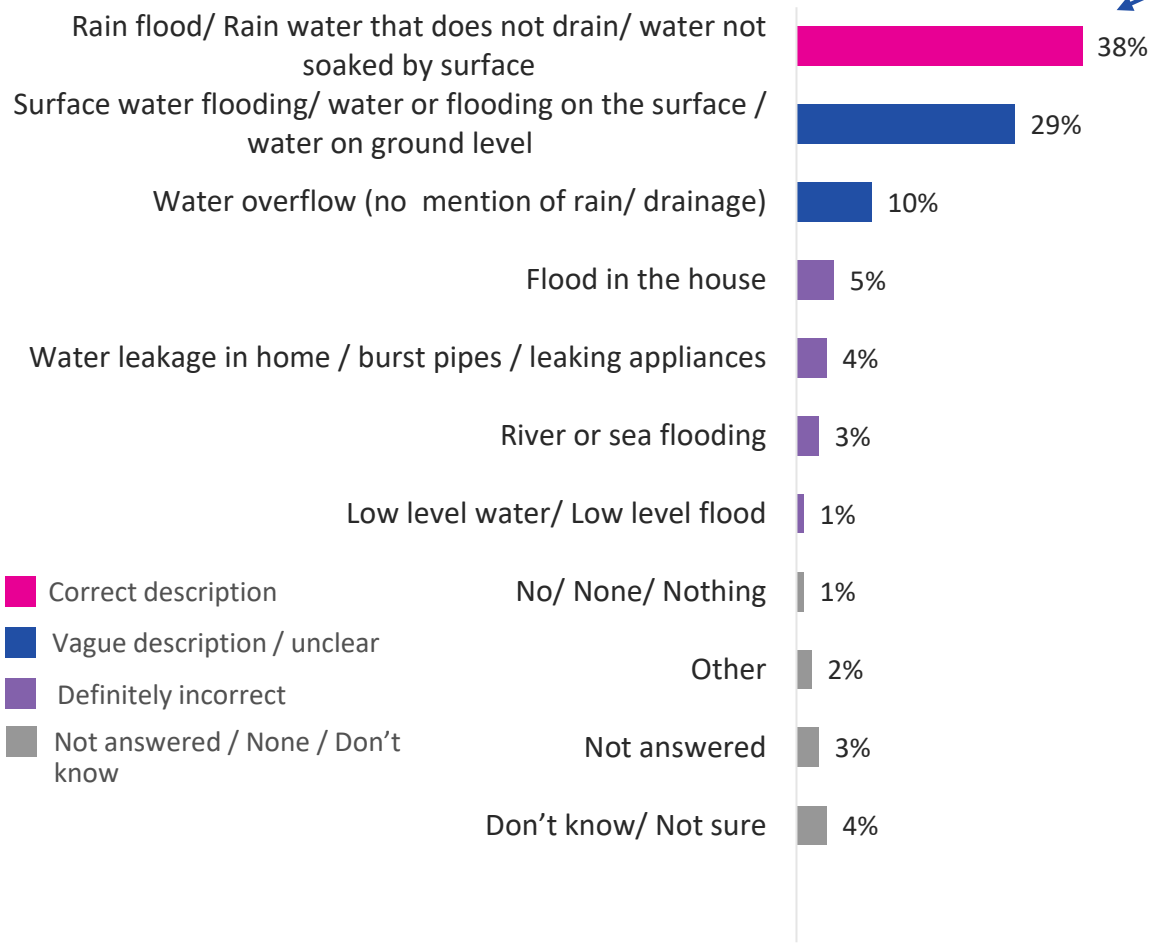
- Fewer aware of surface water flooding as an issue
- Little knowledge of surface water flooding prevention or protection, meaning less knowledge of the issue
- Those who were aware of it did not know the terminology, but referred to 'rainfall flooding' or 'flash flooding'
- Those impacted most likely to be aware

'Other' flooding

- Mostly resulting from 'man-made' issues, such as burst pipes or faulty appliances
- Usually mentioned only by those who have personally experienced it

Only 2 in 5 were able to correctly describe surface water flooding, with most responses either vague or incorrect

Descriptions of surface water flooding



Those in younger age groups are significantly less likely than the average (38%) to get the definition of surface water flooding correct:

- Age 18-24: 13% ↓
- Age 25-43: 25% ↓

"A light flood, so a small amount of water flooding which would just be on the bottom floor."

"Blocked drains causing overflow to sit on the surface where it wouldn't normally flood."

Qualitative participants were also light on detail around what surface water flooding means and were often only able to hazard a guess.

When respondents were shown a definition of surface water flooding they expressed a strong understanding, with many not needing further clarification of this definition.

However, during discussions, respondents naturally mentioned river and coastal flooding throughout conversations, despite being prompted to think solely about surface water flooding.

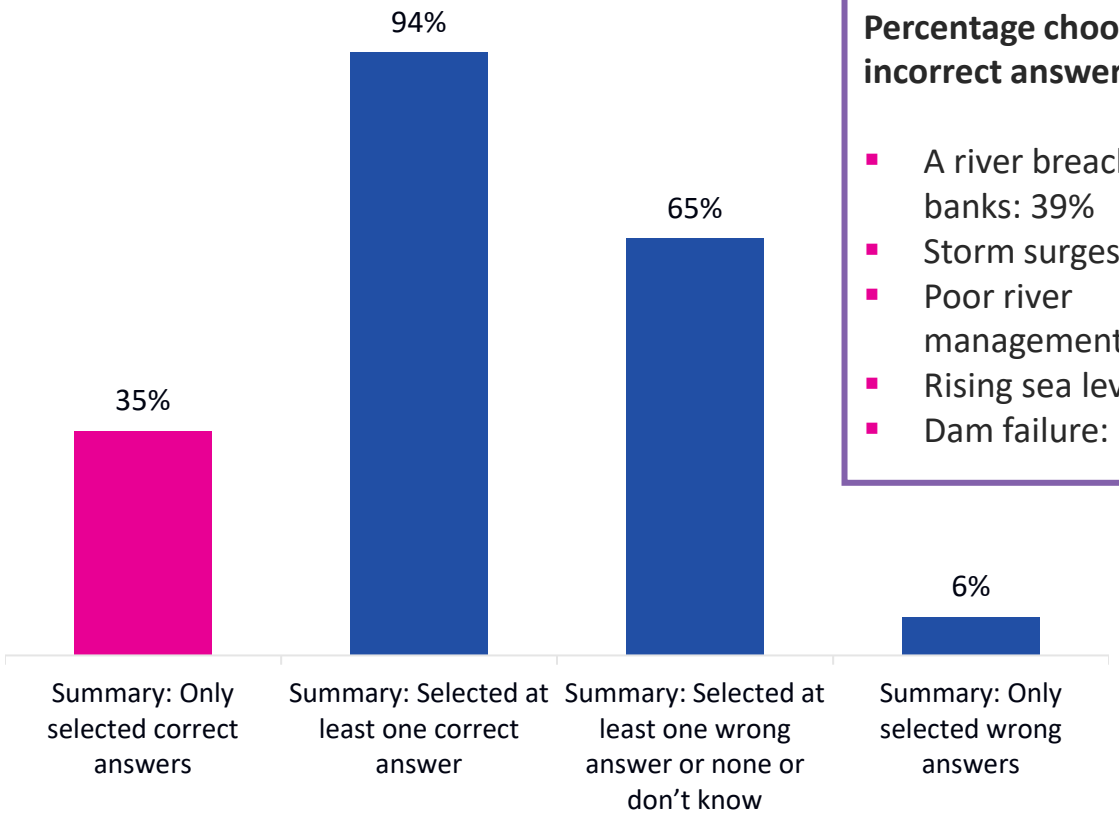
This suggests that the cognitive link between rivers, the sea and flooding is strong and that members of the general public struggle to differentiate between different types of flooding.

Q06: Based on your understanding, please can you briefly describe what surface water flooding is? Base: 953 (Those who say they understand surface water flooding)

↑↓ Significantly higher or lower than the average. 95% confidence interval.

The vast majority were able to identify at least one correct cause of surface water flooding; but only a third *exclusively* selected correct answers highlighting commonplace misconceptions

Knowledge on the causes of surface water flooding



Percentage choosing incorrect answers:

- A river breaching its banks: 39%
- Storm surges: 37%
- Poor river management: 24%
- Rising sea levels: 23%
- Dam failure: 16%

Focus group participants also followed this pattern with top-of-mind knowledge of specific causes minimal. Two prominent causes emerged from the groups:

- **Rainfall overwhelming rivers and seas:** Most were able to identify that a lot of rainfall in a short space of time contributed to surface water flooding. However, this was often linked to how the rainfall impacted water bodies; many believed that the rainfall caused rivers to overflow and flood the surface – thereby essentially incorrectly conflating surface water with rivers and sea flooding.
- **Blocked and inadequate drainage:** Again, most identified rainfall as a core cause of surface water flooding. These groups correctly identified that the rainfall placed intense pressures on drainage systems – often older systems in overdeveloped areas and urban centres – which led to short-term flooding.

However, most viewed the problem of surface water flooding as a more holistic issue, believing that surface water flooding was caused by a combination of the above.

Q07: Which of the following do you think help to cause surface water flooding? Base: 953 (Those who say they understand surface water flooding)

Though not top of mind, people are able to identify and discuss causes of surface water flooding after discussing the issue

During focus groups, participants were shown information about surface water flooding and were given the opportunity to deliberate what they thought the core causes were *after* learning more about it. Prompted knowledge of the issue was a lot more in-depth than top-of-mind awareness, suggesting that the concept of surface water flooding is not an entirely alien concept.

Over-development	• **Overpopulation** leading to too many people now living in high-density urban areas; this has led to too much concrete being built to accommodate their needs (e.g., housing and parking), and not enough natural drainage for rainwater to go when heavy rain comes. • **New builds** in inappropriate areas, such as on natural drainage spaces (e.g., brownfield and greenfield sites) or on flood plains exacerbating issues with lack of drainage. • **Pressure on drain and sewer systems** as the developers who build new housing are not obligated to upgrade drainage systems. Many noted how their drainage systems are still the older Victorian systems built 100+ years ago and are not equipped to deal with the current population density.
Lack of regulation	• **Authorities not tackling the issue** was often seen as a major cause, and there was anger that not enough was being done. Many did not believe that surface water flooding was considered appropriately when councils allowed developers to build on natural drainage areas, and they expressed that developers should be forced to pay to upgrade drains when building in urban environments.
Climate Change	• **Climate change** was thought to be exacerbating surface water flooding as an issue. More intense weather, such as high levels of rainfall in a short space of time, was expected to continue and intensify over the next few years.

When discussing the causes of surface water flooding with respondents in more detail, they express a certain level of **fatalism** about the issue.

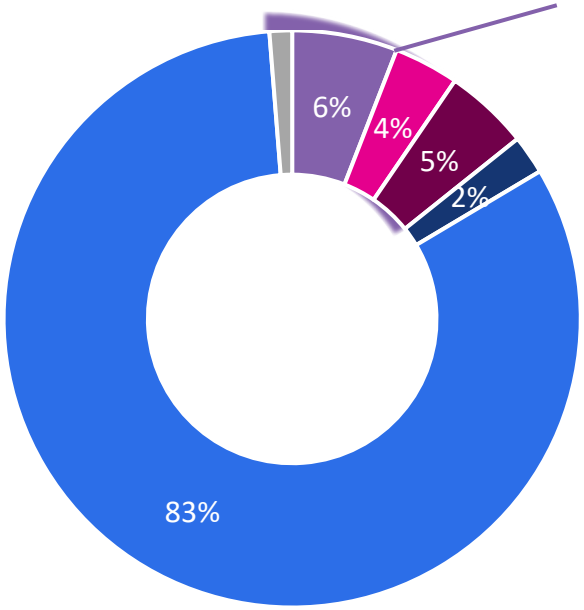
Most do not believe that they, as individuals, are able to help. They express that, as climate change is inevitable, and overdevelopment and regulation are out of their control, surface water flooding is an issue which will *only* get worse.

> *"The problem is that none of this is in our hands, we can't control the weather and councils are only interested in making a profit."*

Section 2 – Public concern for surface water flooding

6% of adults in England say their home has flooded since they have lived in the property; those at higher risk of surface water flooding are more likely to report this being the case

Previous experience of flooding



- Yes – my current home has been flooded since I have lived here
- Yes – my current home was flooded before I lived here
- Yes – a home I used to live in was flooded while I lived there
- Yes – a home I used to live in was flooded before I lived there
- No – I am not aware that any home I've lived in has ever flooded
- Don't know

15% - Summary: Yes*

This is equivalent to approximately **6.7 million** adults in England.

Direct experience of flooding: 11%

Only indirect experience of flooding: 5%

Those who the Environment Agency classify as at high risk of surface water flooding are a little more likely to report that their home has been flooded since they lived there. However, as set out on pages 7 and 53, **please treat these comparisons with caution.**

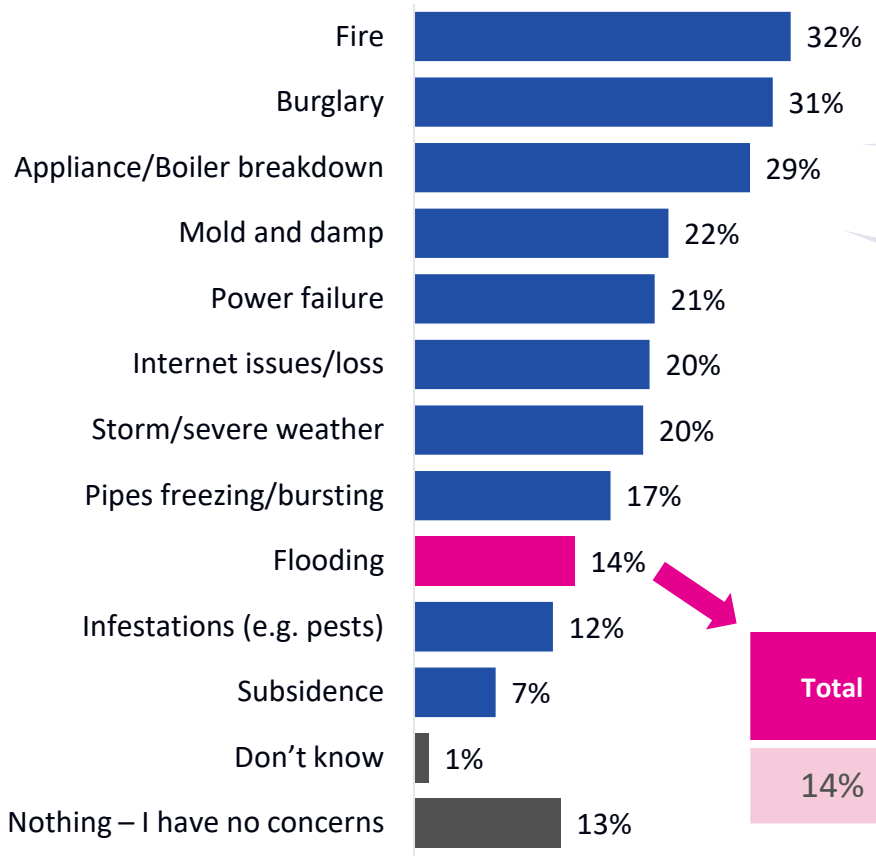
Chance of surface water flooding	% who have experienced flooding in their current home
High risk rating	9% ↑
Medium risk rating	5%
Low risk rating	7%
Very low risk rating	5% ↓

Q02: To the best of your knowledge, has a home you have lived in ever been flooded? Base: 2002 (All respondents)
*Note : The proportion of respondents answering "yes" could be inflated. Questions were raised in the qualitative phase about whether respondents own home flooding through pipe bursting or faulty appliance was applicable. This same confusion could have impacted the responses in this question.

↑↓ Significantly higher or lower than the average. 95% confidence interval.

Flooding ranks relatively low down in terms of issues that could impact property or cause disruption. Those with previous experience are much more likely to rank it higher

Concern about potential risks to property / disrupting life



*"Well **fire** presents a loss of life doesn't it? Which is easily the most worrying thing on here. Everything else could be fixed."*

*"**Burglary** is frightening. It's an invasion of your space, it's someone violating you, really. It scares me, I wouldn't feel comfortable in my own home."*

*"I'd probably choose **appliance breakdown**. It's expensive. I wouldn't want to have to pay that out, and I suppose it's quite likely."*

Total	Direct experience of flooding	Only indirect experience of flooding	No previous experience of flooding
14%	33%↑	23%↑	11%↓

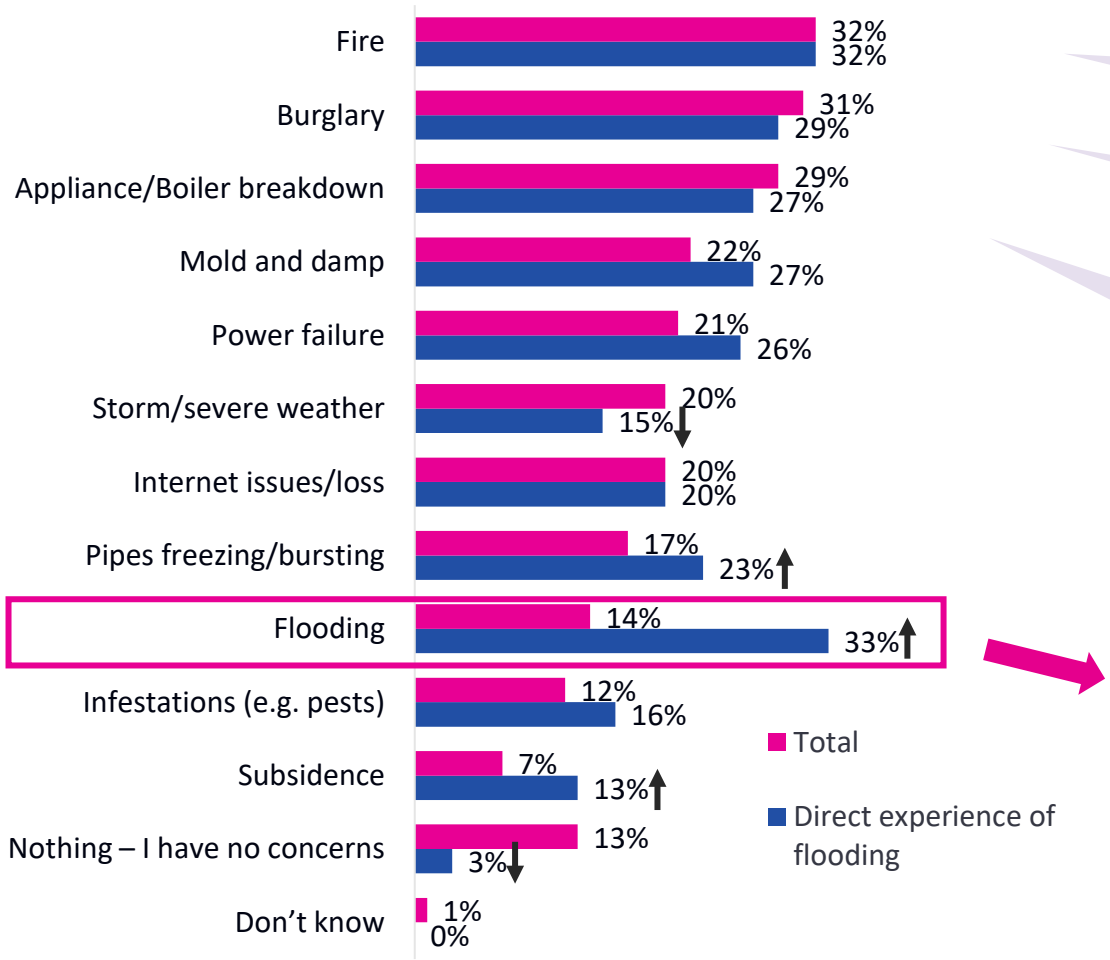
The salience of flooding is largely driven by prior experience. Those with some personal experience of flooding are much more likely to cite it as a potential risk. Given the vast majority have no direct prior experience, the challenges involved in engaging with the public at large on the issue will be considerable.

Q01: Thinking about the home you live in, which of the following potential risks are you most concerned about damaging your home/disrupting your life? Please do not consider the safety risk to you personally. You can select up to three. Base: 2002 (All respondents)

↑↓ Significantly higher or lower than the average. 95% confidence interval.

Flooding ranks relatively low down in terms of issues that could impact property or cause disruption. Those with previous experience are much more likely to rank it higher

Concern about potential risks to property / disrupting life



*"Well **fire** presents a loss of life doesn't it? Which is easily the most worrying thing on here. Everything else could be fixed."*

*"**Burglary** is frightening. It's an invasion of your space, it's someone violating you, really. It scares me, I wouldn't feel comfortable in my own home."*

*"I'd probably choose **appliance breakdown**. It's expensive. I wouldn't want to have to pay that out, and I suppose it's quite likely."*

The salience of flooding as a concern is largely driven by prior experience. 33% of those with direct experience of flooding cite it as a concern, which is around as high as fire (32%) and burglary (29%).

However, given the vast majority have no direct prior experience, the challenges involved in engaging with the public at large on the issue will be considerable.

Q01: Thinking about the home you live in, which of the following potential risks are you most concerned about damaging your home/disrupting your life? Please do not consider the safety risk to you personally. You can select up to three. Base: 2002 (All respondents); Direct experience of flooding (225).

Significantly higher or lower than the average. 95% confidence interval.

Likelihood to happen, and the perceived damage and devastation it would cause, are the two elements which drive worry and concern amongst the public

What homeowners and renters worry about the most

- ✓ **Fire:** Widely considered to be the most dangerous and damaging issue presented; many are fearful of losing their lives and livelihoods. It is believed to be destructive and devastating. Most use preventative measures such as installing fire alarms, and checking appliances are switched off before using.
- ✓ **Burglary:** Considered to be more likely to happen to many, with large financial and mental consequences. Most have insurance against this issue.
- ✓ **Loss of Internet/connection:** Many noted how their livelihoods depended on their Internet connection as they now work from home. Additionally, connectivity issues were thought to be fairly common, so constant, if not huge, worry for participants.
- ✓ **Broken appliances:** Another more likely issue, and thought of as a large financial blow, and something many would not be able to bear in the current cost-of-living crisis.

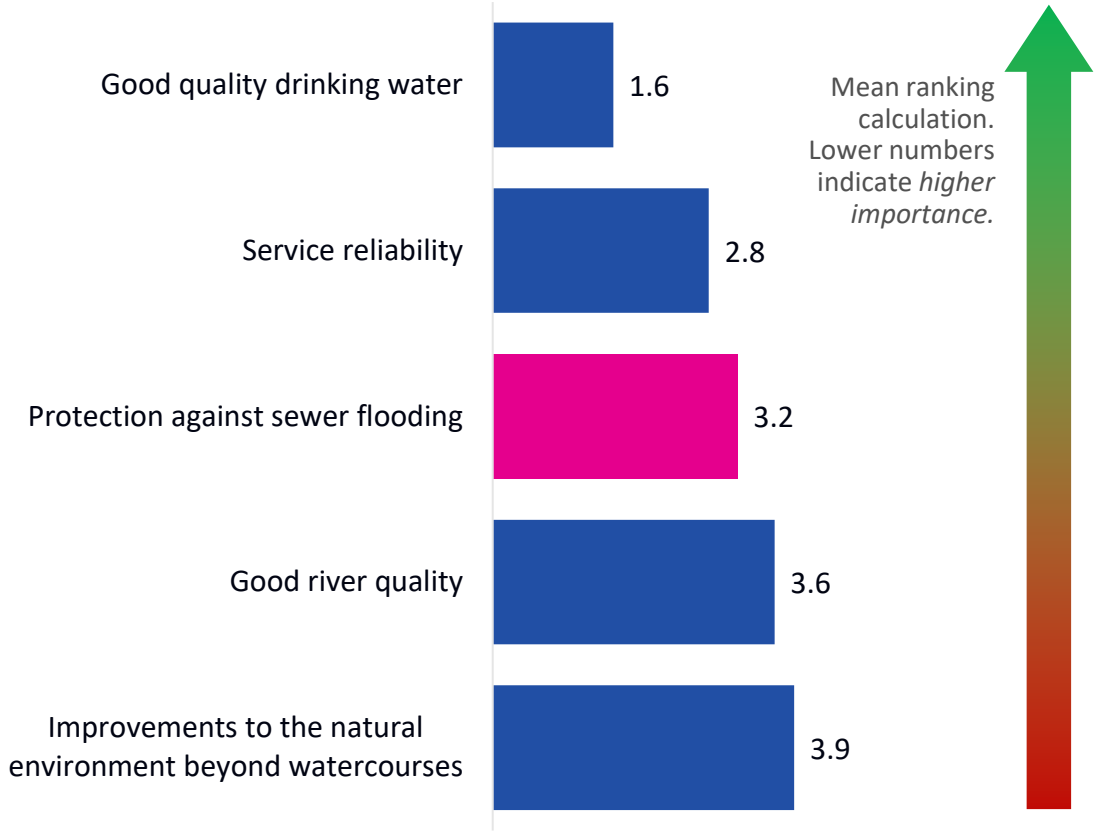
What homeowners and renters worry about the least

- ✓ **Pipes freezing or bursting:** Considered to be less likely to happen, and easier for homeowners and occupiers to prevent themselves (e.g., by turning on the heating during the winter). Though expensive if it were to occur, there was a perception that any damage would be minimal.
- ✓ **Flooding:** Thought of as an unlikely occurrence amongst the majority of participants, who had not experienced flooding in the past. The consequences of flooding on one's home, finances, and mental state were not seen as being as devastating as a fire, and generally flooding was thought of as less worrying because of this. **It appears that those who have not been personally impacted by flooding tend to underestimate the damage it would cause to their homes.**

Focus groups highlight that two core themes appear to be driving levels of worry behind core issues: the first is the **likelihood** of the issue happening (as is the case with broken appliances or loss of connection); the second is the **danger to life** presented if the issue were to happen (as is the case of fire). Flooding is not considered to be either likely or particularly dangerous, and so is less likely to concern the public.

Good quality water and reliable service provision were the two elements respondents see as a priority for water companies to provide – flooding is a second tier priority

People prioritise good quality drinking water and service reliability over protective measures against flooding (mean rank/5)



Overwhelmingly, qualitative respondents chose good quality drinking water and service reliability as their top priorities for water companies to provide to them. Both these elements are seen as fundamental to their quality of life, whereas river quality and sewer protection were thought of as a 'nice-to-have', but not necessary to live.

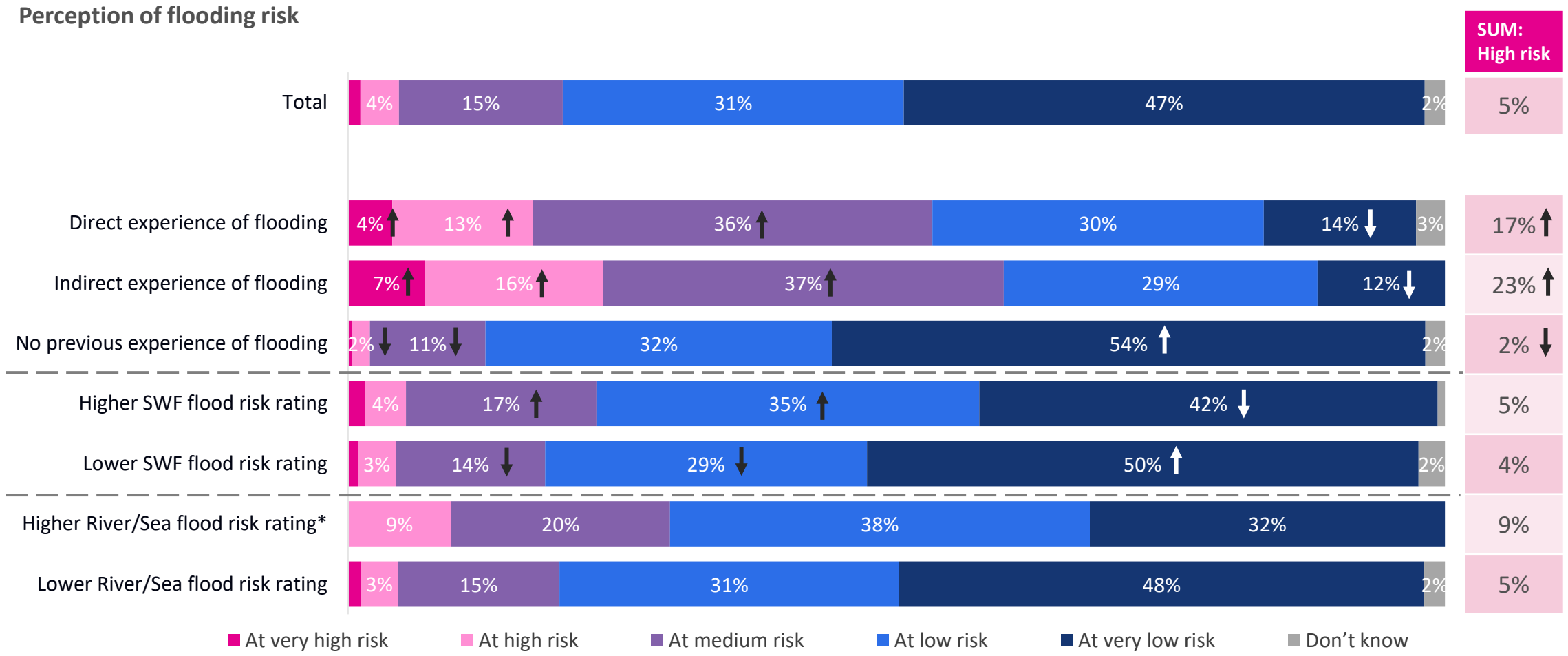
Respondents were unsure of the details behind which improvements to natural environments would be made, and this uncertainty may have impacted quantitative results, though when discussed in groups, this issue was still seen as much less important.

"I don't mind if it isn't top quality, but it's got to taste nice and look ok, with no sediment or anything in it."

"You want to be able to switch your tap on, and have water. That's what we're all paying for, after all."

Your water bill pays for a range of water and drainage services. Please rank the following aspects of these services according to which is the highest and lowest priority to you. Base: 2002 (All respondents)

Few think they are at ‘high risk’ from flooding, with those at high risk only slightly more likely to rate themselves as more at risk. Experience of flooding, either direct or indirect, is much more likely to be a driver



Q03A: Using a scale of 'very high risk' to 'very low risk', to what extent do you think your household is at risk of flooding? Base: 2002 (All respondents)
*Note – Base size below 50 (42)

Significantly higher or lower than the average. 95% confidence interval.

Those who have had a prior experience with flooding are more likely to rate themselves as at risk than those who have not; no other factors appear to influence risk assessment

During focus groups, respondents were asked to assess their perceived risk of flooding, as well as give an explanation as to why they have chosen this risk rating. Overwhelmingly, participants believed themselves to be at low risk, regardless of their current living situation, with the exception of those who had experienced flooding in the past*. This pattern was observed both before and after discussing the causes and issues relating to surface water flooding.

Those who have previously experienced flooding (any)

For the few who had personally experienced flooding in their own homes, they listed themselves as being at medium risk (notably, not high). However, if this flooding has impacted their community but not their homes, this dropped to a low risk rating.

"No, I've been here for a few years and we've never really had any issues like that, I wouldn't think it would happen."

Those who have previously experienced surface water flooding

Only one respondent was confident they had experienced surface water flooding specifically, and regarded themselves as at high risk as a result.

Those living close to rivers or coastal areas

Those living closer to rivers and the coast who had not been impacted by flooding were unlikely to think that it would happen to them, but were more likely to accept they may be at higher risk of surface water flooding than those living in dense urban areas, again suggesting that respondents link flooding to large water bodies, not rainfall.

"It's happened in our village a few times yes, and affected a few of our neighbours, so we know we're pretty safe from it now, it's never got us before."

Those in high density urban areas

Those in high density urban areas were less likely to see themselves at risk; first because they had not seen it happen and second, because many were on the first floor or above, and so did not believe their property to be at stake.

Those living in lower lying areas

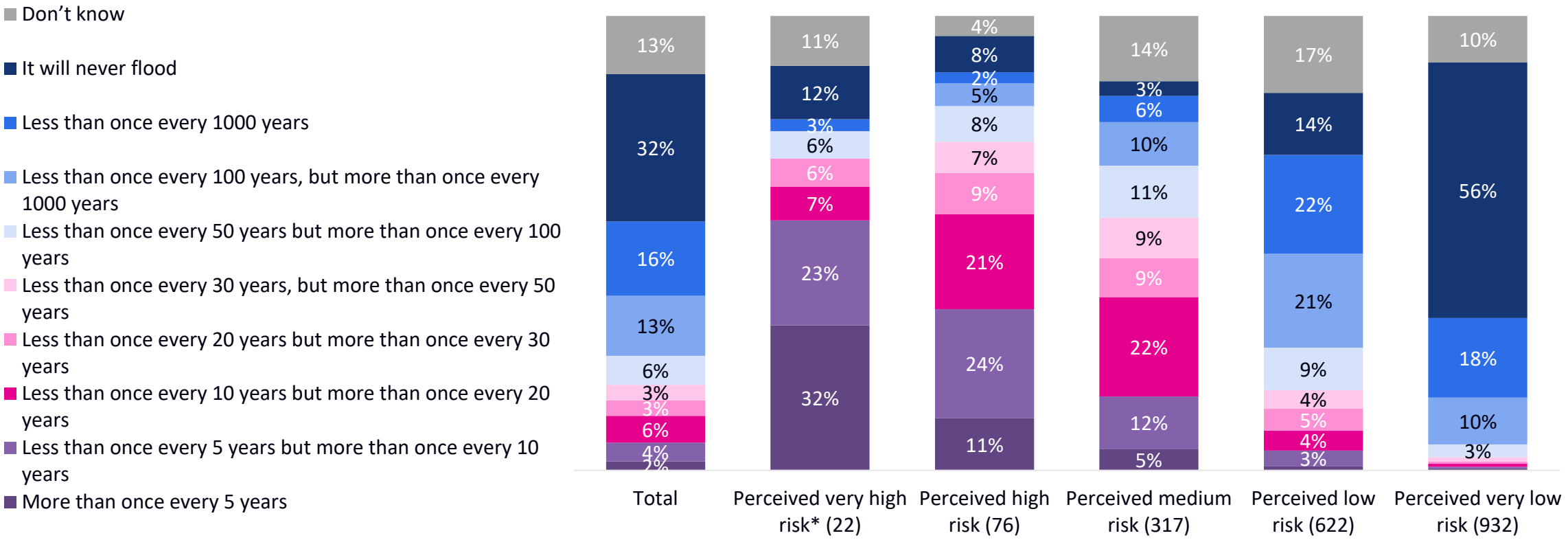
As with other groups, those in lower-lying areas only rated themselves at a higher risk if they had experienced flooding themselves; even if they had seen their communities flooded in the past.

"Yeah I get that because I live in London then it should impact me more, but I haven't ever seen even a big puddle building up! So I don't think I am [at risk]."

*Note – those who had experienced flooding were largely unsure of the causes and were not confident this was just surface water flooding, with some mentioning river flooding, and flooding from burst pipes as having caused their flooding.

A substantial percentage of respondents who think they are high risk say that it equates to being flooded once every 5-20 years – much more than the Environment Agency 1 in 30 definition. However, many put themselves in a high risk category despite not defining it as such

Perception of flood regularity by perception of flooding risk



	Total	Perceived very high risk* (22)	Perceived high risk (76)	Perceived medium risk (317)	Perceived low risk (622)	Perceived very low risk (932)
More than once every 30 years	15%	69% ↑	65% ↑	47% ↑	14%	2% ↓

Q03b: You said your household is [insert risk as defined by respondent] from flooding. Which of the below best demonstrates that likelihood of flooding? Base: 1965 (Those with any perception of the flooding risk to their household). Category bases shown in column title. *Note – Very low base

↑↓ Significantly higher or lower than the average. Added to summary 'more than once every 30 years summary' only. 95% confidence interval.

Most focus group participants believed risk rating to higher level of risk than in reality and did not consider once every 30 years to be high risk

When participants were shown the actual risk ratings, many expressed surprise and expressed that they did not believe the ratings to be as low as they were. This indicates that those who have not had a personal experience with flooding are less likely to be able to visualise the devastation and destruction that it causes. For many, they accepted that a 'once every 30 years' was not a high enough risk to worry about, despite many of these respondents having lived in their homes for over 20 years.

Participant perception of risk rating

What does this mean?			Risk level
Once every	2-10	years	1. At **high** risk
Once every	10-20	years	2. At **medium** risk
Once every	30-40	years	3. At **low** risk
Once every	100 +	years	4. At **very** low risk

Actual risk rating

What does this mean?			Risk level
Once every	30	years	1. At **high** risk
Once every	30-100	years	2. At **medium** risk
Once every	100 - 1000	years	3. At **low** risk
Once every	1000 +	years	4. At **very** low risk

"It's a bit over-the-top to say once every 30 years is high risk."

"Once in every 30 years is only about twice in my lifetime, that doesn't sound too bad."

Framing risk as a percentage chance conveyed greater risk; initially participants suggest they are willing to tolerate this risk, but on reflection this does not appear to be the case

This statement…..

*At high risk, your home has a **64% chance** of being flooded every 30 years*

Conveyed **more** risk to participants than this statement...

*At high risk, your home has a chance of being flooded **once every 30 years***

…despite being equal in reality.

"That 64% chance that would make me think twice about buying a home if I knew that information about it before, but the one in 30 years chance wouldn't. Even the 3% to be honest is a bit risky, that's still a chance. There's still a chance it could happen."

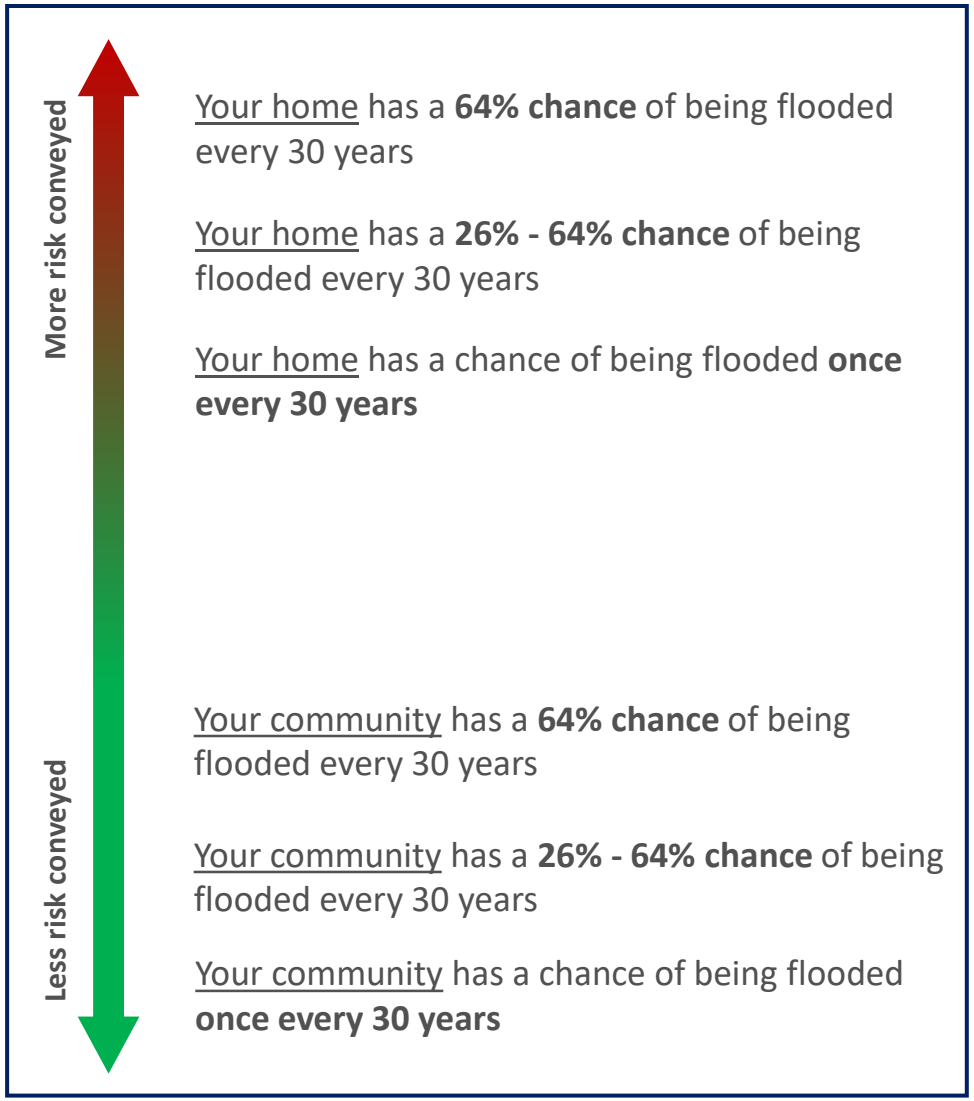
- The percentage figure used to convey risk is more shocking to participants than the yearly estimations.
- This appears to be because the percentage figure implies a chance that it could happen *at any time*, whereas when the chance is conveyed in *'once every X number of years'*, respondents reflect on how long they have been in their homes, and calculate that they have a certain amount of time left before the flooding could occur.
- Therefore, framing risk in a way that suggests flooding could happen at any time, regardless of previous flooding experience in the area, is more compelling for respondents.
- For both figures, participants initially suggest at the start of discussions that they would be willing to tolerate the risk level; this changes however on reflection, and by the end of discussions some participants do not believe *any* risk level would be tolerable, while others in the focus groups remained unsure.
- This uncertainty and confusion around risk tolerance appears to stem from participant inability to visualise the impact surface water flooding would have on their home and possessions; it is simply not seen as destructive enough to merit concern.

Framing around the risk to the wider community did not tend to lead to higher levels of concern about the issue

- Respondents are generally unempathetic to the risks of their larger communities flooding.
- This appears to be because they do not view their community as their personal responsibility, and believe that the 'other' will be responsible for the prevention and/or clean up of the flooding, once it has happened.
- This was a pattern observed amongst all demographic groups; even one respondent who was involved in their local community flood prevention group did not believe that their community flooding would have a large impact on them.
- Another did not believe that 'community' was a modern term and could not visualise, even with probing, what his community may be or look like.

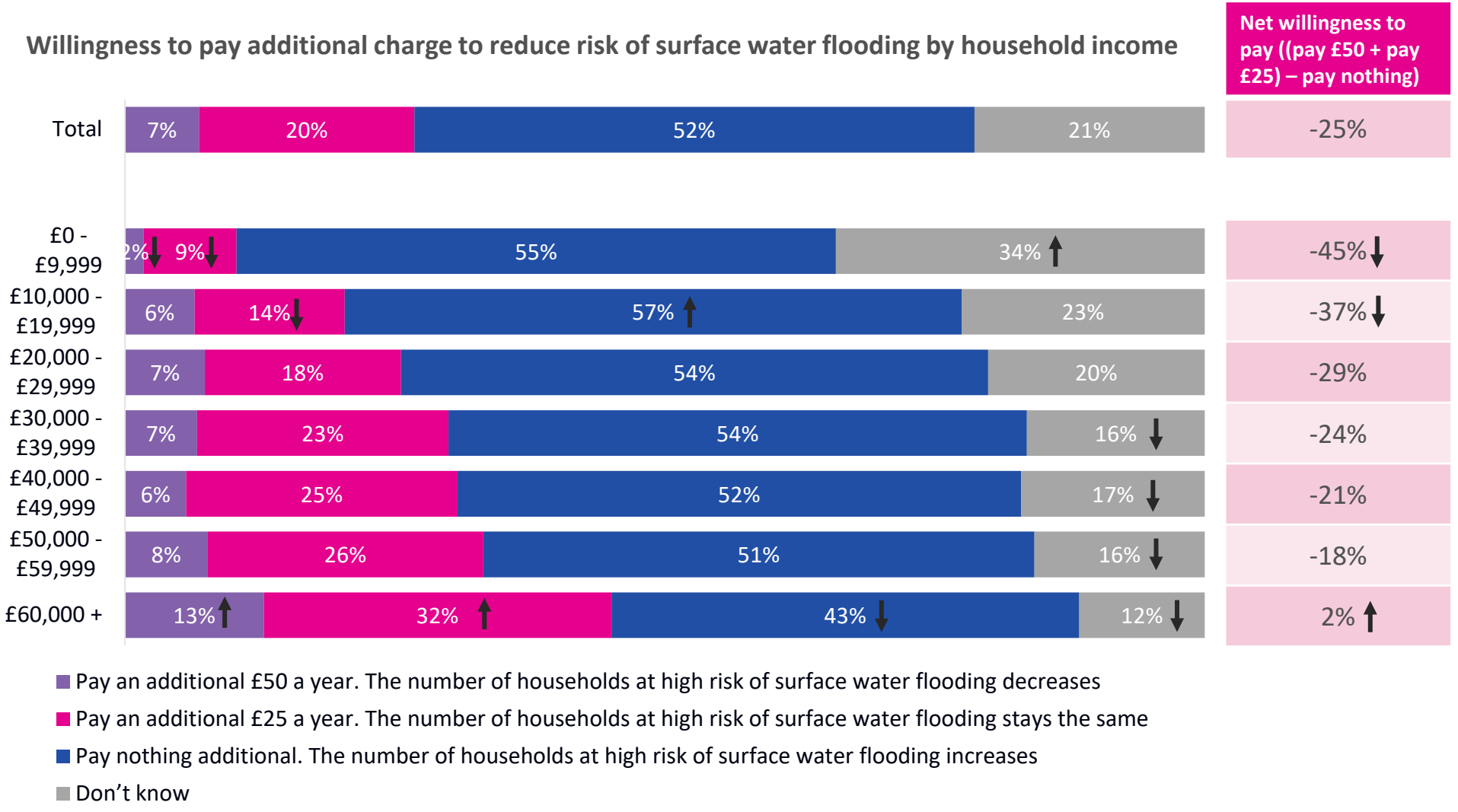
"There isn't really such a thing as a community any more, is there?"

"No it [flooding in their community] wouldn't impact me I don't think. I'd probably just not go out that day, or go to a different Tesco."



Section 3 – Willingness to pay for protection

Only a small minority say they are willing to pay anything additional to maintain or reduce the current level of risk from surface water flooding



Willingness to pay increases as household incomes rise.

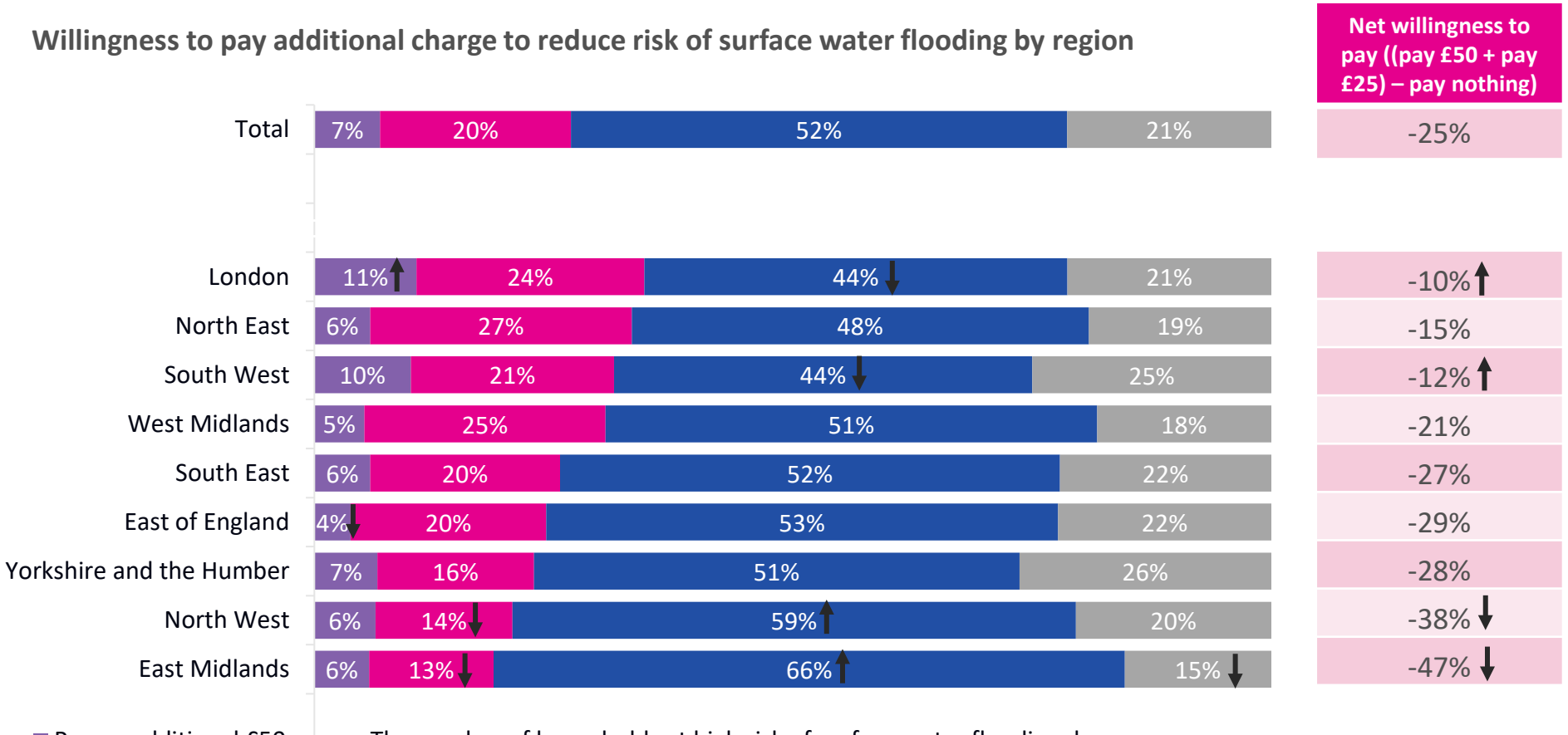
However, this does not result in a corresponding decline in the proportion not willing to pay anything but instead is explained by a higher proportion that state don't know. This trend remains relatively stable in all categories except £60,000+.

The differential in don't knows is probably partly explained by social desirability i.e. not willing to pay more but not wanting to explicitly say so.

Q09: One possibility for reducing the risk of surface water flooding would be to place an additional amount on either taxes or annual water bills. Which of the following options for this do you prefer? Base: 2002 (All respondents)

Significantly higher or lower than the average. 95% confidence interval.

Although more still say they would not be prepared to pay anything additional, those living in London are more likely than average to be willing to do so

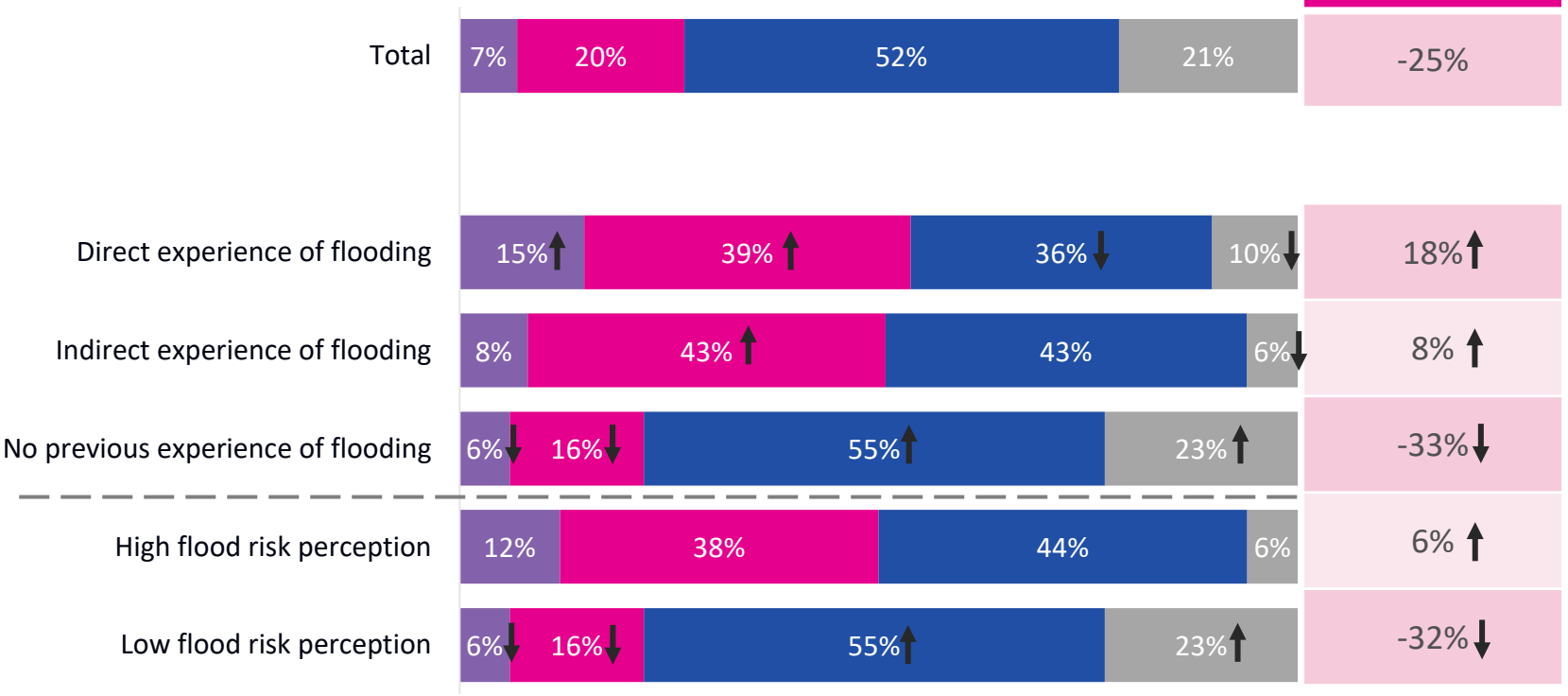


Q09: One possibility for reducing the risk of surface water flooding would be to place an additional amount on either taxes or annual water bills. Which of the following options for this do you prefer? Base: 2002 (All respondents)

Significantly higher or lower than the average. 95% confidence interval.

Those who have direct or indirect experience of flooding or feel they are at higher risk are more likely to be willing to pay extra

Willingness to pay additional charge to reduce risk of surface water flooding by flooding experience/perception of risk/risk rating



- Pay an additional £50 a year. The number of households at high risk of surface water flooding decreases
- Pay an additional £25 a year. The number of households at high risk of surface water flooding stays the same
- Pay nothing additional. The number of households at high risk of surface water flooding increases
- Don't know

Those with no prior experience of flooding

- Unable to visualise the impact of a potential flood in their area
- Unwilling to pay to address problems that are not considered their own
- Cannot see how their money would lead to a significant impact on those affected
- Do not believe enough people to be at risk of flooding for it to merit extra money

Those with prior experience of flooding

- Able to visualise the impact of flooding
- Still unsure if money would address the risk, but willing to try and hope for the best
- See the problem of flooding as their own; an extra £25-£50 is cheaper than installing flood resilience measures in their homes

N.b. With both these groups, decisions on willingness to pay were framed on their own personal risk and experience, not that of their wider communities.

BMG success decoded

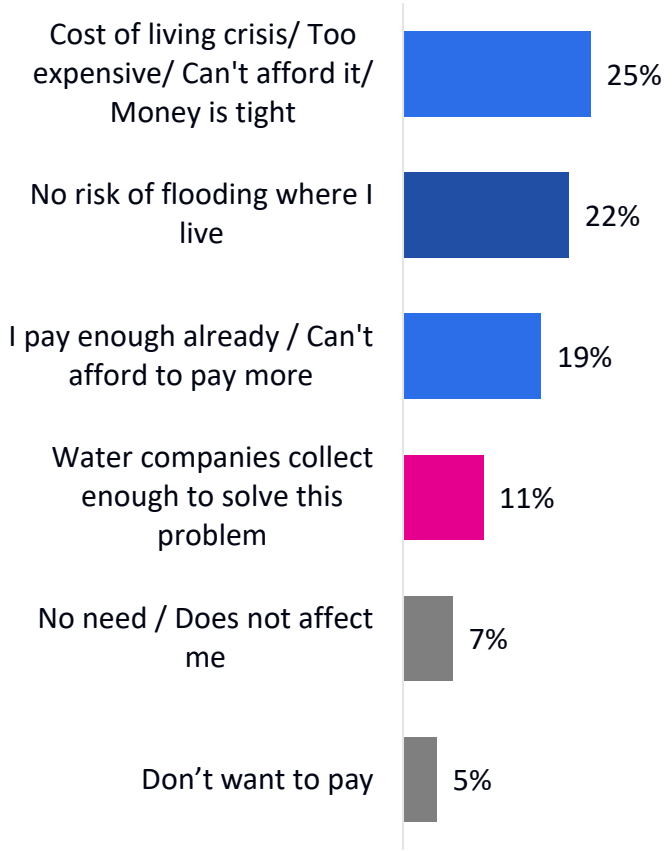
Q09: One possibility for reducing the risk of surface water flooding would be to place an additional amount on either taxes or annual water bills. Which of the following options for this do you prefer? Base: 2002 (All respondents)

Significantly higher or lower than the average. 95% confidence interval.

NATIONAL INFRASTRUCTURE COMMISSION Better infrastructure for all

Four key barriers exist that prevent people from being willing to pay more….

Main reasons for being unwilling to pay anything additional (answers of 5% of above)



Barrier 1: Can't afford it / cost of living

This is slightly different to the other barriers because it is a highly salient contextual factor. In practical terms, respondents can either afford or not afford increased prices.

"I don't know who's doing this research, but it's absolutely the wrong time to be asking for more money from people. People can't afford their bills, or even food."

Barrier 2: Lack or relevance / responsibility / necessity

This could be driven either because the respondent doesn't live in a high-risk area, they don't see it as their responsibility, or by a wider question about necessity.

"1% isn't very much [of houses at risk], it doesn't seem like the most pressing matter."

Barrier 3: Lack of tangible benefits

The qualitative research indicated that people didn't really understand what paying more would mean in practice. They found it hard to conceptualise how it related to a reduction in risk, instead not believing that measures would make much difference. There was also some fatalism about our ability to change the course of climate change.

"I don't know how they'd be able to prove that they'd used the money. What would you see? How would you know your risk had been reduced?

Barrier 4: Lack of trust

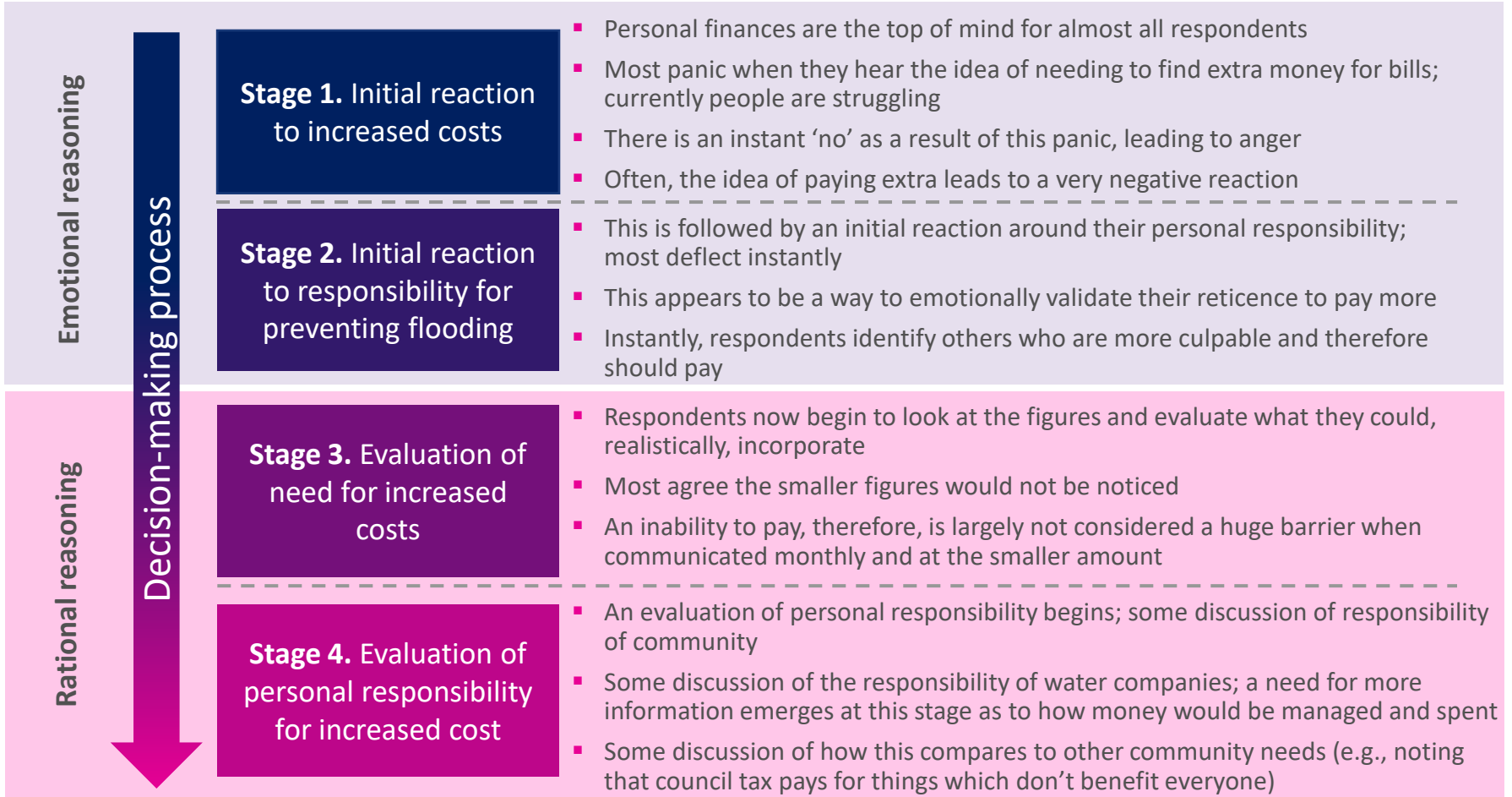
There is an idea that water companies collect enough taxes to solve this problem, or that this is just an excuse to increase profits / take more money from people.

"This is the sort of thing water companies should be using their profits for, why should we foot their bill? It's their responsibility."

Q10: You said you would not be willing to pay anything extra a year, meaning that the number of households at risk of surface water flooding would increase. Why did you choose this answer? Base: 1038 (Those not willing to pay anything additional)

Conversations suggest that the barriers to willingness to pay more are a lot more emotional than rational, and emotional reasoning usually precedes rational reasoning

When exploring willingness to pay extra for added protection against surface water flooding, respondents follow an evaluative approach, beginning with initial emotional reactions, followed by more rational reasoning.



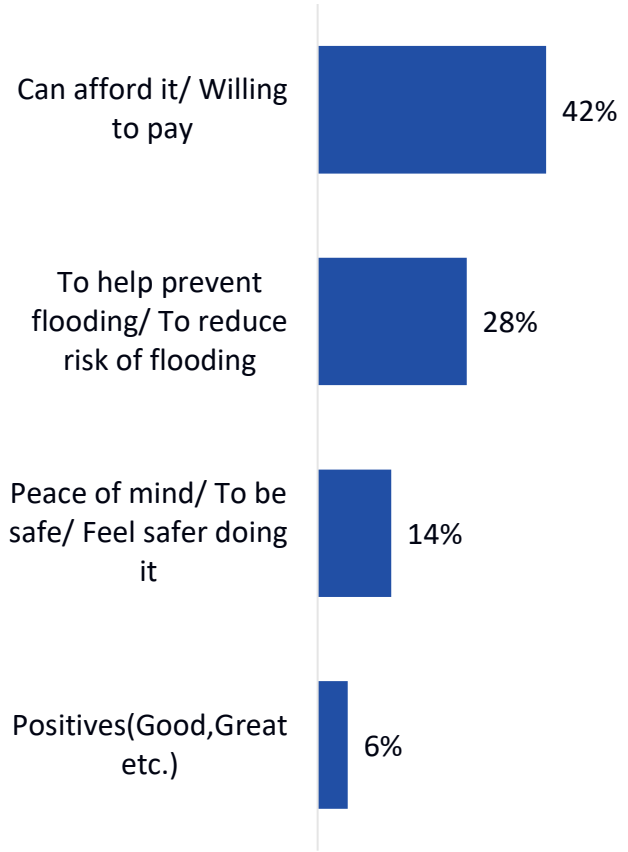
Outcome

Though most respondents make their way through this decision-making process when evaluating their own willingness to pay, outcomes differ.

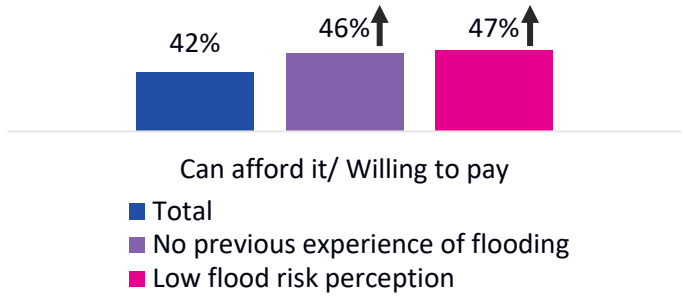
- Some remain undecided, due to a lack of information or a lack of security as to their own personal situation.
- For others, the initial emotional reactions to not pay more for someone else's problem remain the strongest.
- For others, they want to protect their neighbours, an acceptance that money must be raised from somewhere, and an understanding that protection needs to happen for future generations, leads to the rational reasoning influencing their decision to pay more.

Those willing to pay cite tackling the issue, feeling safer and peace of mind as key motivations

Main reasons for being willing to pay anything extra (answers of 5% of above)*

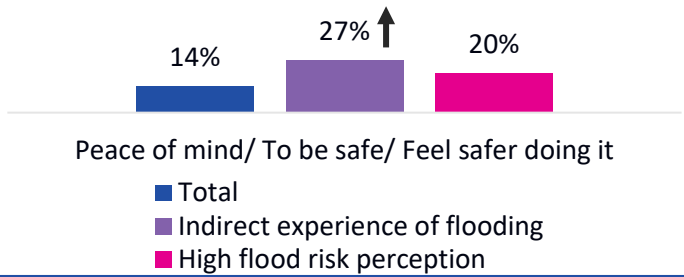


More practical responses more common among those who are willing to pay but see themselves at less risk / no prior experience.



"If you look at it like a community issue, and that we're all citizens of this country, and that it could happen to any of us, then I think we should all pay. If we all pay a bit, we can afford it. It isn't that much monthly, and I think it'd be the right thing to do."

More emotional drivers (i.e., safety / peace of mind) more likely among those that see themselves at greater risk or with indirect experience).



"Yeah, you see when it rains and you think 'ohh I hope it doesn't come that far up [to our house]', so if it took some of that worry away during the storms that we keep having, that'd help, that'd be good."

"It's becoming worse and worse with climate change and that, so we probably need to do something about it."

Q10: You said you would be willing to pay something additional to the number of households at risk of surface water flooding. Why did you choose this answer? Base: 537 (Those willing to pay anything additional) * Note: There was resistance in both quant and qual to paying more. These preferences only take into consideration those that accepted the premise of anyone paying more. See base for corresponding figure

There is no strong pattern on willingness to pay; some would pay more for a reduction in risk, others are not willing to pay anything extra, most are undecided

During groups, respondents often began by stating they would not pay extra, but conversations led to these initial decisions oscillating between *'No, I would not pay'* to *'Yes, I would pay.'* Many respondents were unsure, and talked through the reasons why they were for or against, but could not settle on a decision; the majority therefore were undecided. Much of the uncertainty was driven by a disbelief in the transparency around how the money would be spent, and the efficacy of the proposed solutions to limit the risk of flooding.

Willing to pay a bit extra

- ✓ Believe the issue to be a community one, and as responsible citizens, they should help their fellow residents
- ✓ Think that the issue may get worse (due to climate change and overdevelopment), so want to tackle it before this happens
- ✓ Believe they could absorb a lower cost, whereas those at risk would struggle to absorb a higher cost if others were not to pay
- ✓ Acknowledge that 'it could happen to anyone', and can empathise with others

Unsure/ it depends

- ✓ In principle see it as a good idea, but are untrusting of authorities who would be receiving their money
- ✓ Would want transparency and reports on how funds are spent
- ✓ Unsure who's responsibility it should be – some discussion on whether homeowners were made aware of flood risk *before* purchasing their homes; those who were aware should pay themselves
- ✓ Some discussion on the inevitability of flooding meaning that it may be necessary but might also be unavoidable

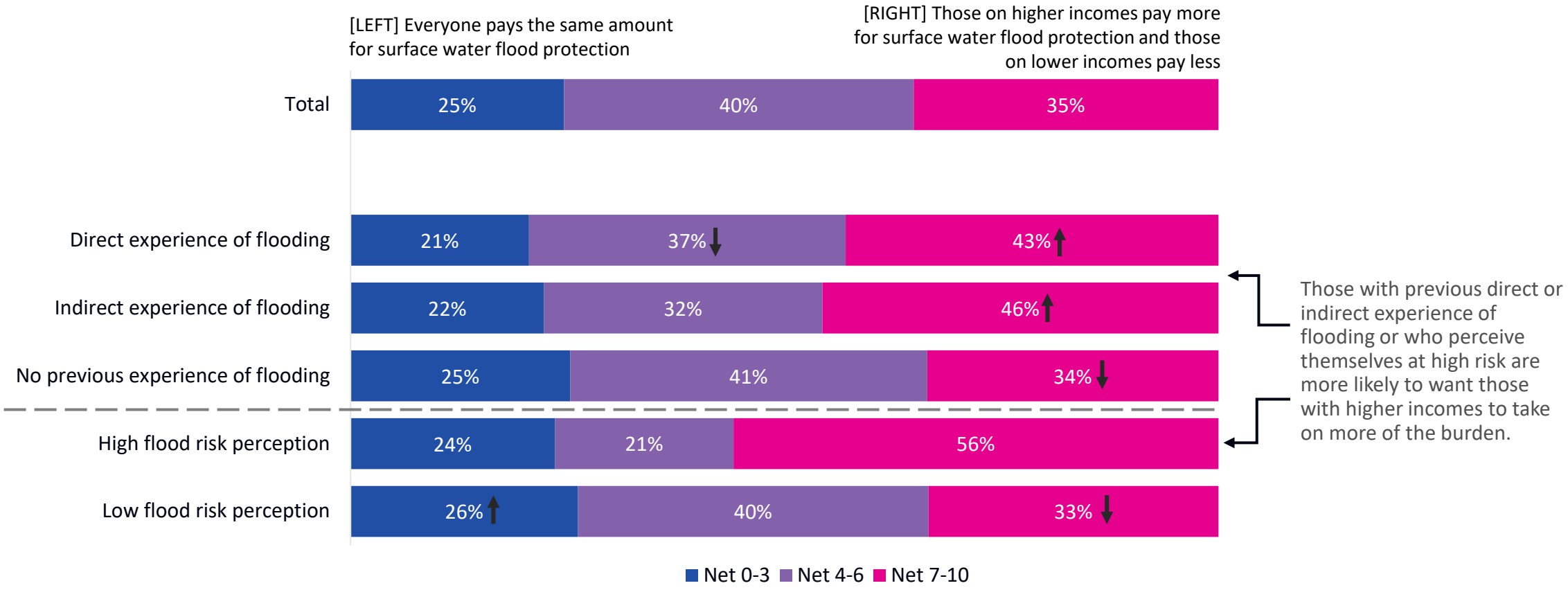
Unwilling to pay any extra

- ✓ Strong belief that responsibility should lie with authorities and profit-making companies, such as water companies and developers
- ✓ Some discussion on the inevitability of flooding meaning, that it may be futile paying extra
- ✓ Some state that those who live in high flood risk areas should pay the cost as *'it's their own fault that they chose to live there'*
- ✓ Those who live in high risk areas and pay an insurance premium do not believe that reduced risk will alter this; they will always end up paying more regardless of prevention payments

A small minority — **The majority** — **A larger minority**

There is also a general sense that people in higher incomes should have to pay more – but this is not a clear cut preference with many thinking that everyone should pay the same

Preference for how costs of surface water flood protection is distributed amongst the public*

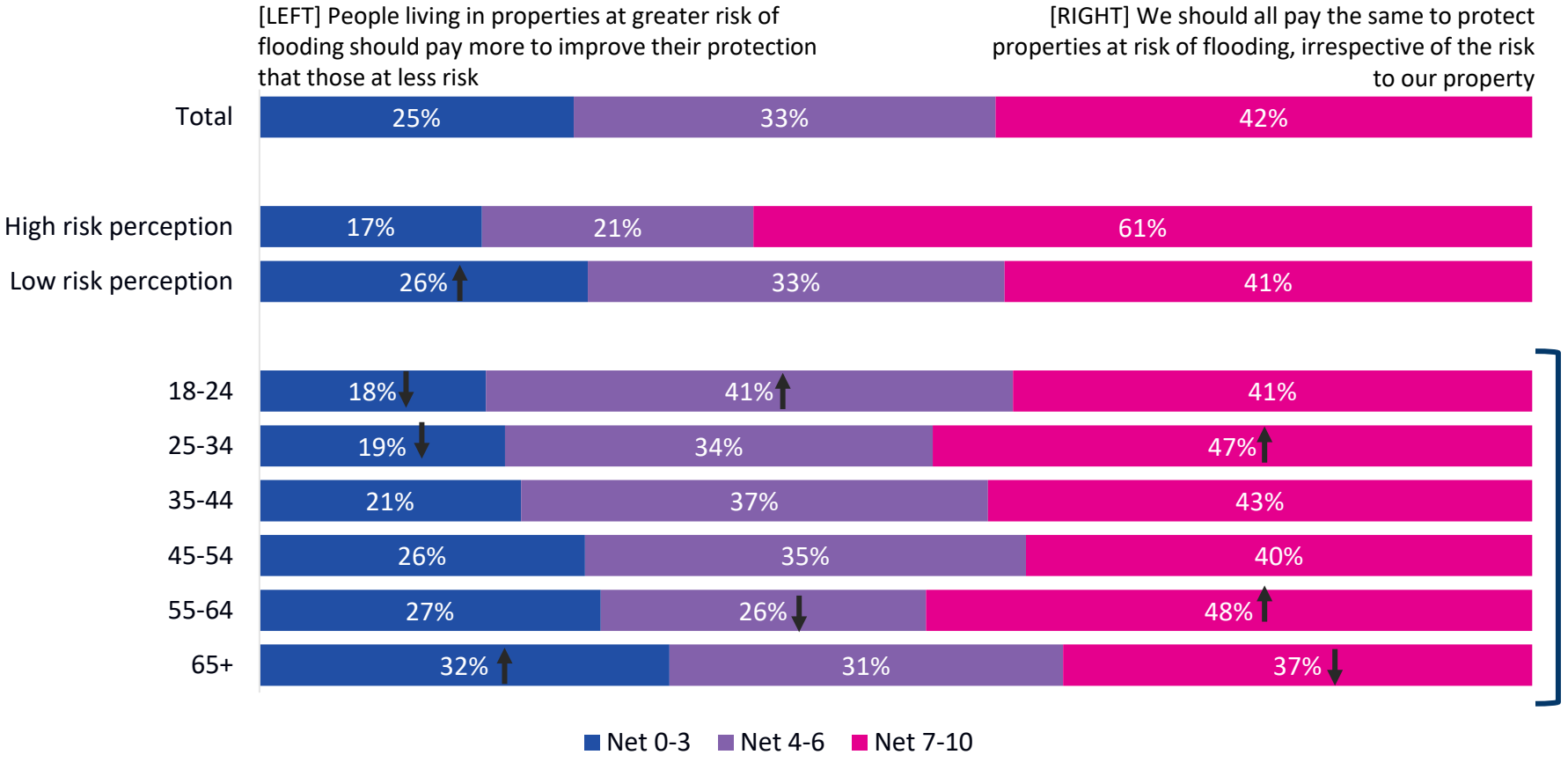


Q11: [LEFT] Everyone pays the same amount for surface water flood protection / [RIGHT] Those on higher incomes pay more for surface water flood protection and those on lower incomes pay less. Base: 2002 (All respondents)
*Note - There was resistance in both the quant and qual to paying more. As a result please view these figures with the caveat that that many did not accept the premise of anyone paying more

Significantly higher or lower than the average. 95% confidence interval.

There is a general sense that we should all pay the same to protect properties at risk of flooding, even amongst those who consider themselves at low risk of flooding

People living in properties at greater risk of flooding should pay more to improve their protection that those at less risk (0) / We should all pay the same to protect properties at risk of flooding, irrespective of the risk to our property (10)



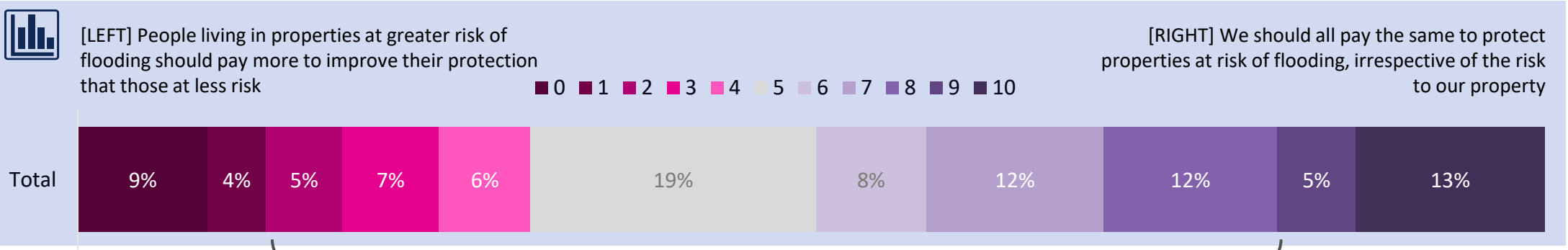
We see a greater shift towards people at greater risk paying more as people get older. However, this does not necessarily equate to agreeing less to the right statement.

Q12A: People living in properties at greater risk of flooding should pay more to improve their protection that those at less risk / We should all pay the same to protect properties at risk of flooding, irrespective of the risk to our property . Base: 2002

Significantly higher or lower than the average. 95% confidence interval.

Qualitative results were mixed; with some suggesting those at risk should pay more and others more willing for a risk spreading system

Complementing quantitative findings, there were mixed views on whose responsibility it was to pay more to combat surface water flooding when the question was discussed in qualitative groups. As with the quantitative results, however, most thought a balance was the fairest option.



- A minority were vocally unwilling to pay any extra
- They believed that it was the responsibility of the homeowner, seeing as the risk taken as their personal choice

"They moved there, it's their fault. Why should I pay for them? They don't pay my council tax."

- Most respondents recognised the need to pay to combat the issue and realised that, to a certain extent, they were all responsible for ensuring that the country is protected from issues such as surface water flooding
- However, they also believed that those at risk, who will be directly benefitting from prevention, should be asked to contribute slightly more
- Some believed that those at risk may have been at fault when purchasing their property (either through ignorance or wilful risk-taking), so there was reluctance to share the price wholly fairly because of this

"Somewhere in the middle, I don't think it would be fair for them to pay all of that, it's too much, but they should pay a little bit more and I'd help out."

- A minority were willing to share the financial burden with their neighbours
- They viewed the problem as holistic, and something all citizens should share responsibility for

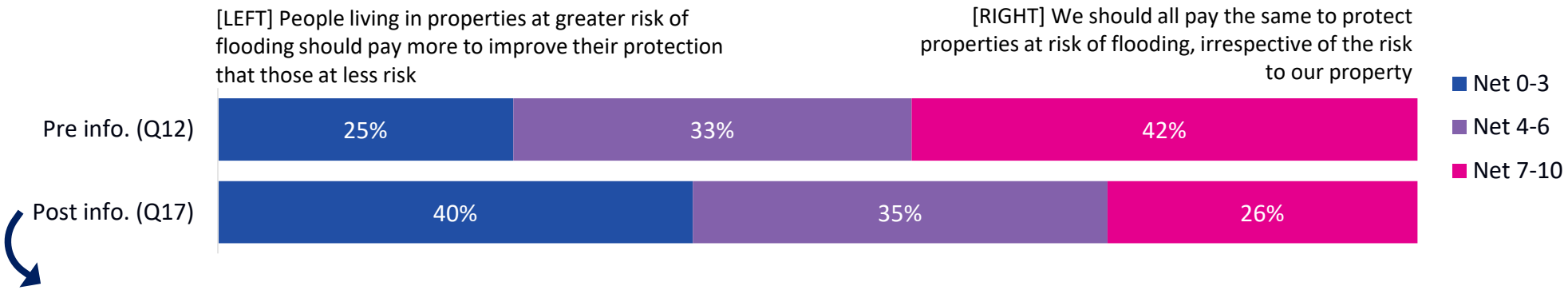
"It's a shared responsibility, we all pay for things we don't use. If it helps others, we should all do it."

A small minority of respondents refused to discuss this in groups, stating that it was not any individual's responsibility to pay more regardless of their risk. This group were adamant that it was private companies, such as developers, and water companies who should be paying to address risk.

Q12A: People living in properties at greater risk of flooding should pay more to improve their protection that those at less risk / We should all pay the same to protect properties at risk of flooding, irrespective of the risk to our property . Base: 2002

Information about the levels of risk across the UK makes people noticeably more likely to believe people at greater risk of flooding should pay more than those not at risk

People living in properties at greater risk of flooding should pay more to improve their protection that those at less risk (0) / We should all pay the same to protect properties at risk of flooding, irrespective of the risk to our property (10)



Reminder: Respondents were given the following information between being asked Q09 and Q16:

"10% of residential properties in the UK are currently at some risk of surface water flooding, and 1% are at high risk (a 64% chance of being flooded in the next 30 years). Over the next 30 years due to changing weather patterns, 2.5% properties could be at high risk of surface water flooding."

Qualitative discussions suggest that this is because the % framing of those households at risk currently, and those at risk of flooding in the future does not convey a need or urgency; it simply is not seen to impact enough people for them to worry about. This reaction was the same when the numerical figures were shared.

The small figures also reiterated to many that they would be unlikely to be at risk of flooding, again distancing them personally from the problem.

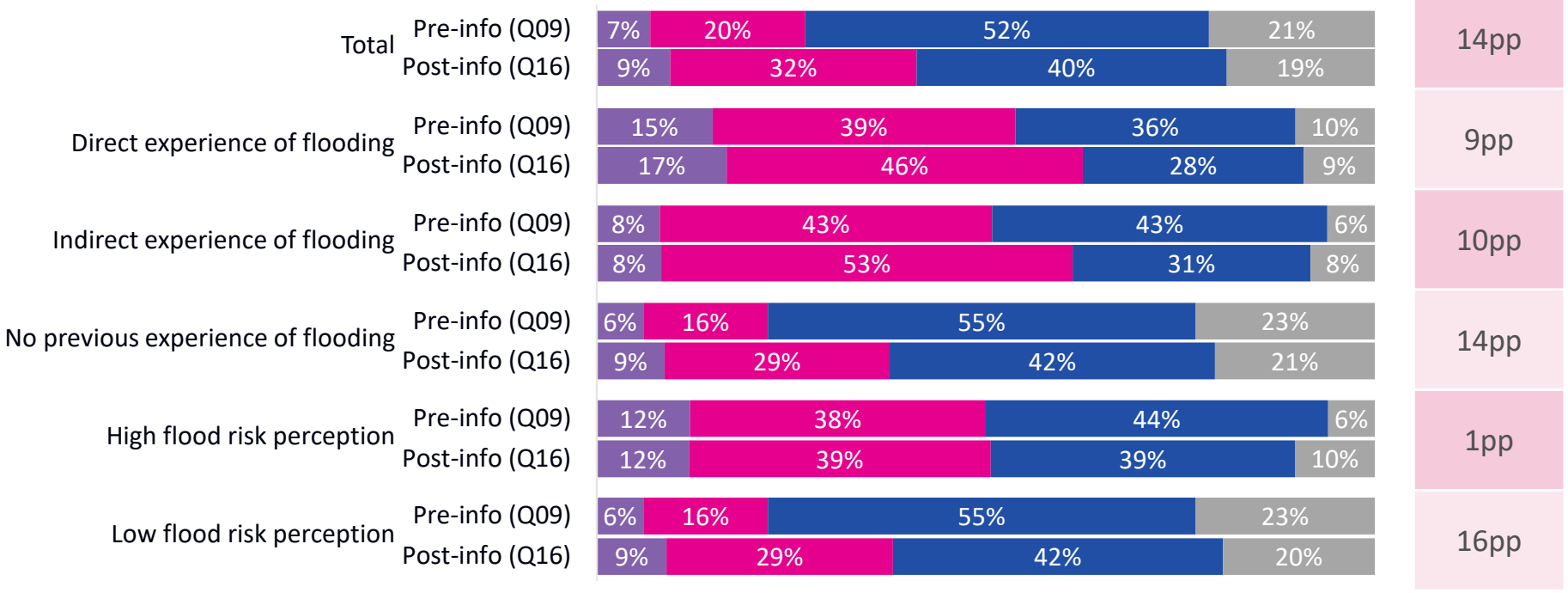
"I don't think that's a lot of houses, there are probably better things to spend money on, which would help more people."

"1%? I don't know how many that is, but it's not enough to be asking everyone to pay for it. It doesn't sound like a big thing."

Q12/17A: People living in properties at greater risk of flooding should pay more to improve their protection that those at less risk / We should all pay the same to protect properties at risk of flooding, irrespective of the risk to our property Q17A: People living in properties at greater risk of flooding should pay more to improve their protection that those at less risk / We should all pay the same to protect properties at risk of flooding, irrespective of the risk to our property Base: 2002 (All respondents)

After being shown information about the levels or risk in the UK and the potential for this to increase, there was an increase in those willing to pay more, however a large proportion are still unwilling to pay

Willingness to pay additional charge to reduce risk of surface water flooding, before and after receiving information on risk



Increase in % willing to pay
14pp
9pp
10pp
14pp
1pp
16pp

- Pay an additional £50 a year. The number of households at high risk of surface water flooding decreases
- Pay an additional £25 a year. The number of households at high risk of surface water flooding stays the same
- Pay nothing additional. The number of households at high risk of surface water flooding increases
- Don't know

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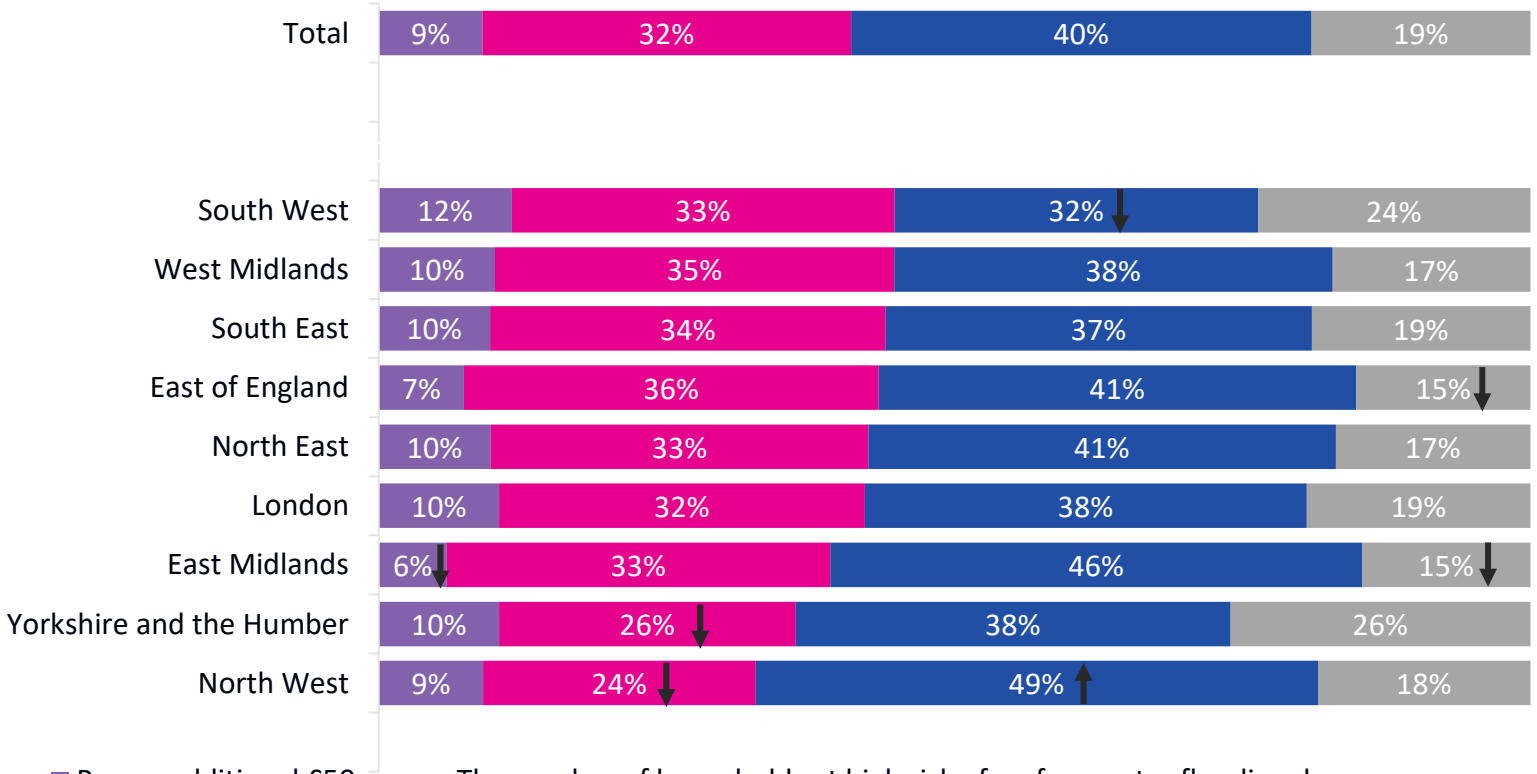
"10% of residential properties in the UK are currently at some risk of surface water flooding, and 1% are at high risk (a 64% chance of being flooded in the next 30 years). Over the next 30 years due to changing weather patterns, 2.5% properties could be at high risk of surface water flooding."

These results do show the potential for more willingness to pay if awareness of the risks of surface water flooding can be increased with the right framing – but overall awareness of surface water flooding remains very low.

Q09/Q16: One possibility for reducing the risk of surface water flooding would be to place an additional amount on either taxes or annual water bills for everyone. Which of the following options for this do you prefer? Base: 2002 (All respondents)

Once the new information around risk is presented, more say they willing to pay something additional than are not in most regions

Willingness to pay additional charge to reduce risk of surface water flooding after receiving information on risk



	Net willingness to pay ((pay £50 + pay £25) – pay nothing)	Increase in % willing to pay (versus Q09)
Total	+1%	14pp
South West	+13%	13pp
West Midlands	+7%	14pp
South East	+7%	18pp
East of England	+2%	19pp
North East	+2%	9pp
London	+4%	8pp
East Midlands	-7%	20pp
Yorkshire and the Humber	-2%	13pp
North West	-16%	12pp

- Pay an additional £50 a year. The number of households at high risk of surface water flooding decreases
- Pay an additional £25 a year. The number of households at high risk of surface water flooding stays the same
- Pay nothing additional. The number of households at high risk of surface water flooding increases
- Don't know

BMG success decoded

Q09/Q16: One possibility for reducing the risk of surface water flooding would be to place an additional amount on either taxes or annual water bills for everyone. Which of the following options for this do you prefer? Base: 2002 (All respondents)

Significantly higher or lower than the average. 95% confidence interval.

NATIONAL INFRASTRUCTURE COMMISSION Better infrastructure for all

Section 4 – Protective measures

Sub Section – Personal Protections

The following section will discuss respondents awareness, ownership and perceived impact of 6 different surface water flooding interventions.

When being asked about these interventions, respondents were provided with an accompanying photo and description of the mitigation. Below are the photographs and definitions used for each.

Water butts

Definition: Large barrels used for catching and storing rain water. Commonly available at home improvement stores

Photo:

Soakaways

Definition: A pit into which water is piped so that it drains slowly into surrounding soil.

Photo:

Green roofs

Definition: A roof of a building which is partially or fully covered with vegetation including grass.

Photo:

Retention ponds

Definition: A permanent wet area of water to soak up excess rainwater.

Photo:

Permeable surfaces

Definition: A hard surface but containing holes to allow water to soak through.

Photo:

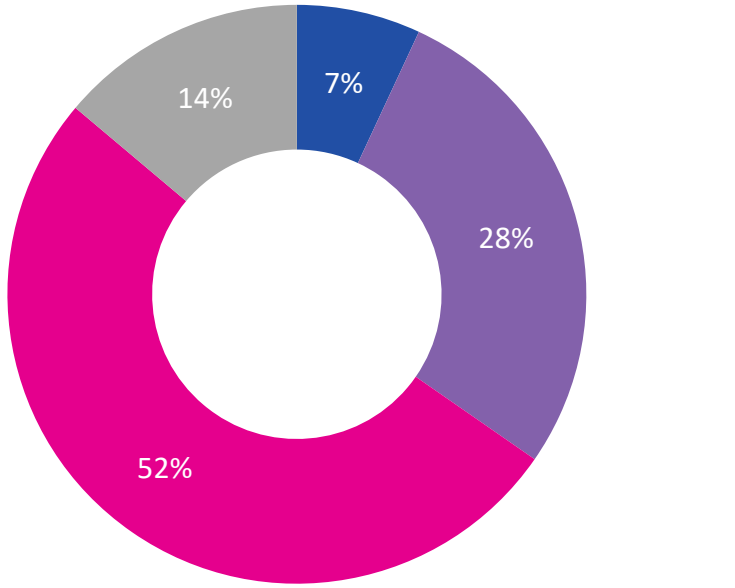
Rain gardens

Definition: An area of ground with a shallow dip below the surrounding ground, which receives water run-off from roofs and other hard surfaces.

Photo:

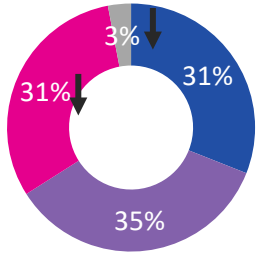
Half of the public say they don't currently have flood insurance protection; the minority who believe they are more likely to be at risk have taken out flood insurance to protect themselves

Public awareness of insurance

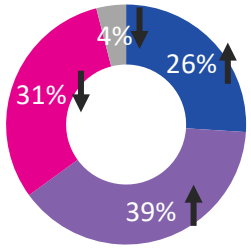


- Yes – I have specific flooding insurance
- Yes – I have flooding protection as part of my home insurance
- No – I do not have any protection from flooding
- Don't know

People who believe they are at high risk of flooding:



People who have had direct experience of flooding:



Qualitative results also followed this pattern, with those who perceive themselves as being at risk of flooding (river, coastal, or surface water flooding) more likely to have insurance, or know for certain that they have flood insurance.

For others, however, most were unaware of their current flood insurance status; many assumed it was included with their home insurance, but could not say for sure.

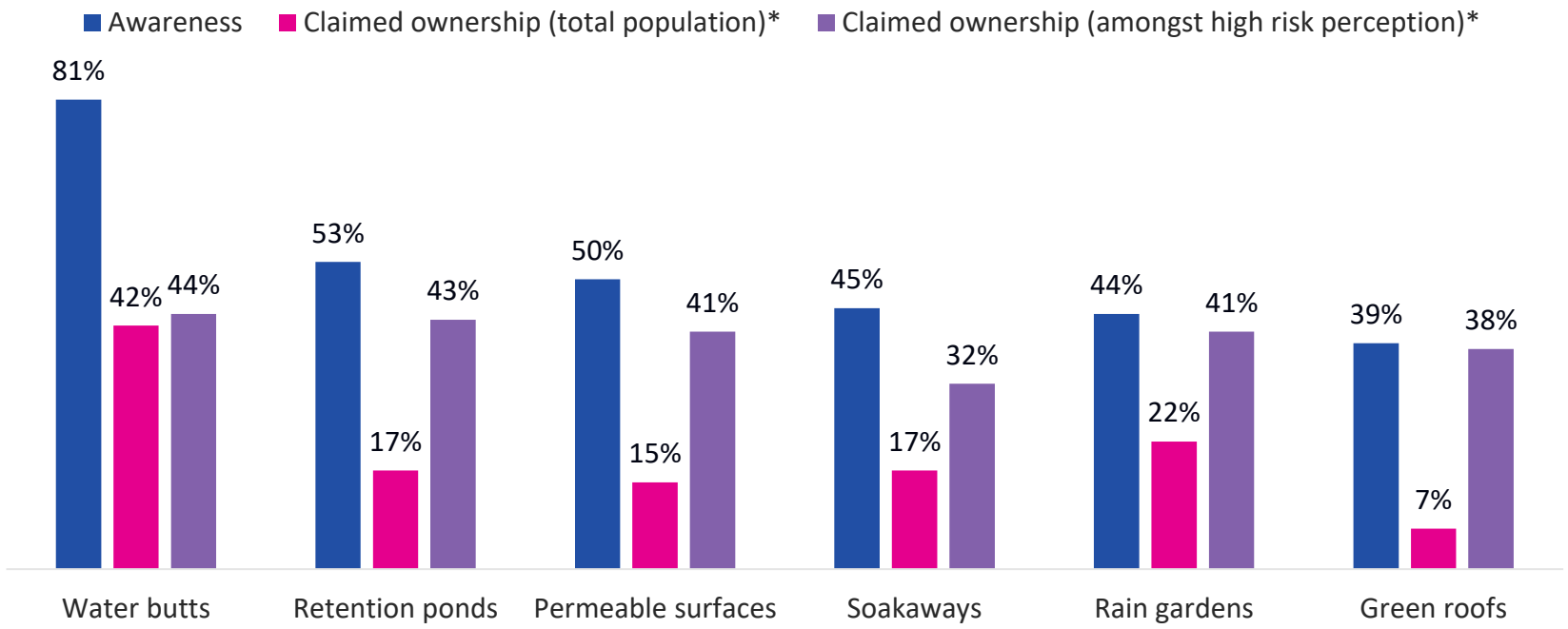
Those who rented were unlikely to have flood insurance, or indeed buildings insurance of any kind. Most did not have contents insurance either, but those who did had purchased it specifically against burglary, rather than flooding, and so too were unsure of their current insurance status against flooding.

Q04: Do you have insurance, either separately or included within your general house insurance, which protects you against flooding?
Base: 2002 (All respondents)

Significantly higher or lower than the average. 95% confidence interval.

Prompted awareness of the interventions against SWF is relatively high, however ownership of each is much rarer, except amongst those who think they are at high risk of surface water flooding

Awareness/ ownership of flood interventions



Those who perceive themselves at high risk are more likely to own all interventions against surface water flooding.

Note on claimed ownership

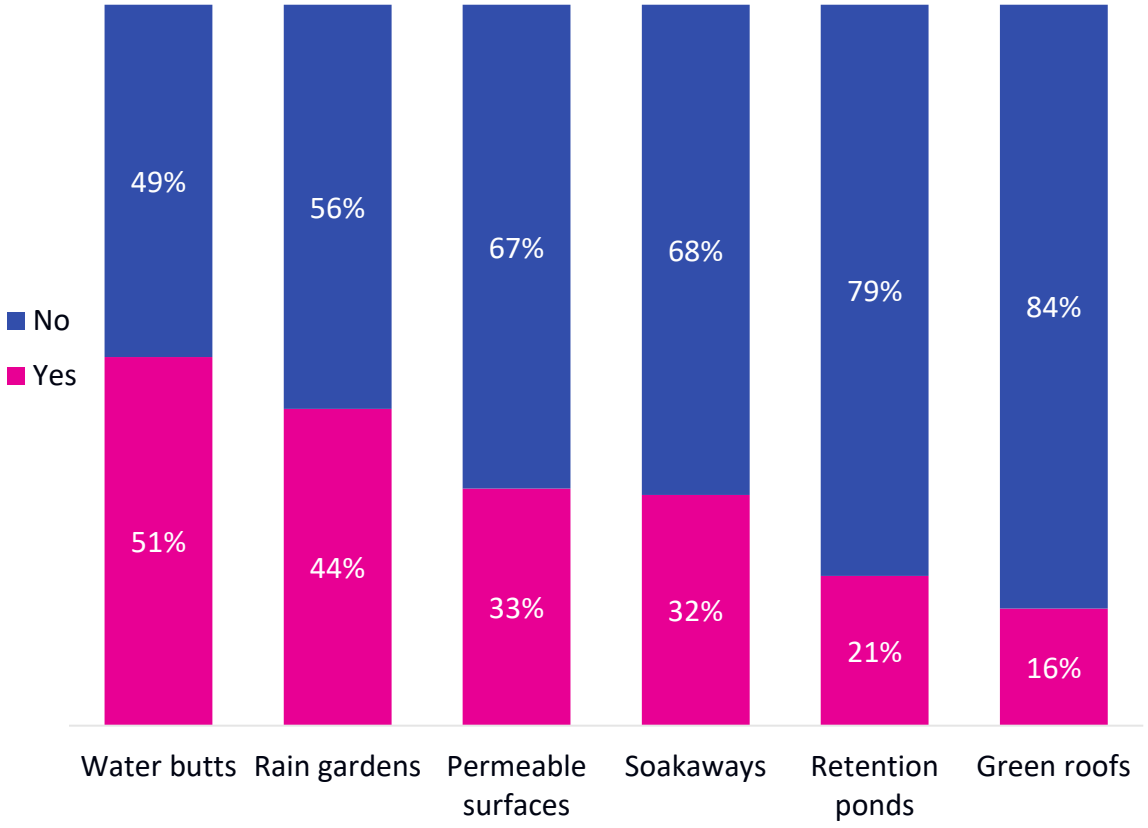
Claimed ownership may be inflated above actual ownership. This could be due to the following, both of which are 'hazards' commonly observed in survey research:

- **Social desirability:** Overclaim around what respondents feel are socially desirable behaviours/actions – Respondents feel the need to look like they're doing something.
- **Low knowledge**: Lack of understanding of the mitigations might lead some to wrongly believe they have them. For example, despite attempts to be as clear as possible, respondents may think their garden fish pond is a retention pond, or their flower bed is a rain garden.

Q13A: [awareness] Listed below are some of the options people can personally take to limit surface water flooding. For each of the following please select each that applies to you / Q13B: [ownership] Listed below are some of the options people can personally take to limit surface water flooding. For each of the following please select each that applies to you. Base: 2002 (All respondents) *Note – Q13B was asked only of those who were aware of each mitigation, but these %s are calculated to show ownership amongst the total population and all those with a high risk perception

For those who don't currently own each mitigation, the addition of a water butt or rain garden are the most appealing

Would people consider getting any these in the future (Of those who don't already own each)



"No I would not consider getting this in future because I don't need one" was the most commonly chosen reason for not owning the mitigation for all 6 interventions

	Water butts	Rain gardens	Permeable surfaces	Soakaways	Retention ponds	Green roofs
No, I would not consider getting this in future, because I don't need one	**18%**	**20%**	**25%**	**24%**	**25%**	**27%**
No, I would not consider getting this in future, because it costs too much	5%	9%	13%	11%	10%	16%
No, I would not consider getting this in future, because of a lack of space	9%	13%	10%	12%	22%	6%
No, I would not consider getting this in future, because it I don't think it would look good where I live	6%	5%	7%	8%	8%	17%
No, I would not consider getting this in future, because I am unable to make this decision where I live *(% for those living in flats or maisonettes in brackets)*	9% *(26%)*	10% *(29%)*	12% *(31%)*	13% *(33%)*	16% *(31%)*	18% *(40%)*
No, I would not consider getting this in future, for another reason	6%	8%	9%	8%	10%	13%

Q14: For each that you've said you don't currently have where you live, please say whether you would consider getting one in future, and if not please select why. Base: 1164 – 1855 (All respondents who don't currently own each mitigation)

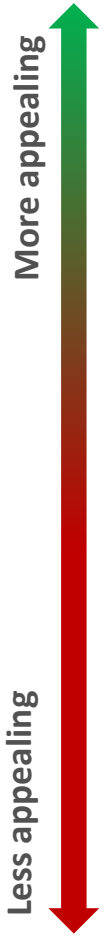
For those who don't currently own interventions, the addition of a water butt or having permeable surfaces are the most appealing; other interventions are seen as impractical

Initial knowledge of the different methods of mitigation against surface water flooding was low amongst qualitative participants, except for the water butt.

Of those who had heard of the interventions, most were not aware that they were specifically to combat surface water flooding.

Only water butts were seen as a feasible option for the majority; others cited costs and inappropriate properties as core barriers to implementing their own flood risk interventions.

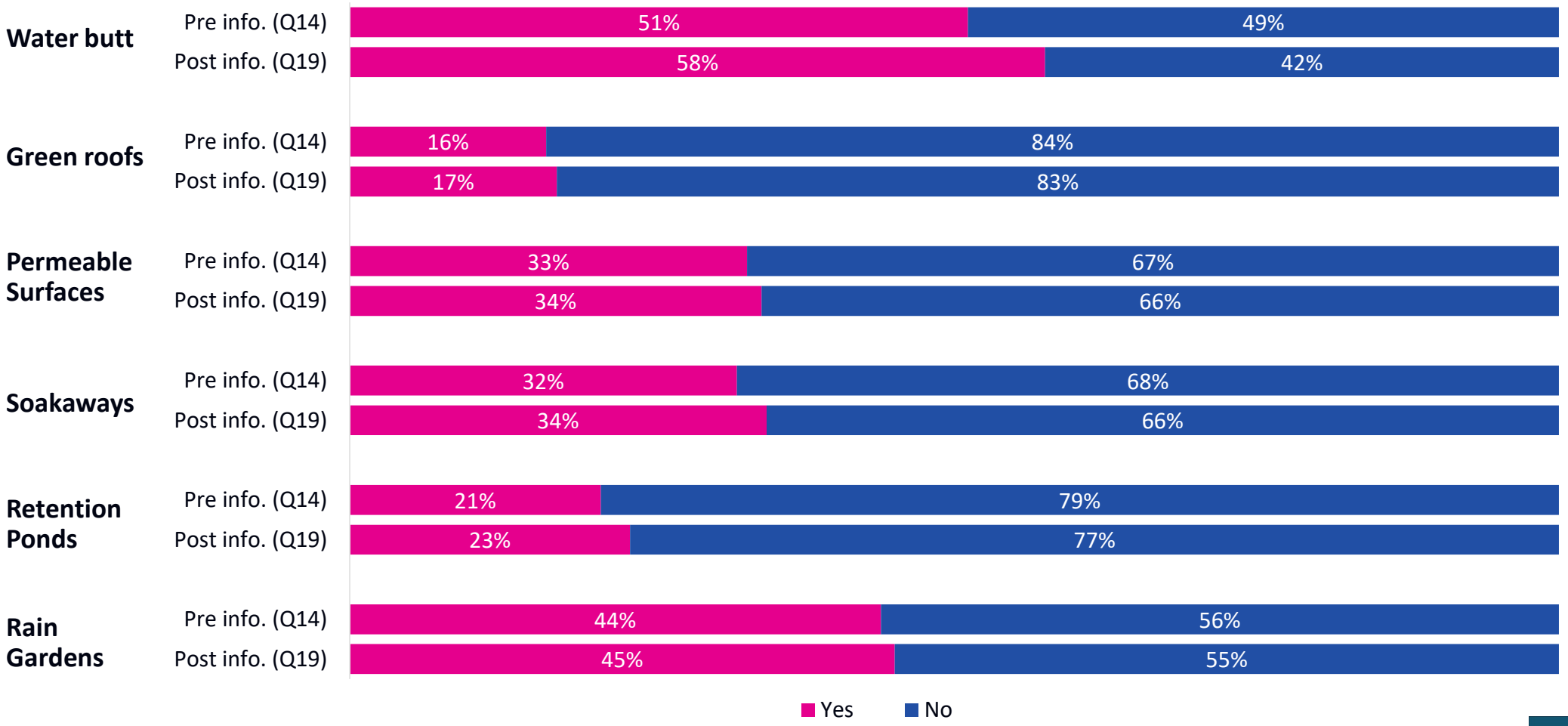
"We could put grass over our driveway, but we need a driveway. It wouldn't be ok for us to walk over a muddy front all the time."



Water butts	• Easy and cheap to install • Available for all kinds of tenure, not just homeowners • Impractical for those without gardens
Permeable surfaces	• Effective and a good use of space • Some concerns about necessity for gravelled areas (e.g., driveways) • Only practical for homeowners and those with driveways/gardens
Rain gardens	• Make a nice addition to a garden or home • Could be costly to install • Only practical for homeowners with gardens
Soakaways	• Perceived as costly to install • Only practical for homeowners with gardens
Retention ponds	• Perceived as costly to install • Only practical for those with gardens • Considered to be potentially dangerous for those with small children
Green roofs	• Perceived as extremely costly to install • Concerns about the efficacy, and potential damage to the structure of the home • Not suitable for a vast majority of homeowners

Information about the levels of risk across the UK doesn't have too much impact on the public's willingness to have interventions at home

Would people consider getting any these in the future? Pre information vs post information

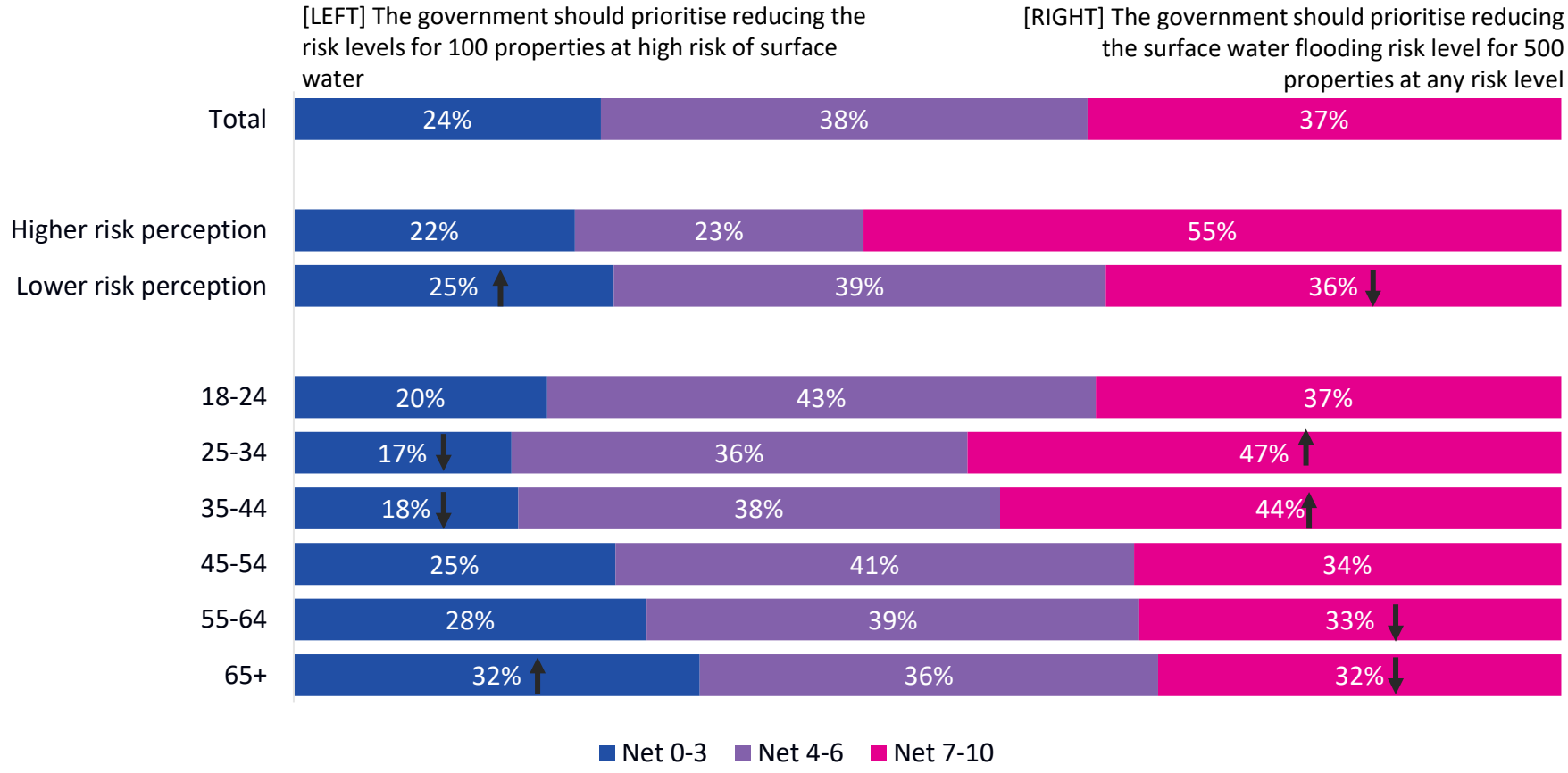


Q14: For each that you've said you don't currently have where you live, please say whether you would consider getting one in future, and if not please select why. / Q19: For each that you've said you don't currently have where you live, please say whether you would consider getting one in future, and if not please select why. Base: 1164 - 1855 (All respondents who don't currently own each mitigation)

Sub Section – Government Protections

When it comes to the government prioritising where it spends this money, the public have mixed views

The government should prioritise reducing the risk levels for 100 properties at high risk of surface water (0) / The government should prioritise reducing the surface water flooding risk level for 500 properties at any risk level (10)



Generally people either feel that a balance should be stuck to between protecting those most at risk and those less so, or they believe protections should be spread more evenly.

Q12B: The government should prioritise reducing the risk levels for 100 properties at high risk of surface water flooding (a risk of being likely to be flooded at least once in the next 30 years) / The government should prioritise reducing the surface water flooding risk level for 500 properties at any risk level (a risk of being likely to be flooded at a frequency of anything from at least once in 30 to at least once in every 100 years) Base: 2002

For many, the belief that tackling surface water flooding is the responsibility of the government and other authorities is driving an unwillingness to pay more

It is generally felt that the government and other authorities and private companies should be wholly responsible – and not the individual – for protecting the public against surface water flooding. They identify the following bodies as being responsible:

National Government	• The government, as an overarching authority, should be responsible for regulating the below bodies to ensure that they are developing sustainably and responsible, and spending their profits in a way that protects the public. • They should be setting the legislation and regulating this.
Local authorities (e.g., councils)	• Councils should prioritise developments which benefits communities (e.g., developers with sustainability clauses should be awarded contracts). • Councils should prioritise keeping green spaces, such as parks and woodland, free from development to address the issue.
Private developers	• A lot of anger was directed towards developers, who were seen to be taking huge profits without paying to upgrade infrastructure when building (e.g., old drainage). • A strong belief that they should be responsible for ensuring drains and drainage was sufficient when building; where it was not, they should pay to make it so out of their profits.
Water companies (e.g., Thames Water, Yorkshire Water, etc.,)	• Water was seen as a basic human right, and so many believed water companies should not be making profits off of people. • Instead, they should be reinvesting all of their money to preventing things such as surface water flooding from happening, primarily through upgrading drain systems.
Other agencies (e.g., Environment Agency, Waterways, etc.)	• Less was known about other bodies, but some still stated that all agencies working in the area should be working together to tackle the issue.

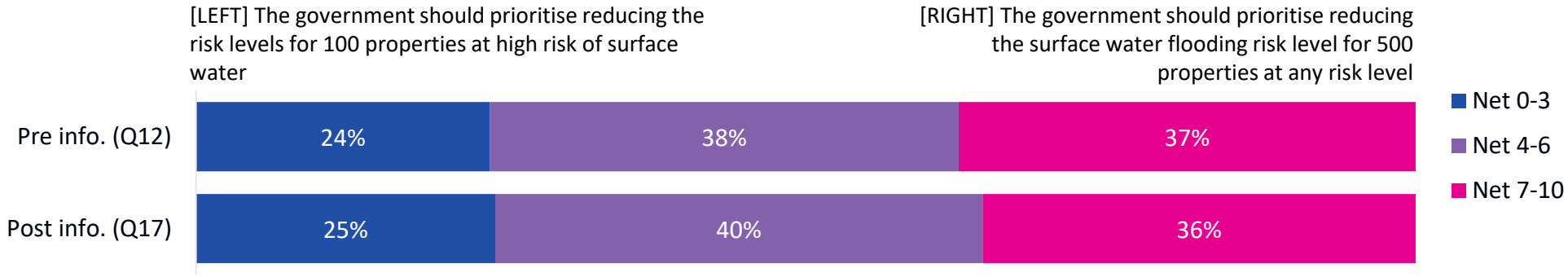
Generally speaking, most respondents saw the issue as holistic, and something that all bodies should work *together* to combat.

There was a general agreement that without this coordination, the problems would worsen.

It was also felt that authorities would be able to have a far bigger impact than any individual action, so the focus from national government should lie in speaking with these agencies, and not the general public.

By contrast, information about the levels of risk across the UK has little affect on people's opinions regarding government intervention in flood prevention

The government should prioritise reducing the risk levels for 100 properties at high risk of surface water (0) / The government should prioritise reducing the surface water flooding risk level for 500 properties at any risk level (10)

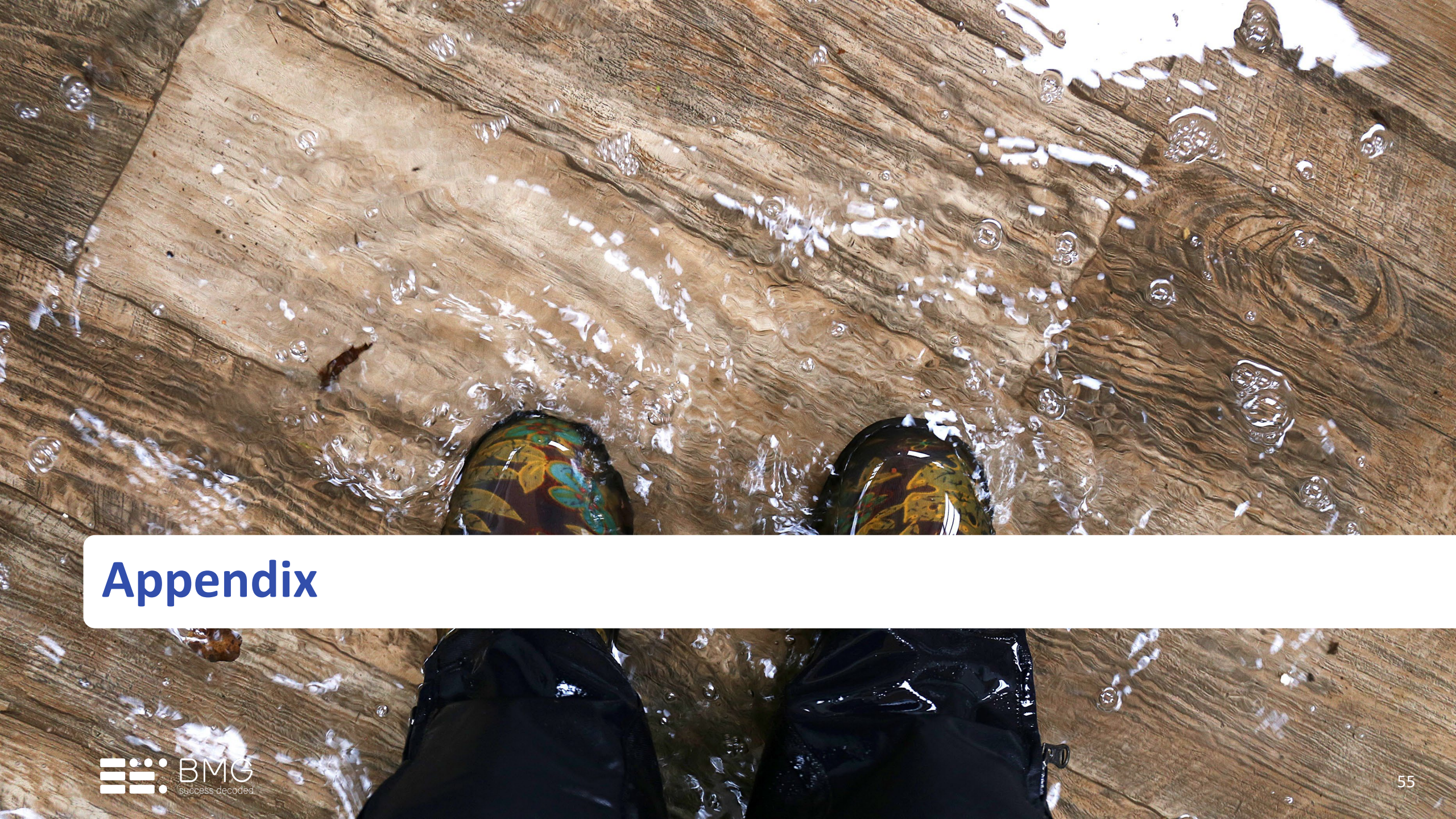


Most respondents expressed that they currently have very little control or agency over how their taxes were currently spent. As a result, there was little involvement or interest in the perceptions of need. Some gave examples of local council spending of their council tax on schemes that they were unsure benefitted anyone within their communities. However, as they perceive that they do not have a say in how this is spent, the issue is pushed to the back of minds, and there is an underlying sense of apathy.

This is likely to be the reason why the quantitative findings found little difference between government spending before and after information was shared with respondents.

"We don't get a say in how our taxes are spent. I don't benefit from loads of things that they spend it on, I don't have children, for example, but I can't say that they shouldn't spend it on schools."

Q12/17B: The government should prioritise reducing the risk levels for 100 properties at high risk of surface water flooding (a risk of being likely to be flooded at least once in the next 30 years) / The government should prioritise reducing the surface water flooding risk level for 500 properties at any risk level (a risk of being likely to be flooded at a frequency of anything from at least once in 30 to at least once in every 100 years) Base: 2002



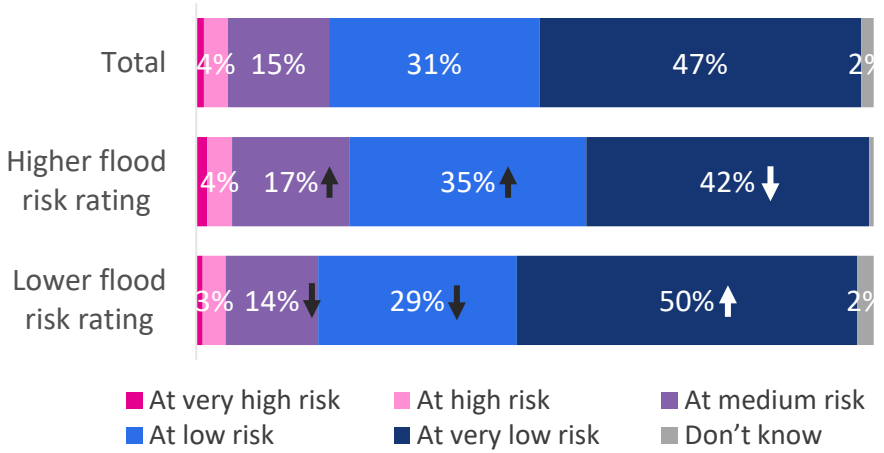
Appendix

Appendix 1: An individual's surface water flooding risk rating has little impact on their attitudes to the subject

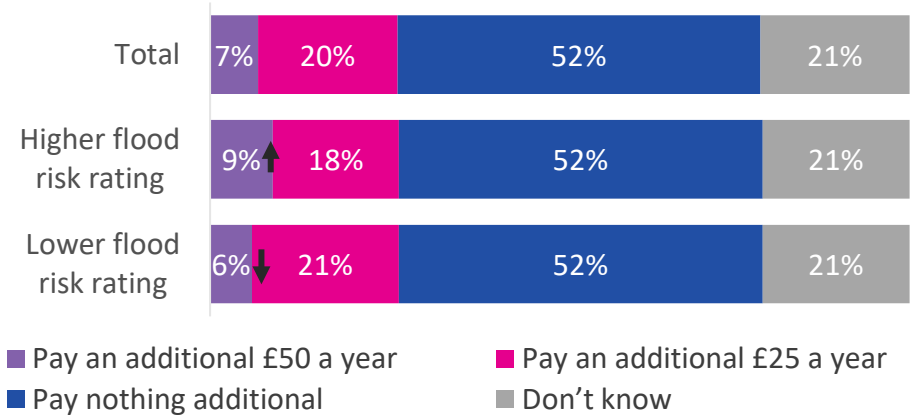
Here we have summarised a selection of key questions broken down by the surface water flood risk rating classifications. The figures highlight that there is little relationship between risk rating and variables such as perception of flood risk and willingness to pay to reduce the risk of surface water flooding. This would suggest that those who may be at higher levels of risk simply do not recognise this and, accordingly, there is no impact on their wider attitudes.

However, as outlined on page 7, this may partly be due to the limitations in the data. Flooding from surface water is typically more dispersed and fragmented than flooding from rivers or the sea. Our estimates using the classification from the GOV.UK risk calculator implies a combined 64% of households are at high, medium or low risk of surface water flooding. But separate analysis from The Environment Agency implies this to be just 10%. So, the data is fairly imprecise and it is possible that a more focused analysis would show differences.

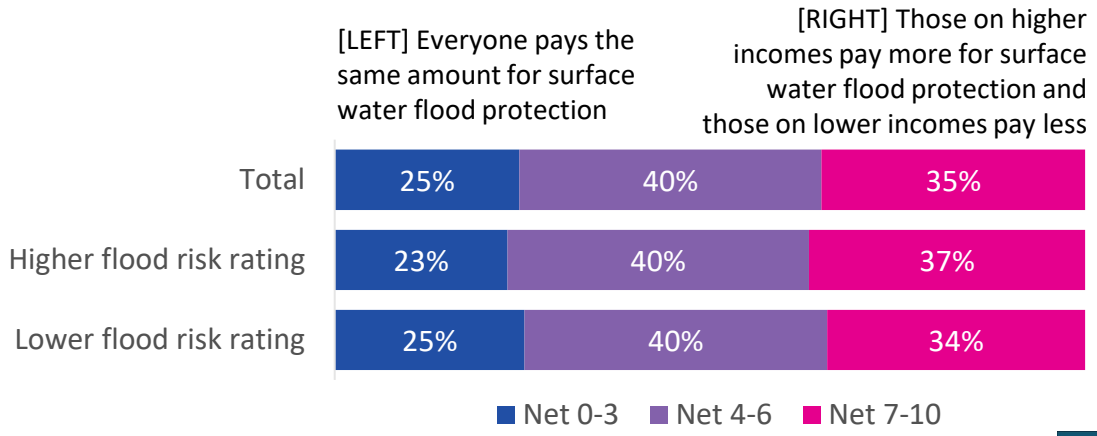
Impact of Surface Water Flooding risk rating on risk perception



Impact of Surface Water Flooding risk rating on willingness to pay to reduce risk



Impact of Surface Water Flooding risk rating on how to distribute the cost of defending against it



Q03A: Using a scale of 'very high risk' to 'very low risk', to what extent do you think your household is at risk of flooding? Q09: One possibility for reducing the risk of surface water flooding would be to place an additional amount on either taxes or annual water bills. Which of the following options for this do you prefer? Q11: Everyone pays the same amount for surface water flood protection / Those on higher incomes pay more for surface water flood protection and those on lower incomes pay less. Base: 2002 (All respondents)

Significantly higher or lower than the average. 95% confidence interval.

Appendix 2: Quant sample profile

Group	Unweighted	Weighted
Gender		
A man (including trans man)	1,021	964
A woman (including trans woman)	942	992
Age		
18 to 24	200	212
25 to 34	411	340
35 to 44	391	326
45 to 54	341	338
55 to 64	298	314
65+	361	470
Highest qualification		
Degree or above qualifications	691	619
Non-degree qualifications	1,162	1,023
No qualifications or other	131	336
Urban-Rural classification		
Rural	275	356
Urban	1,727	1,646

Group	Unweighted %	Weighted %
Region		
East Midlands	177	174
East of England	227	222
London	249	312
North East	100	96
North West	294	260
South East	321	326
South West	192	204
West Midlands	224	210
Yorkshire and The Humber	218	196
Ethnicity		
White	1,774	1,682
Minority Ethnic Group	225	314
IMD Quartile		
1 - Least deprived	412	500
2	472	500
3	562	501
4 - Most deprived	556	501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