British Public Perceptions of Climate Risk, Adaptation Options and Resilience (RESiL RISK)

Topline findings of a GB survey conducted in October 2019

March 2020

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UNDERSTANDING RISK

CLIMATE outreach

UK CLIMATE RESILIENCE PROGRAMME

Project Team

This project was led by Cardiff University's Understanding Risk research group with inputs from Climate Outreach. Climate Outreach is a team of social scientists and communication specialists working to widen and deepen public engagement with climate change. For more information, visit www.climateoutreach.org and see the linked report containing public engagement recommendations for UK communicators.

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About the UK Climate Resilience Programme

This project is part of the UK Climate Resilience joint programme. The programme draws together UK climate research and expertise to deliver robust, multi- and interdisciplinary climate risk and adaptation solutions research to ensure the UK is resilient to climate variability and change. The Climate Resilience programme is part of the Strategic Priorities Fund (SPF) delivered by UK Research & Innovation (UKRI) to drive an increase in high quality multi- and interdisciplinary research and innovation. The programme is led by the Natural Environment Research Council (NERC) jointly with UK Met Office, and also includes the Engineering & Physical Sciences Research Council (EPSRC), the Economic & Social Research Council (ESRC) and the Arts & Humanities Research Council (AHRC).

Met Office

UKRI Natural Environment Research Council

UK CLIMATE RESILIENCE PROGRAMME

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Executive summary

This report summarises topline findings from a nationally representative survey conducted in October 2019 with 1,401 British respondents to examine public perceptions of climate change, its associated impacts, and to map public support for climate change adaptation and resilience building strategies.

The survey results provide evidence for a shift in perceptions among the British public towards greater concern and a general willingness to support steps to address the issue. By comparing the current survey results to previous studies conducted in 2010, 2013 and 2016, this report illustrates how public beliefs have altered over recent years.

Perceptions of climate change

Most notably, climate change was one of the two most frequently mentioned responses when asked about the UK's most important issue in the next 20 years (second only to Brexit). Only three years ago, climate change was ranked as the 13th most important national issue. At the same time the proportion of people who express high levels of concern about climate change has doubled. The current survey finds that 40% of respondents are now very or extremely worried and many ascribe a high level of urgency to dealing with climate change.

Climate change beliefs

Climate change scepticism remains very low amongst the British public with the majority assuming a human contribution to climate change. Tracking results also show that psychological distance has gradually decreased since 2010 with a clear majority now thinking we are already feeling the effects of climate change (64% as compared to only 41% in 2010). Despite the closeness of impacts on the temporal scale, respondents did not expect great harm to themselves. People in Britain still believe that the major climate threats are to other people in other countries.

Psychological drivers of climate change beliefs

Analysis of underlying psychological factors show that there has been an increase of negative emotions compared to 2016 - with around a third of respondents now feeling fear or anxiety when they think about climate change. Furthermore, survey results indicate a subtle change in social norms; such that norms which inhibit people from taking action are weakening.

Risk perceptions of climate change impacts

Storms and flooding remain the highest perceived risks, prompt high levels of concern, and are seen to be likely to increase in the future. In addition, there has been a qualitative shift in the way people view the risks from extreme heat or extended periods of hot weather. Most measures related to heat perceptions have seen significant increases since 2013. The increase in perceptions of heat risks might be partly explained by personal experiences of heat related events (such as discomfort due to hot weather) – in the current survey 70% reported having this experience – as well as media

coverage of recent heat-related events in the UK and worldwide. Concern for a range of specific climate risks, such as a reduction of marine wildlife or cities becoming unbearably hot, has also generally increased since 2013. In contrast, the survey reveals relatively low salience of some of the other risks highlighted in the UK Climate Change Risk Assessments. These include risks to natural resources and biodiversity, invasive species, disruption to food supplies, and water shortages.

Perceptions of links between climate change and specific events

Respondents were given a list of recent events and asked whether they believed that these were to some degree caused by climate change. For all extreme weather events listed, a majority of respondents believed that climate change had a role to play (61%-76%). Survey respondents were undecided as to whether climate change would lead to more migration of refugees to the UK in the future, but an increasing percentage thought this may be the case compared to 2016.

Priorities for adaptation

To gain insights into what people want to see protected when it comes to preparing for national climate change impacts, survey respondents were asked to assign finite resources to different services and social goods. The wellbeing of the most vulnerable in society, people's health, and the emergency services were identified as being the top 3 priorities for protection. On the other hand, protection of historical sites and buildings, as well as the growth of the UK economy, were not prioritised by survey respondents.

Support for climate action and policy

Very strong support (≥67%) and little opposition (≤8%) was identified for a range of adaptation policies such as regulations on buildings, building new water reservoirs, and spending public money on flood defences. Support for policies that aim to mitigate climate change was more nuanced than that. Some policies (e.g. increasing electricity prices) were particularly controversial. Nonetheless, the recent declaration of a climate emergency by the UK parliament received majority support of 60% with only 14% opposing this. The recent climate protests received more support (47%) than opposition (29%) although a quarter of respondents indicated being unsure.

The current survey also asked respondents about their willingness to engage in a range of mitigation and adaptation actions. Stated willingness to engage in mitigation actions was generally quite high even for more impactful actions such as less flying (50%) or eating less meat (47%). Political protest actions were less popular with fewer than a third suggesting that they themselves would want to engage in these actions in response to climate change.

Perception of actors and their motivations

The UK government was assigned the main responsibility to prepare the country for climate change (adaptation) and to reduce the causes of climate change (mitigation), with more people (58%) assigning responsibility for adaptation as compared to only 41% for mitigation. By contrast, business and industry were classified as mainly responsible for mitigation by a quarter of the sample but only 7% saw them mainly responsible for adaptation. Levels of trust in the UK Government were however low in comparison to scientists, the Met Office, and the Committee on Climate Change who were the most trusted actors. Half of the survey respondents expressed that they want to see climate change adaptation and mitigation be given an equal focus by the government, with some evidence for concern that a focus on adaptation will lower motivations for mitigation efforts.

Introduction

This report summarises the topline findings of the project British Public Perceptions of Climate Risk, Adaptation Options and Resilience (RESiL RISK). The project findings give insight into how people currently conceptualise climate risks alongside climate adaptation options, as evidence for designing climate change risk communications and promoting UK climate resilience.

Since the signing of the 2015 Paris Climate Accord it has become increasingly clear that the impacts projected under the UK Climate Risk Assessments (ASC, 2016) are set to increase in likelihood and severity over the coming decades. According to the UK Committee on Climate Change current efforts to reduce global emissions are dangerously off track. Even if climate policy ambition, technology deployment and investment levels advance, this is still likely to lead to 2.7°C of average global warming by the end of the century and a plausible worst case of 3.5°C (UKCCC, 2018). Likewise, the Intergovernmental Panel on Climate Change (IPCC) has concluded that there is a significant risk that the world will fail to meet the Paris aspiration of 1.5°C warming as early as 2050 (IPCC, 2018). The IPCC analysis concludes by stating that countries will need to effect both incremental and transformational adaptation measures. Therefore, national efforts will need to be based on a shared understanding across society of the nature of climate change risks in order to inform the development of measures for achieving effective collective action to mitigate, enhance resilience to, and adapt to climate changes.

In addition to the technical, environmental and economic factors underlying decisions about future adaptation options, public acceptability is essential for enacting fully supported adaptation policy alongside risk-resilient changes in behaviours and social practices. Building public acceptability and support requires the collection of robust and reliable empirical evidence on what people currently believe about climate change risks and adaptation options (Pidgeon & Fischhoff, 2011; Pidgeon 2012a). RESiL RISK seeks to further develop the evidence base on this issue, and specifically for the UK.

The past three decades have seen growing academic research on the requirements for effective risk communications and how this communication impacts decision making processes, including how people evaluate climate risks (Lorenzoni et al., 2005; Pidgeon, 2012a). Defra's National Adaptation Programme (2018, p12) states that "Adapting to our changing climate cannot be done by government alone. It will require collaboration across civil society, local authorities, private and public sectors and infrastructure providers. Communication of the risks, the impacts and the actions to take is an important part of this."

Although many aspects of climate communication are now well understood, past research has tended to focus on promoting sustainable behaviours by citizens as well as support for more effective mitigation policy (Capstick et al., 2015a; Moser & Dilling, 2007; Pidgeon, 2012b). There is far less systematic evidence on how ordinary citizens view adaptation and resilience measures that might reduce climate risk, and there is no coherent theoretical account of how these are related to climate risk perceptions.

In order to fill this gap in evidence and theory the RESiL RISK project aims to provide insights into public perception of climate risks and contribute towards our understanding of climate change communication in the context of climate adaptation and resilience.

This RESiL RISK report summarises the topline findings of a nationally representative survey conducted online in October 2019 with the British public. It has the following aims:

1. Map public perceptions of climate impacts, risks and resilience amongst a demographically representative sample of the British public, as part of the evidence-base for the UK Climate Change Risk Assessments in 2022 and subsequently.
2. Examine the impact of theoretical constructs on climate adaptation beliefs, including current risk perceptions, participant values, psychological distance, and personal experiences of extreme weather.
3. Deliver a robust methodology for monitoring future changes in UK climate risk perceptions and adaptation.

The project also aims to demonstrate a novel climate service, in the form of robust guidance on effective communication and engagement around future UK adaptation and risk resilience, which is the subject of a separate report by our project partners Climate Outreach (this report can be accessed here,[1] Corner et al., 2020).

Sunlight through trees. Photo: Johannes Plenio

1 https://climateoutreach.org/resources/engaging-public-on-climate-risks-and-adaptation

Socio-political context leading up to RESiL RISK data collection

In interpreting the survey results it is important to take account of the immediate environmental, media and political contexts that preceded it. The survey was conducted in October 2019 and came after a number of prominent events that are likely to have impacted public understanding and interpretation of UK weather and climate risks.

Extreme weather events

- On a decadal timescale, there have been various high-profile flooding events to hit the UK (most prominent of these being the 2007 and the 2013/14 UK-wide flooding).
- In February/March 2018 the so called 'Beast from the East' caused snow and widespread disruption to UK services.
- The summer of 2018 saw a prolonged warm, dry period without rainfall.
- In June and July 2019 two heatwaves hit many European countries such as France, Spain, Germany, Italy, Switzerland, Belgium the Czech Republic, Poland and the UK.
- International media reports linked climate change to hurricane activity in the Gulf of Mexico (such as storm Barry in July 2019) and wildfires in California (October 2019), as well as to several record temperatures over the past 10 years.

Climate change protests

The survey also followed extensive UK-wide protests for climate action by the Extinction Rebellion movement, and the international Fridays for Future schools strikes.

In the UK, Extinction Rebellion received national and international attention by staging a number of events in 2018 and 2019. The movement uses nonviolent civil disobedience to advocate far reaching government action on climate change. The first big event took place in November 2018 and saw five busy road bridges in London being blocked by protesters.

Greta Thunberg, a Swedish school girl, started protesting for climate action outside the Swedish government in August 2018. Since then the movement FridaysForFuture has grown considerably, with a global strike in March 2019 seeing 2200 strikes organised in 125 countries.

The protests lead to a number of declarations of climate emergency by cities, counties and parliaments. The UK parliament ratified this politically loosely defined notion, in May 2019.

Brexit negotiations and the upcoming 2019 UK general election

The survey was administered against the backdrop of considerable political uncertainty and turmoil in the UK. This included drawn-out Brexit negotiations in 2018 and early 2019 which were ultimately not passed by the UK Parliament, leading to a change in prime minister. At the time of the fieldwork, the Westminster political parties had just voted to trigger a general election, to be held in December 2019, in order to break the widespread political deadlock and paralysis in the UK Parliament caused by disagreement over the Brexit issue.

Methodology

Survey design

The RESiL RISK survey was designed to maximise the relevance of the survey results for academic and non-academic audiences, in particular in relation to the upcoming 2022 UK Climate Change Risk Assessment (UKCCRA, 2017). The Understanding Risk Research Group has long-standing experience with conducting surveys on public perceptions of climate change in the UK and related issues such as support for technical and behavioural solutions to climate change.

The research team at Cardiff University, with project partner Climate Outreach, organised two meetings with an Advisory Board of stakeholders (March and October 2019) to gather their advice and input to the research questions and RESiL RISK survey design.

Data collection

The survey was administered through the online platform Qualtrics and respondents were recruited through Qualtrics panels. Recruitment methods varied from double opt-in panels, publishing networks, social media, and other types of online communities. Fieldwork was carried out between 14th and 22nd October 2019 with respondents aged 18 years and over. It took respondents on average 25 minutes to complete the survey.

Recruitment followed a quota sampling method with quotas set for age, gender, region, education and income to ensure national representativeness of the British public – as advised by data from the Office for National Statistics. Ethical approval for this survey was granted by the Cardiff University School of Psychology Ethics Committee.

To ensure data quality, a pilot survey gathered data from 156 respondents prior to the main phase. Pilot data was checked for issues with understanding of single questions or answer scales and a reduction of survey length was advised. For further quality control, attention checks were used. The final data was thoroughly checked by the research team and recruiters to identify responses that seemed suspicious (e.g. based on response time or open responses). Suspicious responses and attention check fails were deleted from the dataset and are not part of the topline findings. The total achieved sample size is 1,401 responses.

The full questionnaire and accompanying data tables are included as an Appendix to this report. Question numbers in the text refer to the corresponding data tables in the Appendix.

Sample characteristics

Quotas were set for gender, age, region, education and income to ensure that the sample is representative of the British public.

Total sample size n= 1,401 responses

Gender	Male	48%
	Female	52%
Annual household income	Less than £10 000	15%
	£10,000 – 19,999	34%
	£20,000- 29,000	18%
	£30,000-39,000	14%
	£40,000-49,000	4%
	£50,000-59,000	3%
	£60,000-99,000	5%
	More than £70,000	6%

Age	18-24 years	11%
	25-34 years	17%
	35-44 years	17%
	45-54 years	18%
	55 years or above	37%
Education	University degree	37%
	Postgraduate degree	13%
	Trade school	5%
	Professional qualification	17%
	No academic or professional qualification	4%
	GCSE O-level	14%
	A level or equivalent	11%

Rainy day in London, UK. August 2004. Photo: Håkan Dahlström (CC BY 2.0)

Previous survey data

To fully interpret the results of the RESiL RISK survey, the report will draw comparisons between the current data and two previous surveys where possible. These surveys are briefly described below.

PREPARE - 2013

The Preparedness, Adaptation and Risk (PREPARE) research programme took place between 2012 and 2013 to support the UK Government in developing its strategy on adaptation policy and in particular its statutory programme of climate adaptation policies that were discussed in Parliament in 2013 under the Climate Change Act.

As part of this programme a nationally representative online survey was conducted to explore public views on climate change impacts and adaptation, acceptable levels of climate risk, and responsibilities for adaptation action.

The online survey was conducted among a nationally representative sample of 2,007 adults (16+) across the UK between 30th January and 5th February 2013.

Access here or via:

Ipsos MORI Research Institute, (2013) PREPARE – Climate risk acceptability: Findings from a series of deliberative workshops and online survey, Part of the PREPARE Programme of research on preparedness, adaptation and risk, Final Report for project ERG1211 by Ricardo-AEA for Defra. Report reference Ricardo-AEA/R/ED58163/PREPARE R3/Issue 1.0.

European Perceptions of Climate Change (EPCC) - 2016

This JPI-Climate funded project gave insights into public perceptions of climate change across four major European countries – France, Germany, Norway and the United Kingdom.

Research teams from each country, an international Stakeholder Advisory Panel, and Climate Outreach collaboratively designed a theoretically grounded cross-national survey, providing directly comparable data.

The UK survey data was collected between 7th and 14th June 2016 adopting face to face interviews with 1033 respondents (15+). Quota sampling was adopted to ensure a nationally representative sample.

Access here or via:

Steentjes, K., Pidgeon, N., Poortinga, W., Corner, A., Arnold, A., Böhm, G., Mays, C., Poumadère, M., Ruddat, M., Scheer, D., Sonnberger, M. and Tvinnereim, E. (2017). European Perceptions of Climate Change: Topline findings of a survey conducted in four European countries in 2016. Cardiff: Cardiff University.

Findings

Description of survey topics and summary of topline findings[2]

Perceptions of climate change

Photo: Ian Britton (CC BY-NC 2.0)

Relevance of climate change relative to other national issues

At the start of the survey respondents were asked what they thought would be the most important issue facing the UK in the next 20 years. This question came before the main topic of the survey (i.e. climate change) was revealed to respondents. The answers were recorded as open-ended responses and were then coded by the research team. This question gives insights into the importance of climate change relative to other national issues. Such 'issue importance' is often seen by political scientists as a key indicator of political salience and an important factor in shaping related attitudes and behaviours.

A quarter of respondents said that Brexit was the most important issue (see Figure 1). Climate change was a very close second with 23% of respondents choosing it as their most important UK issue for the next 20 years. Combined, Brexit and climate change comprised 48% of total responses. A much smaller percentage of respondents (10%) were most concerned about the economic situation in the UK, making this the third largest category.

The same question was asked of respondents in the EPCC survey in summer 2016, only months after the 2015 Paris Climate Accord, and in the wake of the 2015-16 European migration crisis. At that point the most common response of UK respondents was immigration, with 26% of responses. The economic situation was the second most mentioned issue for the UK (11%) and the NHS (9%)

2 See Appendix for detailed tables.

was third. In contrast to the current findings, only 2% of respondents in 2016 thought that climate change would be the most important issue facing the UK in the next 20 years.

The large rise in the salience of climate change as one of the most important future issues (and second only to the highly contentious Brexit issue) indicates an important societal shift. This conclusion is consistent with other findings of the RESiL RISK survey.

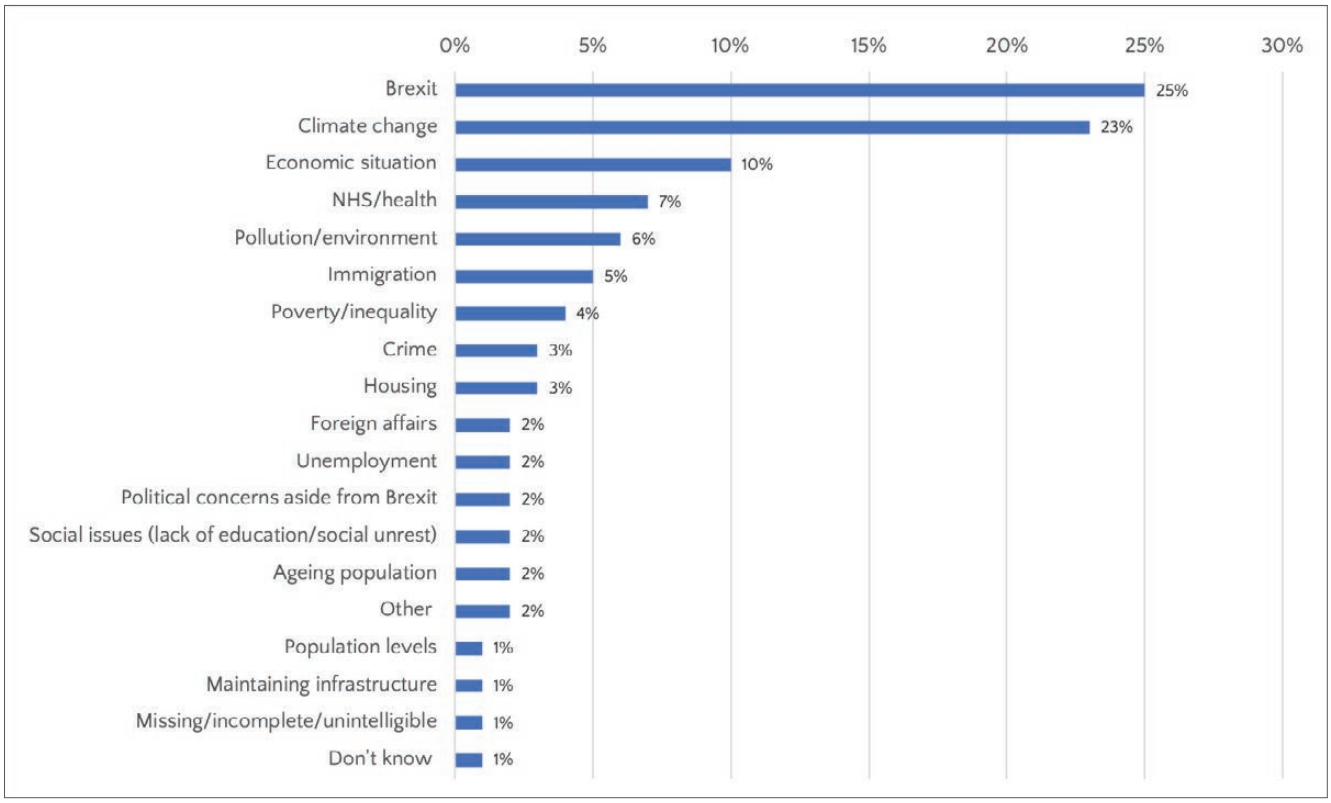

Figure 1. *What would you say will be the most important issue facing the UK in the next 20 years? (Question 1)*

In 2016, the UK voted to leave the EU. Photo: stux

Worry about climate change

Other opinion polls suggest that there has been a recent increase in public concern about climate change amongst the British public (BEIS, 2019; Ipsos Mori Political Monitor, 2019). The 2019 BEIS Energy and Climate Public Attitudes Tracker showed that 80% of respondents were *fairly* or *very concerned* about climate change, the highest proportion since their polling began in 2008.

This trend is also evidenced by the current survey results (see Figure 2), which show that the proportion of respondents who are *very* or *extremely worried* has doubled in the last three years, rising to 40% in 2019 compared to 19% in 2016. On the other end of the spectrum, the number of people who are *not at all* or *not very worrie*d about climate change has almost halved, with only 20% of respondents opting for this response compared to 38% in 2016.

Figure 2. *How worried, if at all, are you about climate change? (Question 4)*

Sense of urgency

The term *climate emergency* has entered the public discourse around climate change in the UK, fuelled by widespread media reporting of recent climate protests such as those by the Extinction Rebellion movement and the FridaysForFuture school strikes. In the summer of 2019 many cities, public institutions, and governments, including the UK parliament (May 2019), declared a state of 'climate emergency'.

Despite the political meaning of this declaration remaining vague and contested, the suggested urgency of addressing climate change is something that appears to currently characterise the mental models of the British public (also see Capstick et al., 2019).

In the current survey, respondents were asked their views about the way in which climate change needs to be addressed (Question 12). Two thirds of the sample thought that climate change should be addressed with an *extremely high level of urgency* (34%) or a *high level of urgency* (35%). Only 5% of the current sample thought that a *low level of urgency* is sufficient and only 3% said that there is *little or no urgency* to address climate change.

Climate change beliefs

Photo: Kathryn Hansen/NASA (CC BY 2.0)

Beliefs about the reality of climate change

One long standing concept that has been important for understanding public opinion is climate change scepticism. We adopt the typology developed by Rahmstorf (2004), who distinguishes between trend scepticism and attribution scepticism. Trend scepticism describes the belief that the climate is changing, while attribution scepticism measures the conviction that humans are responsible for these changes in the climate (Poortinga et al., 2011).

Despite climate scepticism having been described as a phenomenon of Anglophone countries, other studies suggest it has decreased in the UK in recent years (Steentjes et. al 2017, Capstick et al., 2015a) – a finding the current survey data supports. Only 6% of respondents expressed that they do not believe that the world's climate is changing. A very large majority of 89% of respondents said that the climate is changing (4% *don't know*, Question 5).

In relation to attribution scepticism (Question 6) results show that few people thought that climate change is *entirely* or *mainly caused by natural processes* (13%). The largest segment of respondents thought that climate change is *mainly caused by human activity* (38%) and a similar proportion of respondents believed climate change is *partly caused by natural processes and partly caused by human activity* (37%). A smaller proportion of respondents thought that climate change is *completely anthropogenic* (12%).

Scientific consensus

Despite low numbers of people in the UK questioning the existence and anthropogenic nature of climate change, previous evidence shows that people often underestimate the scientific consensus on the human contribution to climate change (Steentjes et al., 2017).

Some researchers suggest that the belief in scientific consensus might be a necessary condition (or gateway belief) for people to engage in climate change action or support related policies (Lewandowsky & Oberauer, 2016; Van Der Linden et al., 2015). While not questioning the relevance of scientific beliefs, other researchers argue that the exact effect these beliefs have on peoples'

willingness to support climate action depends on personal values or worldviews (Bertoldo et al., 2019; Kahan et al., 2011).

The RESiL RISK results show that public belief in the scientific consensus has not changed very much over the last three years (see Table 1)[3]. Most respondents indicated a belief in a majority consensus amongst scientists but of these only 36% of respondents thought that a vast majority (over 80%) of scientists agree. Almost one quarter of respondents assumed that the scientific community is divided about whether climate change is happening and humans are largely causing it, while the remaining 13% of respondents were of the opinion that anthropogenic climate change is only supported by a minority of scientists.

Table 1. *To the best of your knowledge, what proportion of scientists agree that climate change is happening and that humans are largely causing it? (Question 10)*

	A small minority of scientists agree (20% or less)	**Some scientists agree** (more than 20% but fewer than 50%)	**As many scientists agree as disagree** (50%)	**Most scientists agree** (more than 50% but fewer than 80%)	**The vast majority of scientists agree** (80% or more)	**Don't know**
RESiL RISK (2019)	3%	10%	23%	27%	36%	N/A
EPCC (2016)	5%	6%	20%	28%	30%	11%

The psychological distance of climate change

Climate change is a complex and far reaching threat that holds many characteristics which are psychologically challenging for people when it comes to forming opinions about the here and now. In previous research, this idea has been labelled as the 'psychological distance of climate change' (Pidgeon 2012b; Spence et al., 2012). People often understand climate change as an issue that is distant in time (happening in the future), geographical location (happening in places far away) and difficult to understand (as a complex or uncertain issue with many indirect impacts).

Researchers have suggested that communications that emphasise the local impacts of climate change and focus on events that happen now (rather than in the future) can reduce the psychological distance, and therefore encourage more action on climate change (Jones et al., 2016). Reducing such distance seems particularly important for encouraging adaptation to build resilience. However, it is important to recognise that research findings provide mixed results and localising climate change does not always encourage more engagement (e.g. Brügger et al., 2015).

To gain insights into views on temporal distance, survey respondents were asked when they thought we will be feeling the effects of climate change (see Figure 3, Question 7). A majority of 64% indicated that we are already feeling the effects of climate change. In 2016 the proportion of people responding this way was very similar (61%). However, it is notable that this proportion has been steadily increasing in representative surveys conducted since 2010 (Spence et al., 2010; Capstick et al., 2015a). This data shows that in the last ten years climate change has become less temporally distant to people in the UK.

3 It should be noted that the RESiL RISK survey did not offer a *don't know* answer option. In 2016, a relatively high proportion of 11% of respondents chose this answer option.

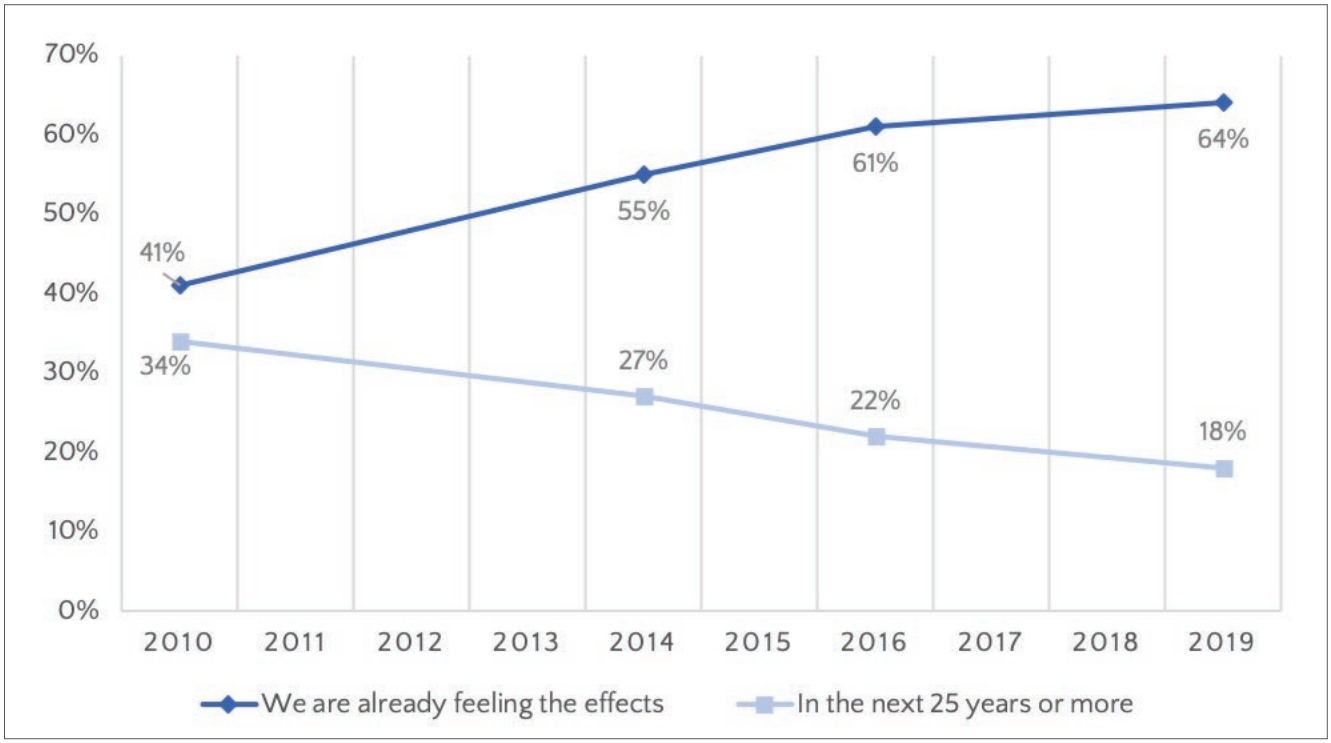

Figure 3. *When, if at all, do you think we will be feeling the effects of climate change? Question 7 (Cardiff, Understanding Risk Research Group Surveys)*[4]

Despite the growing public belief that climate change consequences can already be seen now, most people do not feel personally affected by these consequences. The current survey results show that only 14% believed that climate change will harm them *a great deal*. A majority of the sample (74%) answered that climate change will harm them *only a little* or *a moderate amount*. Another 12% of respondents said that climate change will not harm them at all (Question 11).

Furthermore, the current survey provides evidence that climate change is still seen as more of a threat to people in developing countries than to people in the UK (see Table 2, Question 8). Most respondents were in agreement that climate change is a serious threat to people in developing countries (67% *very serious* or *extremely serious*). Fewer respondents, but still almost half the sample, thought that climate change is a *very serious* or *extremely serious* threat to the UK as a whole. Only 27% of respondents believed that climate change was a *very* or *extremely serious* threat to them and their family, with 32% of respondents reporting that climate change is not a very serious threat to them (*not at all* or *not very serious*).

Table 2. *How serious of a threat, if at all, is climate change to each of the following? (Question 8)*

	Not at all serious	Not very serious	Fairly serious	Very serious	Extremely serious
You and your family	8%	24%	41%	18%	9%
The UK as a whole	4%	15%	35%	32%	15%
People in developing countries	3%	7%	23%	34%	33%

4 2010, 1,882 respondents, face-to-face interviews; 2014, 1,002 face-to-face interviews; 2016, 1,033 face-to-face interviews; 2019, 1,401 respondents, online survey panels.

Psychological drivers of climate change beliefs

Photo: Nathan Cowley

To understand public perceptions of climate change it is important to look at underlying factors and associations that can explain how people form opinions about climate change, and why they might support or oppose certain responses to climate change.

In this survey we considered a set of concepts that have been established as strong motivational forces when it comes to perceptions of climate change, behavioural responses, and support for political climate change strategies.

Emotions and climate change

Human decision making and cognition is strongly influenced by how people feel about a topic on an emotional level (e.g. Pfister & Böhm, 2008). Emotional reactions to climate change and its catastrophic consequences have always played an important role in decision making and communication around climate change.

In recent public discourse, activist groups such as Extinction Rebellion and FridaysForFuture have increasingly used emotional language in an attempt to motivate more drastic action by the general public and politicians. For example, Greta Thunberg's speech at the 2019 UN summit gained considerable media attention for her use of the guilt inducing phrase "how dare you". Terms like eco anxiety and eco guilt have also been picked up by more mainstream media over the course of 2019.

The scientific literature on climate change communication, by contrast, provides mixed evidence on what emotions will encourage or discourage climate action. Some findings show that feelings of guilt encourages people to act in a more environmentally friendly way (Mallett, 2012), while others studies offer evidence that strong negative emotions can lead to a reactance response and disengagement with the topic altogether (e.g. O'Neill & Nicholson–Cole, 2009; Stern, 2012). It is suggested by scholars that emotions are not simple levers when it comes to motivators of climate action (Chapman, et al., 2017).

In the current survey, respondents were asked to indicate how much they associated climate change with a sense of loss, hope, guilt, anxiety, fear, and outrage (see Table 3, Question 33).

A third of respondents reported feeling anxiety, fear, and outrage *very much* or *quite a bit* when thinking about climate change. In 2016 the number of people reporting feelings of fear and outrage was considerably lower than this (fear 19%, outrage 20%). Despite this increase, 20% of the current sample reported no fear at all and 22% reported feeling only *a little fear*. Similarly, the proportion of respondents not indicating any, or only *a little*, anxiety is higher (43%) than the proportion who report feeling *very much* or *quite a bit* of anxiety in relation to climate change (33%).

Guilt has also increased amongst British respondents since 2016, with 22% answering that they feel guilt *quite a bit* or *very much* in 2019 compared to 13% in 2016. However, half of the sample (53%) reported feeling no or *a little* guilt in relation to climate change.

A quarter of respondents (24%) said they feel hope when they think about climate change, a proportion that has not changed much since 2016. It should be noted that 19% of respondents indicated they feel no hope at all.

Table 3. *When you think about climate change and everything that you associate with it, how strongly, if at all, do you feel each of the following emotions? (Question 33)*

	Proportion of respondents answering *very much* or *quite a bit*					
	Sense of loss	**Hope**	**Guilt**	**Anxiety**	**Fear**	**Outrage**
RESiL RISK (2019)	30%	24%	22%	33%	34%	33%
EPCC (2016)	-	20%	13%	-	19%	20%

Moral concerns about climate change

People strive to be moral and to be seen as moral by others (Haidt, 2007). Consequently, issues that are understood in moral terms are more likely to be acted on than issues that do not contain moral aspects (Bratanova et al., 2012).

Consistent with this, some research has found that moral concerns about climate change are one reason why people express support for a wide range of climate change policies (Doran et al., 2019).

The results of the current survey show that 41% of respondents indicated feeling moral concerns about climate change *quite a bit* or *very much*. Only 13% report not having any moral concerns about climate change (Question 34). However, public perceptions of climate change as a moral issue have not changed since the previous survey in 2016.

Social norms

Peoples' opinions and actions are influenced by their social environment in many ways. Assumptions about the social consequences of their opinions and actions are a factor that can motivate or discourage people to engage in climate change actions (Ajzen, 1991; Nigbur et al., 2010). A considerable body of literature has examined how comparing one's own behaviour to the status quo (the dominant social norm) can lead people to change their behaviour accordingly (Schultz et al., 2007).

Social norms can be classified as a) actions that are displayed by others (descriptive norms) or b) as unwritten rules or social expectations (injunctive norms) (Cialdini et al., 1991). This distinction was adopted for the current RESiL RISK survey.

The survey findings might speak to a subtle shift in social norms around climate change (see Table 4, Question 32). In comparison to the previous EPCC survey from 2016, fewer people say that action on climate change is not supported by a social norm in society – only 22% express scepticism about whether others are taking action on climate change, while 39% held this view in 2016. With regards to social expectations, only 19% felt that climate change action is not expected from them, while this number was also higher in 2016 (26%).

Table 4. *To what extent do you agree or disagree with the following statements? (Question 32)*

		Strongly or *tend to disagree*	Neither agree nor disagree	*Strongly* or *tend to agree*
Other peoples' actions (descriptive norm)	Most people around me take personal action to help tackle climate change (2019)	22%	39%	39%
	EPCC survey (2016)	39%	20%	38%
Social expectation (injunctive norm)	I feel that helping to tackle climate change is something that is NOT expected of me (2019)	52%	30%	19%
	EPCC survey (2016)	58%	14%	26%

Efficacy of collective climate action

The perceived efficacy to achieve an intended goal, such as increasing resilience to climate impacts, is a crucial predictor of individual and collective efforts to reach that goal (Bandura, 1994).

In the context of climate change, there are two potential aims in response to the global threat: a) the reduction of the severity of climate change through limiting warming (mitigation), and b) the preparation for climate change impacts (adaptation). Both objectives require changes that go beyond a single person's action, and instead rely upon either many people acting collectively or governments implementing large scale interventions. Therefore, assumptions about the efficacy of people working together is potentially critical in explaining why people might support or oppose climate actions. Ample empirical evidence shows that collective efficacy has direct effects on environmental actions (e.g. Barth et al., 2016; Reese & Junge 2017).

Children learning about solar panels. Reno, Nevada.
Photo: Jessica Reeder/BlackRockSolar (CC BY 2.0)

As depicted in Table 5, the survey asked respondents if they thought people in the UK could substantially reduce the severity of climate change by acting together to reduce carbon emissions (efficacy of collective action for national climate mitigation). Similarly, respondents were asked if they thought people in the UK could prepare the country for the impacts of climate change by acting together (efficacy of collective action for national climate adaptation). In both cases more people *agreed* (≥ 50%) than *disagreed* (≤ 20%) that collective action would be effective for climate mitigation and adaptation. Therefore, it seems people are more optimistic than pessimistic about people acting together to address and prepare for climate change.

The survey also included an item measuring the perceived efficacy of people acting together in response to climate impacts. A substantial majority (62%) agreed that people in their local community would act together if they were faced with severe events such as flooding or extreme weather.

Table 5. *To what extent do you agree or disagree with the following statements? (Question 32)*

		Strongly or *tend to disagree*	Neither agree nor disagree	*Strongly* or *tend to agree*
Efficacy for collective action for national climate mitigation	**I am confident that, together, people in the UK can substantially reduce the severity of climate change (by reducing emissions).**	16%	29%	55%
Efficacy for collective action for national climate adaptation	**I am confident that, together, people in the UK can prepare the country to cope with the impacts of climate change.**	19%	28%	54%
Efficacy of collective local action in response to climate impacts	**I am confident that people in my local community would act together if they were faced with severe events (such as flooding or extreme weather).**	14%	24%	62%

Risk perceptions of climate change impacts

Photo: Prawny

In this section we examine public risk perceptions towards climate change impacts and related personal experiences. Building an understanding of people's risk perceptions, and how they change over time, is an important aspect of preparing for climate change impacts especially because public perceptions often differ from expert assessments of risk (Taylor et al., 2014).

Expected effects of climate change impacts in the UK and locally

Respondents were asked (in an open response format) what they thought would be the most important effect of climate change in the UK (see Figure 4). A wide variety of answers were recorded, but the three most popular answers (43%) concerned changes in the weather. Respondents were most likely to believe that the weather will be wetter and involve more storms, rain, or flooding (16%). Respondents also mentioned that the weather would change in general and become less predictable (14%). A further 13% believed that the weather would become hotter and drier with more heatwaves and/or droughts. There was also considerable uncertainty with 7% of respondents saying that they did not know how the UK would be affected.

When this question was asked on the EPCC survey in 2016, 27% of respondents mentioned wetter weather with more storms, rain or flooding as the most important effect of climate change on the UK. The second largest proportion, with 12% of the 2016 sample, believed that the weather would change and/or become more unpredictable. While these are still the two most frequent responses in 2019, there is now a greater belief that the weather in the UK will be hotter and drier (13% in 2019 compared to 7% in 2016).

Respondents were also asked what the most important effect of climate change would be on their local community. Like the previous question, the most popular answer was that the weather would be wetter with storms, rain and flooding affecting their communities (17%). The second largest category of responses was *don't know* (12%), indicating more uncertainty about how

local communities would be affected compared to the UK as a whole. A smaller proportion (7%) expected that the weather would be hotter, while the same percentage believed that climate change would have little to no effect on their community.

In summary, people seemed somewhat more optimistic that climate change would not affect their communities to the same degree as the rest of the UK, although a greater degree of uncertainty is also evident. This indicates that people perhaps do not know how their local communities will be affected in the future. It is also worth noting that infrastructure and economic issues seemed to be more of a concern in the context of local communities. Taken together, these findings suggest that specific climate impacts remain geographically distant with regards to people's immediate community.

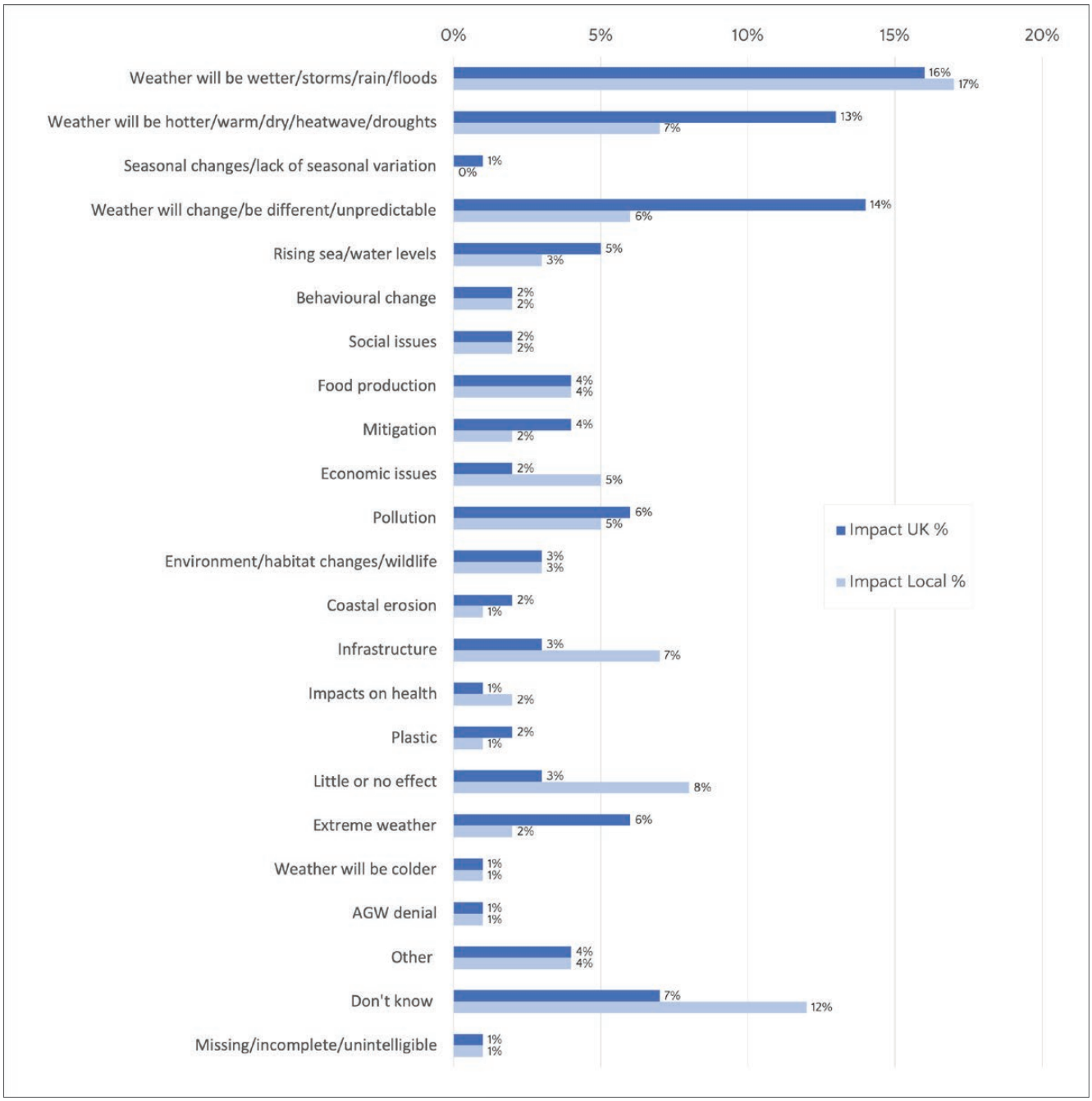

Figure 4. *What do you think will be the most important effect of climate change on the UK/on your local community? (Questions 2 and 3)*

Risk perceptions associated with climate related weather events

The 2017 UK Climate Change Risk Assessment (UKCCRA, 2017) predicts more frequent occurrences of extreme weather events and their associated consequences (e.g. flooding). To gauge respondents' risk perceptions of various types of weather events, we asked to what extent they thought these events were currently a serious problem for the UK (Question 13), how likely they think it is that these events would be more common in 2050 (Question 14), and how concerned they would be if these events did become more common in 2050 (Question 15).

Flooding was considered a *fairly* or *very serious* problem by almost all participants (90%), closely followed by coastal erosion (88%), heavy storms (84%) and periods of heavy rainfall (83%). Drier and hotter weather patterns were also considered a serious problem by a substantial majority of respondents – 72% for heatwaves and dry periods without rain, and 63% for hot summers. Cold winters, snow, and mild winters were considered serious problems by 60%, 50%, and 41% respectively.

When comparing these findings to the PREPARE survey (see Table 6), it is notable that flooding was also considered a serious problem by almost all respondents (90%) in 2013, followed by coastal erosion and heavy rainfall. However, for almost all other weather events we see an *increase* in risk perception from 2013 to 2019. This is most notable for hot and dry weather. For example, in 2013 only 23% of respondents thought heatwaves were a *fairly* or *very serious* problem; this had increased to a substantial 72% in 2019. Similarly, only 18% of the PREPARE sample considered hot summers to be a serious problem in 2013; this had increased to 63% in 2019.

Table 6. *How serious of a problem do you think the following currently are for the UK, or do you not think they are a problem at all? (Question 13)*

	Proportion of respondents answering *fairly* or *very serious*	
	RESiL RISK (2019)	**PREPARE (2013)**
Flooding	90%	90%
Coastal erosion	88%	69%
Heavy storms with strong winds, rain/hail	84%	Not asked
Periods of heavy rainfall	83%	78%
Heatwaves	72%	23%
Dry periods without rain	72%	52%
Hot summers	63%	18%
Cold winters	60%	34%
Snow	50%	33%
Mild winters	41%	16%

The same pattern of responses is observed for the question of likelihood (Question 14) and concern (see Figure 5, Question 15). When asked how likely it is that each of these weather events will have become more common in 2050, a large majority of respondents (≥84%) thought this would be the case for flooding, coastal erosion, periods of heavy rainfall, and heavy storms. A similar percentage (≥83%) also recorded being concerned about it if this type of extreme weather were

to become more common. This represents a small increase in risk perceptions for rain and storm related events compared to the earlier 2013 PREPARE survey. For example, in 2013 75% of respondents thought heavy rainfall will be more common in the future, a proportion which had increased to 86% in 2019.[5]

Again, we can see the most substantial and notable increase in risk perceptions (likelihood and concern) in relation to heatwaves, dry periods, and hot summers – between two thirds and three quarters of respondents now thought these types of weather events would be more common in 2050. For example, in 2013 only 33% of respondents thought heatwaves would be more common in 2050, but in 2019 this had increased to 77%. Similarly, results provide evidence for an increase in concern if hot weather were to become more common. In 2013 only 29% of respondents expressed concern if hot summers became more common, whereas in 2019 this proportion had increased to 66%.

Landslide warning due to coastal erosion on a beach in Criccieth, North Wales, UK. Photo: Richard Allaway (CC BY 2.0)

Across these questions it becomes evident that risk perceptions are high for extreme weather such as flooding, coastal erosion, heavy storms, and rainfall, but the most substantial increase in risk perceptions in recent years is observed for hot and dry weather events. This is likely related to people in the UK increasingly being exposed to these types of events, such as the heatwaves experienced across Europe in the summer of 2019, as well as associated media reporting about European and international heat events.

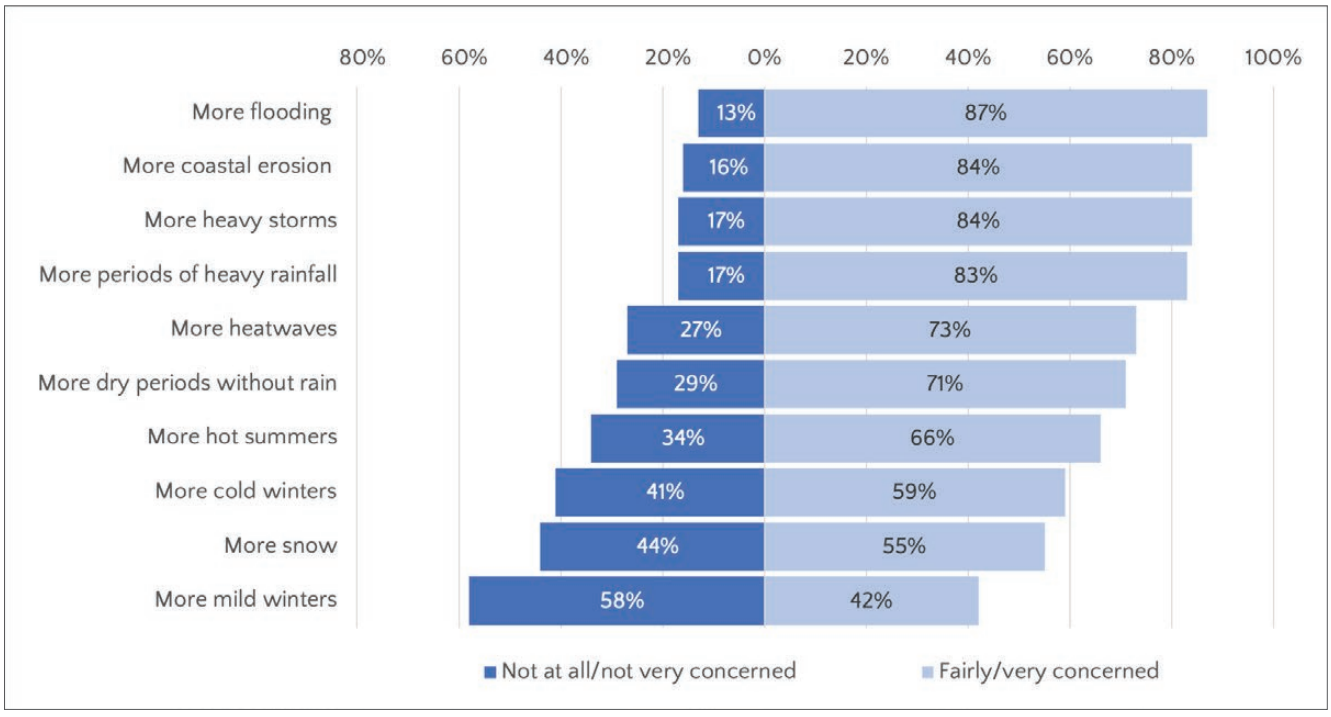

Figure 5. *How concerned would you be if by 2050 the UK did have...? (Question 15)*

5 The PREPARE and RESiL RISK surveys asked about likelihood in slightly different ways. Therefore the findings on this question are not directly comparable.

Personal experience of impacts of extreme weather

Personal experience of extreme weather is considered a possible driver of risk perception. Indeed, experiencing a traumatic or severe event such as flooding or extended heatwave may be one of the most tangible ways people make sense of climate change and its consequences (Demski et al., 2017; Taylor et al., 2014). For this reason, survey respondents were asked about their previous exposure to specific climate impacts (Question 27).

A substantial majority (70%) reported that they, or someone close to them, had previously experienced discomfort during a heatwave (see Figure 6). Notably fewer respondents report having experienced travel disruption (33%) or health impacts (33%). In line with increased risk perceptions of hot weather events, self-reported experience of heatwaves had also increased. In the 2013 PREPARE survey, only 53% reported discomfort, 13% reported travel disruption and 15% reported health impacts associated with heatwaves. This suggests that these types of weather events are increasingly being experienced and remembered by people. The exception to this is reported experience of water shortages. In 2013, almost half of respondents said they, or someone close to them, had experienced water restrictions or shortages due to low rainfall. In the current survey, only one third of respondents reported this experience.

With regards to flooding, the findings of the 2013 and 2019 surveys remain broadly similar. In the current survey, 39% of respondents said they or someone close to them had experienced flooding in their local area. Only one in five had experienced flooding in their own home or knew someone that had.

Finally, the current survey asked about a set of additional experiences that were not included in the 2013 PREPARE survey. Just over half of the survey respondents said that they, or someone close to them, had experienced travel disruption due to extreme snow. This high level of reported experiences may reflect people's experiences with the 2019 'Beast from the East' event in 2018, which caused widespread disruption in the UK at the time. A smaller proportion of respondents report having experienced extreme events such as restrictions to food supply (17%), damage to personal property due to extreme snow (18%), wildfires (14%), and relocation due to flood risk or erosion (13%).

Cycling in the snow. Photo: Robert Ruggiero

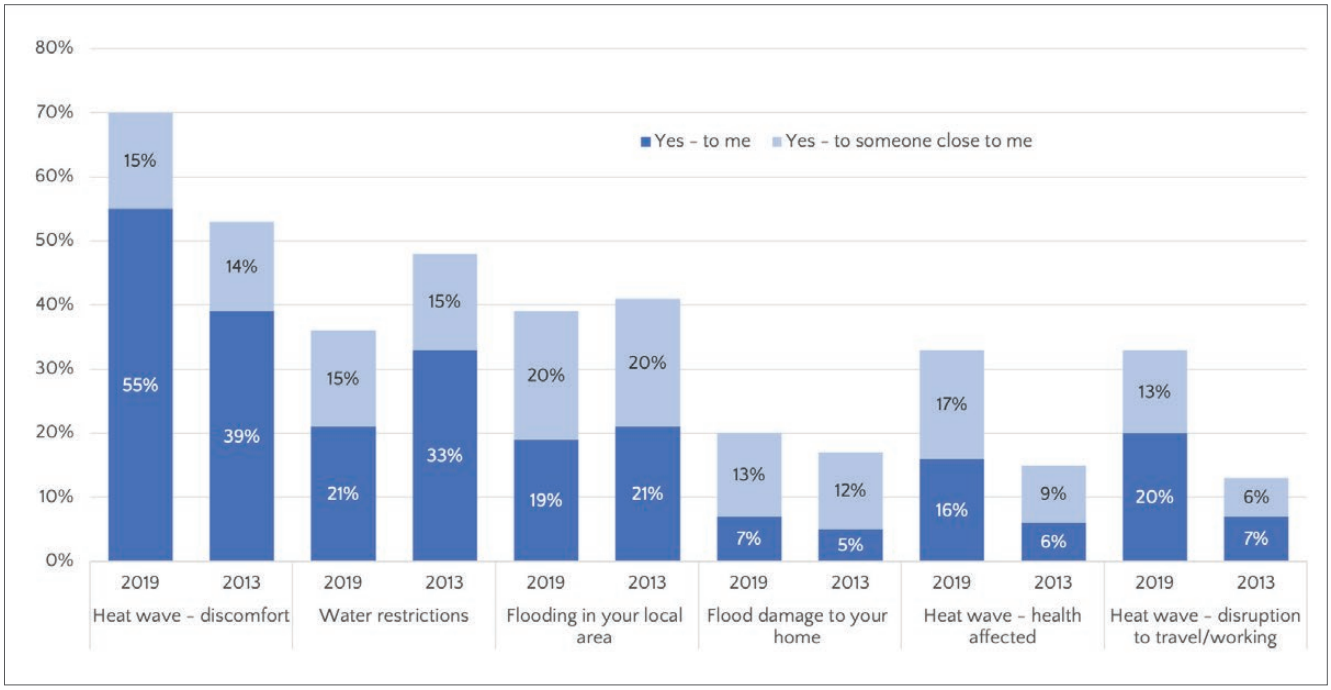

Figure 6. *Have you, or someone close to you, ever experienced any of the following extreme weather events? (Question 27, see Appendix for precise wording and additional items)*

Personal risk perceptions of flooding and heat stress

When it comes to *personal* risk perceptions, most survey respondents did not believe that they are at risk of flooding, with only 6% thinking they are *definitely at risk*, and 28% believing they are *possibly at risk* (see Figure 7, Question 26). While these numbers seem low, they are higher than those recorded in 2013 where only 2% thought they were *definitely at risk*, 15% said they were *possibly at risk* and 79% did not think they were at risk at all.

In the current survey we also added a personal risk perception question about heat stress, given the record-breaking high summer temperatures in recent years in the UK. Results show that personal risk perceptions appear higher for heat stress than for flooding. About half of the survey respondents thought they were *possibly at risk* and 18% said they were *definitely at risk* (33% did not think they were at risk). It is possible that respondents interpreted heat stress as any discomfort associated with heat rather than more extreme physical effects of heat stress such as muscle cramps, heat rash, fainting or heat exhaustion.

Woman cooling off during a heatwave. Toronto, Canada. Photo: Victoria Henderson (CC BY 2.0)

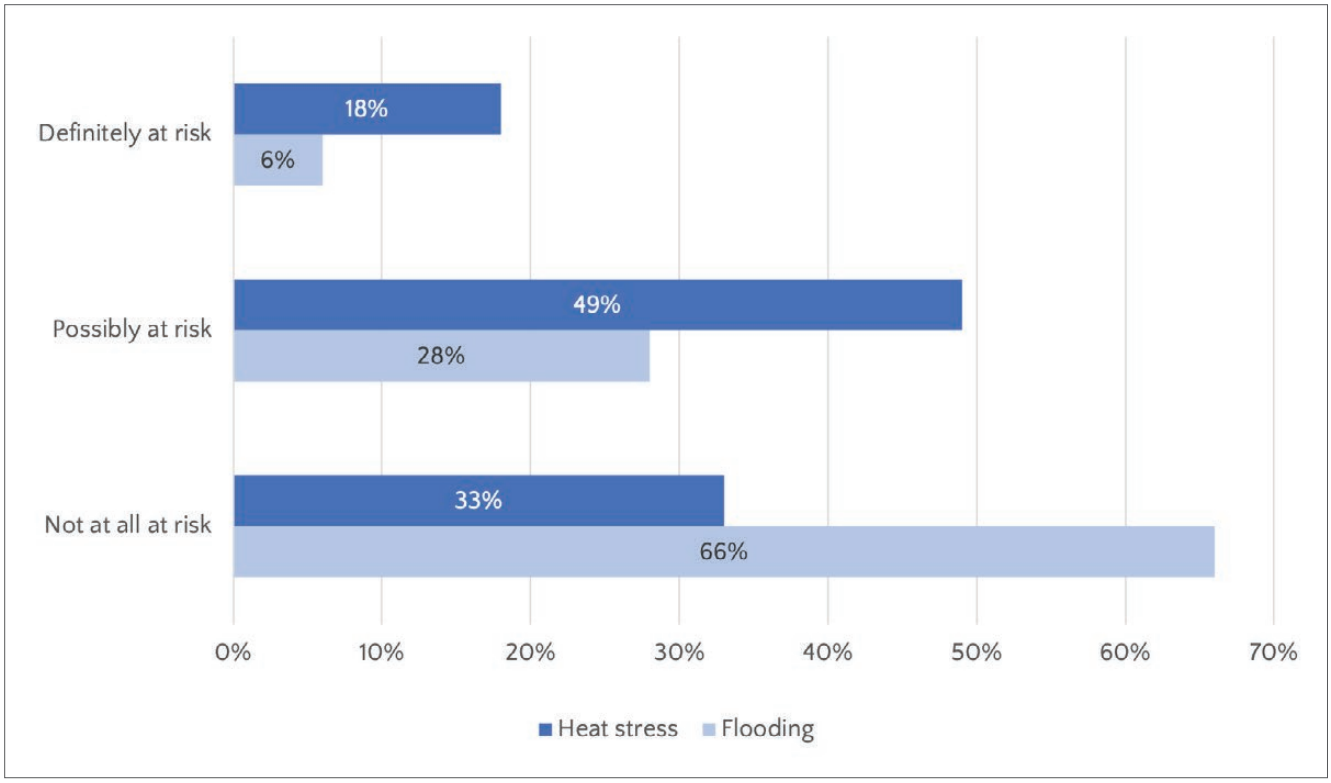

Figure 7. *Do you believe your property is currently at risk of flooding/you are personally at risk of experiencing heat stress during the summer? (Questions 25 and 26)*

Risk perceptions of specific climate change impacts

In addition to examining risk perceptions associated with a range of weather events, the survey also measured people's risk perceptions of specific impacts of a changing climate. These impacts were taken, in part, from the earlier PREPARE survey, which selected impacts in consultation with DEFRA and broadly grouped together risks presented in the 2012 UK Climate Change Risk Assessment (UKCCRA, 2012). The risks and opportunities included in the PREPARE project were designed to cover a broad range across the 11 sectors covered in the risk assessment. For the RESiL RISK project, we focus only on negative impacts and exclude possible opportunities. We also added additional items in consultation with the project Advisory Board to reflect the most recent risk assessment conduced in 2017 (UKCCRA, 2017).

Risk perceptions were measured using two questions, the first question measured concern if these impacts were to happen (Question 16) and the second captured respondents' beliefs in the likelihood that these impacts will happen in the UK by 2050 (Question 17).

It is notable that all risks attracted high levels of concern with over three quarters of respondents indicating being *fairly* or *very concerned* about all potential impacts listed. Although this pattern is similar to the 2013 PREPARE survey, the 2019 survey saw already high numbers increase even further. For 10 out of 16 impacts, over 90% of respondents indicated being concerned about them (see Table 7). The pattern is very similar for the question on likelihood. A majority of respondents (57% to 79%) thought all 16 impacts were *fairly* or *very likely* to happen in 2050.

Some of the highest risk perceptions were associated with impacts such as poor harvests pushing up food prices, more people's heath being affected by extreme heat, more homes being flooded,

drought causing serious water shortages, low lying coasts being permanently flooded or eroded, and some types of wildlife being lost or declining in number.

However, the most notable increase in risk perceptions (both in terms of concern and likelihood) can be observed for impacts associated with heatwaves (e.g. *disruption to trains, roads, and public transport, cities and large towns becoming unbearably hot during heatwaves*). For example, in the 2013 PREPARE survey 65% of respondents were *fairly* or *very concerned* about frequent disruptions to transport due to heatwaves in 2050; in 2019 this had increased to a substantial 86%. This is in line with the finding that risk perceptions around hot and drier weather have generally increased in recent years.

Table 7. *How concerned would you be if the following did happen in the UK? (Question 16)*

	Proportion of respondents answering *fairly* or *very concerned*	
	RESiL RISK (2019)	**PREPARE (2013)**
Poor harvests, due to extreme weather, pushing up food prices.	93%	90%
More people's health suffering in extreme heat, particularly the elderly, due to more frequent, sustained or severe heatwaves.	91%	81%
More homes being flooded as a result of heavy rainfall	91%	85%
Low lying coasts being permanently flooded or eroded by rising sea levels	91%	80%
Some types of wildlife are lost or decline in number.	91%	80%
Public services like roads, power stations, schools and hospitals being disrupted as a result of flooding.	91%	82%
Knock on effects on food supply chains due to poor harvest in other countries.	90%	Not asked
Drought causing serious water shortages due to changes in rainfall patterns.	90%	83%
New pests and diseases, previously only thriving in warmer climates, become common in the UK.	90%	81%
A reduction in marine wildlife from ocean changes (e.g. increasing temperature, greater acidity).	90%	77%
Wildfires that threaten to destroy wildlife, habitat and property.	87%	Not asked
Disruption to trains, roads, and public transport due to more frequent, sustained or severe heatwaves.	86%	65%
Cities and large towns, which trap heat, becoming unbearably hot due to heatwaves.	86%	63%
Buildings such as schools, offices or homes not providing safe environments in heatwaves (due to inadequate design).	83%	Not asked
Extreme cold weather and snow disrupting services and public transport.	80%	Not asked
More people permanently move to the UK because of changes in the climate of their own country.	79%	67%

Perceptions of links between climate change and specific events

Photo: Quarrie Photography/Jeff Walsh/Cass Hodge (CC BY-NC-ND 2.0)

Attributing climate change to recent weather events

While personal experience of extreme weather events is one important aspect that might affect how people think about climate change, it is also important to understand whether people believe that climate change plays a role in explaining specific extreme events, including events they are not directly affected by but hear about in the media (Ogunbode et al., 2019). To gauge this, the survey asked respondents to what extent they thought several recent events were caused by climate change (Question 23).

A clear majority (between 61% and 76%) thought climate change *likely* or *definitely* played a role in causing hot temperatures in the UK and Europe in 2019, the extended drought period in 2018, major flooding in the winter of 2014, wildfires in California in 2018 and hurricane Matthew in Haiti in 2016.

Indeed, climate scientists have indicated that all of these events were more likely to have occurred because of climate change. It appears that most respondents also believe this to be the case.

Beliefs about climate change migration

The 2016 EPCC survey was the first public perception survey to explore whether respondents thought that climate change will lead to more migration in the future. Although it is difficult to make precise predictions about future climate change impacts and migration patterns, many researchers, NGOs, and political advisors do expect more migration away from climate stressed areas, and predict an increase in future conflicts due to climate change. A report commissioned by the UK and Commonwealth Office on the risk assessment of climate change outlines potential risks of conflicts, for example, as a result of heat stress and food scarcity (King et al., 2015; see also Battisti & Naylor, 2009).

When the EPCC survey was carried out in 2016, Europe had just experienced the so-called refugee crisis, with high numbers of migrants coming to Europe in the period between 2014 and 2016. At the time, some media outlets and high-profile figures (e.g. Prince Charles) discussed how the links between climate change and current or future conflicts around the world might lead to more migration towards Europe. Conversely, some scholars warned, in line with the suggestion made by the IPCC, that it is impossible to prove that climate change is indeed a cause of the conflict in Syria (Boas, 2015).

While the number of refugees coming to Europe has reduced in recent years, this continues to be one of the key political issues for European governments. Most of the refugees arriving in the last year have come from Africa across the Mediterranean, rather than from war-torn countries such as Syria.

In the current survey, we find that a majority of respondents (55%) did not think climate change had played a part in the so called 'migration crisis' in Europe in 2015 (Question 23).

However, more people *agree* (40%) than *disagree* (20%) with the statement *climate change will lead to more migration to the UK in the future* (Question 24). This is a reversal from the 2016 EPCC survey where more respondents *disagreed* (42%) than *agreed* (30%). Results further show a substantial increase in the percentage of respondents selecting the central *neither agree nor disagree* response, suggesting that there is now more uncertainty around the idea of migration due to climate change (as opposed to disagreement).

Similarly, in the 2013 PREPARE survey only 27% of respondents believed that *more people will permanently move to the UK because of changes in the climate in their own country* (Question 17). This has increased to 57% in the current survey.

In conclusion, respondents were overall undecided as to climate change and migration in the future, but an increasing percentage thought that this may be the case as compared to previous surveys.

Syrian refugees sleeping on an overnight journey as they flee the Syrian conflict. Photo: Andreas Schalk (CC BY 2.0)

Priorities for adaptation

Photo: Nikoline Arns

To understand current public support for building climate resilience it is important to first understand what people want to see protected.

In collaboration with our Stakeholder Advisory Board, a list of 13 services and social goods that might be affected by climate change impacts was compiled for the survey. Respondents were then asked what level of protection they would like to see for each of the listed items (see Figure 8, Question 28).

It is also important to understand how people would prioritise the protection of one social good or service over another in the context of finite resources. To do this, the survey asked respondents to allocate a limited number of tokens among the list of social services and goods. This reveals how they would prefer to prioritise different areas for protection (see Table 8, Question 29).

Both types of question (level of protection and resource allocation) identified the same three top priorities, which were the health and wellbeing of UK citizens (42% *extremely high protection*), the protection of the most vulnerable people in society (47% *extremely high protection*), and ensuring social services (e.g. emergency services) are running smoothly (46% *extremely high protection*).

Affordable food and uninterrupted water supplies across the UK were also items that received a high level of priority for protection by survey respondents (both 39% *extremely high protection*). Both of these essential services received higher levels of endorsement than ensuring uninterrupted energy supply.

Noteworthy are also the social goods and services that are at the bottom of the priority list for people. In both tasks the protection of historical sites and buildings and increasing the growth of the UK economy were not highly prioritised for protection from the impacts of climate change. In particular, fully 50% of respondents did not allocate any of their 20 tokens to either of these two items. Only a small minority of respondents said that they need *extremely high levels of protection* (13% for historical sites; 16% for increasing UK economic growth).

Table 8. *Resources allocated by respondents to each service or social good (total of 20 tokens available) (Question 29)*

	Average tokens/resources allocated (Standard deviations in brackets)
Health and well-being of all UK citizens	2.45 (2.90)
Protection of the most vulnerable people in our society (e.g. elderly, poor, young people)	2.23 (2.43)
Ensuring social services ae running smoothly (e.g. emergency services)	2.07 (2.12)
Affordable food supplies across the UK	2.04 (2.13)
Uninterrupted water supply for citizens and businesses	1.83 (1.95)
Protection of plants, animals and people from new pests and diseases	1.56 (2.23)
Uninterrupted energy supply for citizens and businesses	1.42 (1.53)
Protection of the UK coastline	1.35 (2.11)
Protection of natural landscapes and biodiversity	1.18 (2.09)
Protection of infrastructure such as roads and buildings	1.13 (1.46)
Quick and reliable help for people and businesses affected by extreme events (e.g. storms)	1.09 (1.45)
To ensure the increasing growth of the UK economy	0.93 (1.62)
Protection of historical sites and buildings	0.72 (1.52)

Harvesting summer tomatoes. Photo: Kamala Saraswathi

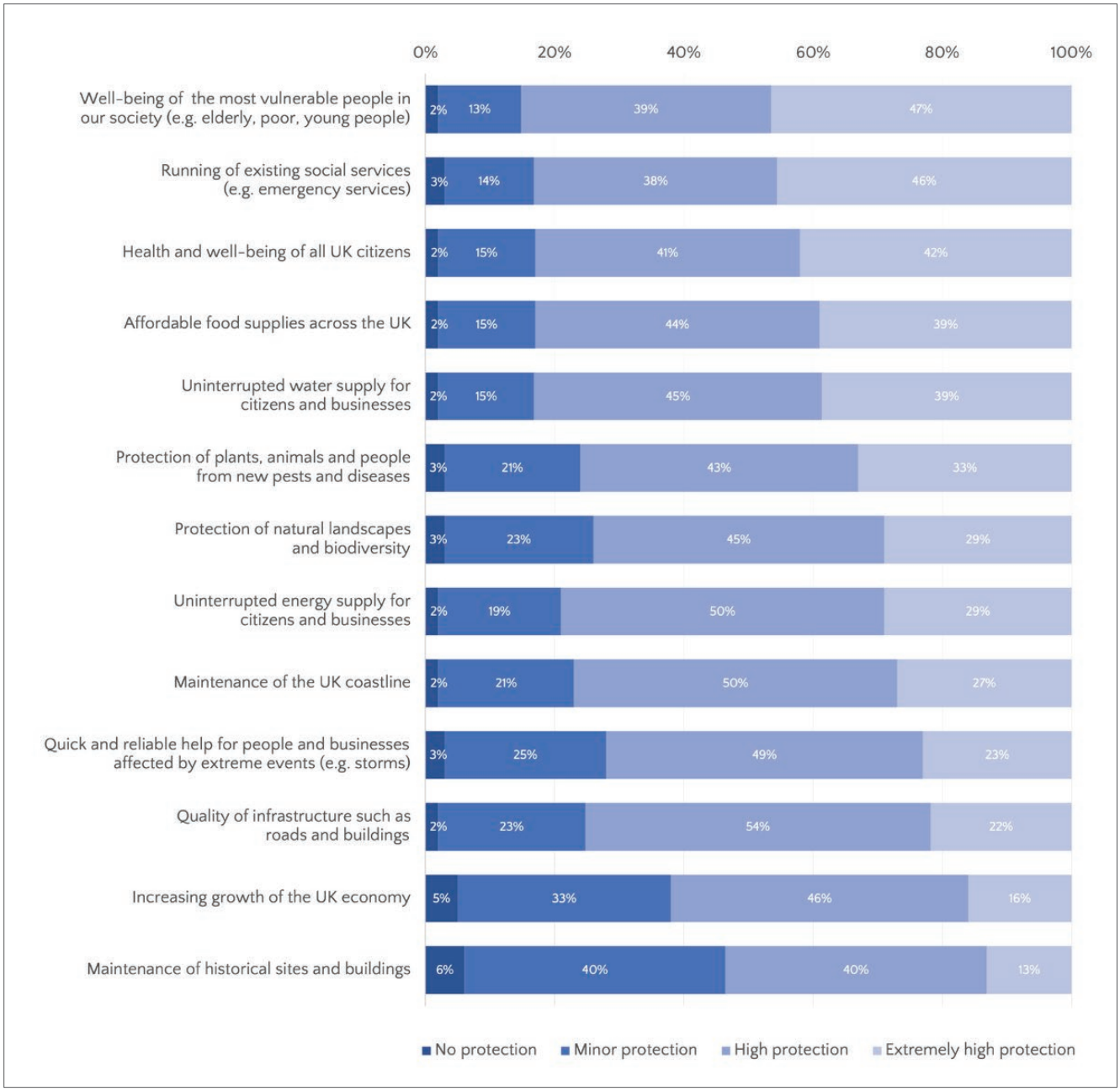

Figure 8. *In the future, if our climate continues to change, we will need to prepare for and respond to the impacts. For each of the following items, please indicate what level of protection they should receive when preparing the UK for a changing climate. (Question 28)*

Support for climate action and policy

Photo: Sam Greenhalgh (CC BY 2.0)

Policy support

This survey presented respondents with a range of different policies and strategies that address climate change risks in various ways, and asked them to indicate their support or opposition to each strategy. We were interested in (a) public support for adaptation strategies and policies that are designed to prepare for the impacts of climate change or increase resilience, (b) mitigation strategies that are designed to reduce the causes of climate change, and (c) overarching or political strategies that might address both mitigation and adaptation to climate change (e.g. social mobilisation, declaration of a climate emergency). A range of policies were selected to cover both push (e.g. regulations) and pull measures (e.g. subsidies).

Support for adaptation policies

Overall, there was strong support for all adaptation policies (≥67%) and little opposition (≤8%). Building new water reservoirs was the most popular adaptation policy with 82% in support of this strategy. Almost the same level of support was found for the extension of nature reserves (80%). Three quarters of respondents expressed support for tighter building regulations, the spending of public money on adaptation, and for reducing the dependency of the UK on imported goods. The lowest support was found for assisting communities to move away from flood risk areas (see Table 9).

Watering plants.
Photo: Markus Spiske

Table 9. *[Adaptation policies] To what extent do you support or oppose the following policies in the UK? (Question 18)*

	Tend to or strongly OPPOSE	Tend to or strongly SUPPORT
Building new reservoirs to store water during periods of drought	4%	82%
Introducing tight regulations on buildings to be able to deal with hotter and drier weather (e.g. insulation, air-conditioning)	6%	76%
Spending public money now to prepare the UK for the impacts of climate change (e.g. building flood defences)	6%	75%
Reducing the UK's dependency on imported goods, especially essentials such as food, gas and energy	6%	76%
Assisting communities at risk of flooding to move elsewhere	8%	67%
Extending nature reserves to enable wildlife to adapt to changed conditions	3%	80%

Support for mitigation policies

Overall, strategies to reduce carbon emissions (see Table 10) received less support than climate change adaptation policies.

Subsidising renewable energy was the most popular mitigation policy (80% support, 5% oppose), followed by the improvement of public transport (79% support, 5% oppose).

The most controversial policy was increasing the price of energy to reduce consumption with only 29% in support and almost half of the sample (48%) opposing this policy. Increasing taxes on fossil fuels was opposed by almost a third of respondents (27%), but here more people also expressed their support for this policy (49%). Tight regulations of household appliances and subsidies for electric vehicles were also supported by a large majority of respondents (67%). These findings are similar to those found in 2016 by the EPCC survey.

Woman and child walking beside wind turbines. Photo: Josh Willink

One political strategy recently adopted by the UK government, after a recommendation by the Committee on Climate Change, is the commitment to reduce the UK's carbon emissions to net zero by 2050. Our results indicate that this commitment is supported by three quarters of the public (76%) and received little opposition (6%).

Table 10. *[Mitigation policies] To what extent do you support or oppose the following policies in the UK? (Question 18)*

	Tend to or strongly OPPOSE	Tend to or strongly SUPPORT
Introducing tight regulations for household appliances that are not energy efficient	10%	67%
Subsidising renewable energy such as wind and solar power	5%	80%
Increasing taxes on any use of fossil fuels (such as coal, oil, diesel, petrol, gas)	27%	49%
Increasing the price of electricity to reduce our consumption	48%	29%
Reducing carbon emissions to net zero by 2050	6%	76%
Improve public transport to reduce dependency on private cars	5%	79%
Subsidies for electric (emission-free) vehicles	9%	67%

Support for Paris Agreement and sanctions

In November 2015, at the UN Convention on Climate Change (COP21), 197 countries agreed to keep the global temperature increase well below 2°C and to aim for avoiding a warming beyond 1.5°C. Further, it was agreed that every country will report on their progress towards achieving this goal every five years. At the time, the agreement was celebrated as ground-breaking and an important milestone in the acknowledgement of climate change as a political priority.

Since then, the USA under President Trump officially withdrew their support for the Paris Agreement in June 2017. Despite some efforts to tighten commitments towards a 1.5°C target, other UN summits have failed to achieve additional support from all UN nations.

The survey asked respondents whether they oppose or support the Paris Agreement (Question 19) and whether they support economic penalties for countries that refuse to be part of it (Question 20). Survey results show very strong support for the Paris Agreement with a large majority of 76% supporting and only 7% opposing it. This is an increase in support since the EPCC survey (67%) in 2016. Economic penalties were also very popular with 66% of respondents stating that they support high economic penalties for countries that refuse to be a part of this agreement while 11% of respondents opposed it, a proportion largely unchanged since the EPCC survey in 2016.

Support for climate protests

The two years preceding the survey were marked by a rise of climate protests across the world. Greta Thunberg, the young activist who started protests of school children around the world, has received considerable media attention since August 2018. Many high-profile figures (such as

politicians, celebrities and religious leaders) have expressed their support for Greta Thunberg and her claims for more decisive and drastic action on climate change. However, 2019 also saw some public backlash against some protest events, and Greta Thunberg more personally, for example for potential hypocrisy.

The evolving, and at times partisan, media discourse could provide a misleading impression of public support for climate protests. Therefore, it is important to map and understand public views on climate protest among the British public. The current survey provides evidence about how the British public feels about the climate protests (Question 22). Results show that support for protests to raise awareness of climate change (Extinction Rebellion, FridaysForFuture) was indeed higher (47%) than opposition (29%). However, a quarter of respondents are unsure about whether to support or oppose the climate protests.

Support for the climate emergency

The first city to declare a state of climate emergency was Melbourne, Australia, in 2016. Following media attention of global climate protests, Bristol (UK) was the first city in Europe to declare a state of climate emergency in 2018. This political move was followed by other local authorities and Parliaments across the UK and Europe. After Parliamentarian declarations by the Scottish and Welsh governments, the UK Parliament also declared a state of climate emergency in May 2019. The European Parliament ratified a similar notion on 28th November 2019.

Just over a quarter of people do not have strong feelings of support or opposition towards a national declaration of climate emergency (26%). However, a majority of 60% either *tend to support* or *strongly support* this declaration. Opposition to this political strategy was expressed by just 14% of survey respondents (Question 18).

Climate change march in Melbourne, Australia, June 2009. Photo: John Englart (CC BY-SA 2.0)

Personal climate adaptation and mitigation actions

Individual action on climate change can take many different forms; in this survey we asked respondents how likely or unlikely they would be to undertake a range of adaptation and mitigation behaviours (Question 21).

With regards to **mitigation actions**, turning down your heating by 1 degree in winter received most support with 69% of respondents indicating they were *fairly* or *very likely* to do this in the future. This was followed by 63% indicating that they would be willing to take more journeys by public transport, bike, or walking rather than driving. About half of the survey respondents also indicated that they were *fairly* or *very likely* to reduce flying for holidays (50%), eat less meat (47%), and persuade relatives or friends to reduce their carbon emissions (48%). However, only a small minority indicated that they were likely to take political action in the form of writing to their MP (29%) or take part in a protest about climate change (26%).

Citybikes in New York City. Photo: New York City Department of Transportation (CC BY-NC-ND 2.0)

In terms of **adaptation actions**, a majority of respondents indicated being *fairly* or *very likely* to read about how to avoid heat stress during heatwaves (65%). Similarly, 60% indicated being *fairly* or *very likely* to fit a water saving device and about half of respondents indicated being likely to plant trees or re-landscape gardens to provide shade. For the remaining adaptation actions, only a minority indicated being likely to engage in these behaviours in the future. These actions include taking part in local community projects that aim to increase local protection from climate change (40% *fairly* or *very likely*), persuading relatives or friends to move away from flood plains and donating money to preserve species at risk from climate change (both 38% *fairly* or *very likely*). Only about a quarter of respondents (23%) indicated that they were likely to install air-conditioning in the future.

It should be noted that a relatively large percentage of respondents chose the central response of *about as likely as unlikely* for these adaptation actions, which could indicate uncertainty or undecidedness on behalf of the respondent. It may also indicate that respondents do not think the specified action is relevant to them.

Perception of actors and their motivations

Photo: UN Women/Ryan Brown (CC BY-NC-ND 2.0)

Responsibility and trust

We asked respondents who they thought is mainly responsible for a) preparing the UK for the impacts of climate change (adaptation, Question 35), and b) reducing carbon emissions to address the causes of climate change (mitigation, Question 36), as depicted in Figure 9.

A majority of 58% thought the UK government was *mainly responsible* for preparing for the impacts of climate change. The second highest percentage was assigned to individuals and their families (but only by 11% of respondents). These findings are in line with the findings from the previous PREPARE survey in 2013 in which 65% of respondents assigned responsibility to the UK government and 12% to individuals and their families.

With regards to reducing emissions and addressing the causes of climate change, the UK government was also considered *mainly responsible* by a majority of respondents (41%), although this was notably lower than for the previous question on impacts. While individuals and their families were also considered responsible by a minority of respondents (15%), the second largest percentage can be observed for business and industry with a quarter of respondents assigning primary responsibility to address the causes of climate change to this group.

Other groups such as national agencies, the international community, local authorities or communities as well as charities and insurance companies were only considered *mainly responsible* by small minorities of respondents for both questions.

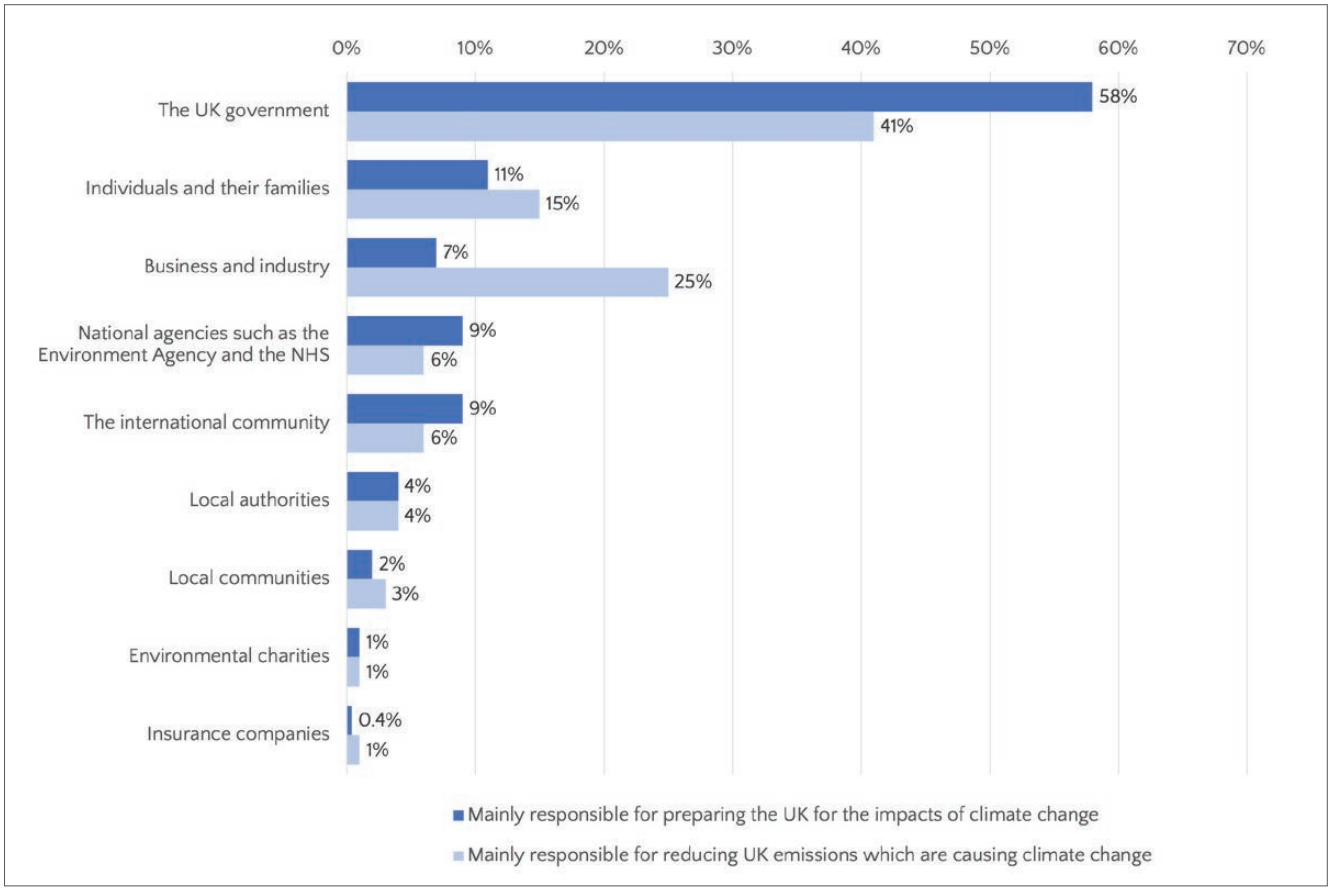

Figure 9. *Who is mainly responsible for preparing the UK for the impacts of climate change/reducing UK emissions which are causing climate change? (Questions 35 and 36).*

With regards to trust (Question 37), respondents indicated that they would seek information about climate change from the Environment Agency (42%) followed by scientists (38%) and the UK government (36%). Other organisations that people chose include the Committee on Climate Change (31%), international organisations like the United Nations (31%), charities (29%), the Met Office (28%) and other government agencies like Defra (26%). A relatively lower percentage of people indicated seeking information from family and friends (16%), journalists and the media (14%), local authorities or councils (14%), the activist group Extinction Rebellion (14%), and school children in their family or social circles (4%).

When asked to what extent respondents trusted or distrusted a range of organisations or groups of people to provide information about climate change and its potential impacts, a similar but slightly more complex picture emerges (Question 38). For this question we find a clear majority of respondents strongly or somewhat trusting scientists (75%), the Met Office (67%), the Committee on Climate Change (60%), charities (57%), and friends and family (58%). International organisations like the United Nations and government agencies like Defra also attracted some trust (51% and 46% respectively). Less trust is observed for school children (37%), Extinction Rebellion (36%), and local authorities and councils (35%). One of the lowest levels of trust (32%) is observed for the UK government despite it being one of the top three in the previous question on where respondents would go for information on climate change.[6] However, the lowest levels of trust were observed for journalists and the media, with only one in five respondents indicating they would trust this group.

6 Note: Due to an error in the survey, this question did not ask about trust in the Environment Agency.

Mitigation and adaptation trade-offs

In theory, an increased focus on adaptation and preparing for the impacts of climate change may affect mitigation actions. Indeed, some scholars have expressed concerns that adaptation efforts might reduce motivation to mitigate climate change – so called 'mitigation deterrence' (Markusson et al., 2018; Pielke et al, 2007). While it is not possible to measure an effect such as mitigation deterrence with a simple question, the current survey posed a number of statements to measure respondent's related beliefs - for example, whether people think engaging in climate change preparation reduces motivations to tackle the causes of climate change (Questions 30 and 31).

When directly asked whether the UK government should prioritise adaptation or mitigation, half of the survey respondents indicated that both should be of equal focus. The remaining respondents were skewed in favour of prioritising mitigation (36%); a small minority thought adaptation should be prioritised (13%).

In addition, more respondents *agreed* than *disagreed* with statements in line with the idea of mitigation deterrence. The findings show that respondents believed that other people, including politicians, would be less motivated to address the causes of climate change if the UK was well prepared for its impacts. This assumption also extends to expectations about their personal behaviour. It is however important to note that about a third of respondents picked the middle response of *neither agree nor disagree* suggesting ambivalence or uncertainty with regards to expectations around mitigation deterrence.

Wind turbines in Scotland, 2011. Photo: © merrynthomas.co.uk

Conclusions

The topline findings of the 2019 RESiL RISK survey presented in this report give insight into British public perceptions of climate change and its risks, alongside attitudes towards related adaptation and other policy actions. Responding to climate risk requires measures for mitigating the causes of climate change, alongside measures to enhance resilience and adaptation to changes in the climate already underway. From a risk communication perspective, building public acceptability and support for such measures requires the collection of robust empirical evidence on what people currently believe about climate change risks and the available adaptation options.

The Understanding Risk group has been conducting nationally representative surveys of beliefs about climate change in Britain since 2002. Over that period the changes seen on identical questions between adjacent surveys have typically been relatively modest, with few differences also between Welsh, Scottish, and English survey respondents. What that means is that the social representation of climate change in the public mind has remained broadly stable, with views evolving only gradually over much of that period (Capstick et al, 2015a, 2015b). The current survey, however, indicates some quite substantial changes since PREPARE (in 2013) and EPCC (in 2016) were conducted, and on a number of the variables measured. This can be interpreted as a very real departure from that trend and one worthy of significant comment. A clear conclusion is that a range of external events, occurring in combination, appear to have impacted public views in the period immediately preceding the administration of the current survey. These have included high-profile flooding events, two recent summers of exceptional heat in the UK, media reports linking climate change to extreme weather events in other countries, and discussions of record global temperatures in the past 10 years. The survey also followed on extensive UK-wide protests for climate action led by the Extinction Rebellion movement in 2018 and 2019, the international FridaysForFuture strikes by young people, and the declarations worldwide of climate and biodiversity emergencies by many cities, counties and parliaments, including in the UK.

Unprompted, climate change was accorded the highest issue salience by a large group of our respondents, second only to those choosing Brexit. This is a remarkable finding given that in 2016 only 2% chose climate change in an identical question, and that the survey was administered against the backdrop of a tortuous political and media situation regarding the stalled Brexit negotiations in the UK parliament, and the impending general election called to resolve that issue in December 2019. Those who were very or extremely worried about climate change had also doubled since our EPCC survey in 2016, while in a new question it was found that many respondents ascribed a high level of urgency to dealing with climate change.

One objective of past surveys in the Understanding Risk group has been to measure and track theoretically important constructs such as climate scepticism and the psychological distance of climate change (e.g. Poortinga et al, 2011; Spence et al, 2012). The current results confirm the already low levels of scepticism in Britain, while they also show that perceived temporal distance has gradually decreased since 2010 with a clear majority now thinking we are already feeling the effects of climate change. Set against the reduced temporal distance is the fact that people in Britain still believe that other people and other places will experience the worst climate threats.

From the perspective of social psychology, the importance of emotion alongside that of social norms has been stressed in previous research. Reinforcing the results showing high levels of perceived urgency and increased worry, we found greater emotional engagement (more fear, guilt and outrage than in 2016) and some evidence of a subtle shift in social norms – such that norms that inhibit people from taking action may well now be weakening. This finding, especially if borne out by other research, is one which is worthy of further attention.

The PREPARE survey conducted in 2013 was the first comprehensive study in the UK to look systematically at public beliefs about climate adaptation, risks and associated actions. In the current project we have aimed to both replicate and build upon the PREPARE survey items. On the salience of climate risks three very clear conclusions emerge.

First, for our British participants, storms and flooding remain the highest risks, prompt high levels of concern, and are seen to be likely to increase in the future. Second, there has been a qualitative shift in the way people view the risks from extreme heat or extended periods of hot weather and their impacts. Unlike with storms and flooding, all measures related to heat perceptions have seen significant increases since PREPARE in 2013. In this respect we conclude that the mental model of climate change in the UK is changing, most likely driven by experience of recent heat events in the UK, alongside associated media reporting of global heating generally and of internationally prominent events. Reinforcing this interpretation, large majorities of the sample attributed both recent flooding and heat-related events to climate change. It is also important to note that this survey was conducted before reports had emerged of the devastating wildfires in Australia (December 2019). In our view these findings present a unique opportunity to craft communications that stress the importance of increasing heat risks for both stakeholders (who might e.g. be considering heat adaptation decisions) and individual households seeking to protect themselves in the future. As part of the RESiL RISK research project a second report was published to summarise the initial recommendations for engaging the public on climate risk and adaptation, based on the current survey findings (Corner et al., 2020).

Young girl watering a tree in Porto Alegre, Brazil. Photo: Pedro Kümmel

The third conclusion from the risk perception items is more subtle, but equally important for climate adaptation communication and policy. This concerns the relative low salience in the unprompted public mental model of some of the other major risks highlighted in the UK Climate Change Risk Assessments. These include risks to natural resources and biodiversity, invasive species, disruption to domestic food supplies, and water shortages affecting industry or energy generation. This third finding clearly sets an important but challenging issue for future climate risk communication.

The survey also asked a series of questions probing people's priorities for climate adaptation, and their views on both mitigation and adaptation options. These also provide a range of important pointers for policy. We found somewhat higher, and strong support for adaptation options as compared to mitigation actions. This may be because of the questions used, or because the adaptation protections that we offered respondents are universally framed as 'good things' (i.e. risk protection without introducing any trade-offs, such as local disruption or financial costs) whereas some of the mitigation items state, or imply, trade-offs against people's wealth or everyday lifestyles.

Another conclusion is that the prioritisation questions for adaptation options tended to favour the protection of human health and wellbeing, especially that of the already vulnerable, and the services which support human wellbeing. Somewhat surprisingly, other forms of climate adaptation such as support for businesses, for historic sites, or help to householders with relocation received far lower levels of endorsement. Again, this suggests some obvious communication opportunities around climate change and human health risks, while also pointing to gaps in people's mental models of what a climate resilient society might need to look like. Further research, possibly using more in-depth deliberative methods, is warranted on this latter point.

On a more positive note the survey reveals majority support for the declaration of a climate emergency, and increased support (since EPCC in 2016) for the Paris Climate Agreement. The UK government is also the body seen as holding the main responsibility, by a substantial majority, for preparing us for the impacts of climate change. These findings suggest that the UK government now has a unique opportunity, with very wide public support, to make a real difference when taking up its leadership role on both mitigation and adaptation in the forthcoming Glasgow Climate Summit in December 2020, a responsibility that it should not try to avoid.

How to engage varied UK publics with the pressing issues that accelerating climate change risks bring, is an increasingly important research topic and policy goal. This report has presented the main descriptive findings of the RESiL RISK survey, conducted across Great Britain in the autumn of 2019. The survey provides baseline and comparative data that should help researchers and policymakers understand the structure of current attitudes to climate change risks. This additional understanding can facilitate engagement and a closer dialogue regarding measures for achieving adaptation and climate resilience between citizens and scientists, businesses, governments, and representatives of the non-governmental sector respectively (see also public engagement report: Corner et al., 2020).

The results of our 2016 EPCC survey led us to conclude, somewhat pessimistically, that many people in Britain were concerned about climate change but might not care enough to take or demand significant action. That conclusion has to be revised in the light of these 2019 RESiL RISK findings – the current data indicate that many people may now be beginning to worry and to care enough to demand wide-ranging UK action on the climate crisis.

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Appendix

The following sections provide the complete data tables for all questions used in the current online survey conducted by Cardiff University (excluding quota questions for demographics).

This includes all text and instructions presented to respondents. Respondents did not see question numbers.

- Results are based on responses to a quota survey carried out online with Qualtrics.
- Quota were set for age (18+), gender, region, income and education based on the profile of the known British population.
- Please note, results are based on 1,401 responses.
- Field work was conducted between the 14th and 22nd of October 2019.
- Where results do not sum up to 100%, this may be due to computer rounding or missing responses.
- Questions with multiple items (e.g. Question 8) employed randomisation.

Question 1: What would you say will be the most important issue facing the UK in the next 20 years? [open-ended response][7]

	Percentage responses coded into this category
Brexit	25%
Climate change	23%
Economic situation	10%
NHS/health	7%
Pollution/environment	6%
Immigration	5%
Poverty/inequality	4%
Crime	3%
Housing	3%
Foreign affairs	2%
Unemployment	2%
Political concerns aside from Brexit	2%
Social issues (lack of education/social unrest)	2%
Ageing population	2%
Other	2%
Population levels	1%
Maintaining infrastructure	1%
Missing/incomplete/unintelligible	1%
Don't know	1%

7 Participants' open-ended responses were coded by two researchers who developed a coding scheme based on the first hundred responses and similar questions in previous surveys (Steentjes et al., 2017). Each researcher then independently coded half of the responses. To test for reliability, both researchers coded an overlap of 201 responses. Cohen's κ was calculated to determine if there was agreement between the two coders in terms of which response belonged in each category. There was excellent agreement between the two coders, $\kappa = .954$ (95% CI, .920 to .982), $p < .0001$.)

› The next questions are about the topic of climate change. Climate change may affect different countries in different ways.

Question 2. What do you think will be the most important effect of climate change on the UK? [open-ended response][8]

Question 3. What do you think will be the most important effect of climate change on your local community? Please consider your local community to be the city, town or village you currently live in. [open-ended response][9]

	Percentage responses coded into this category	
	Impact UK (Question 2)	Impact Local (Question 3)
Weather will be wetter/storms/rain/floods	16%	17%
Weather will be hotter/warm/dry/heatwave/droughts	13%	7%
Seasonal changes/lack of seasonal variation	1%	0%
Weather will change/be different/unpredictable	14%	6%
Rising sea/water levels	5%	3%
Behavioural change	2%	2%
Social issues	2%	2%
Food production	4%	4%
Mitigation	4%	2%
Economic issues	2%	5%
Pollution	6%	5%
Environment/habitat changes/wildlife	3%	3%
Coastal erosion	2%	1%
Infrastructure	3%	7%
Impacts on health	1%	2%
Plastic	2%	1%
Little or no effect	3%	8%
Extreme weather	6%	2%
Weather will be colder	1%	1%
AGW denial	1%	1%
Other	4%	4%
Don't know	7%	12%
Missing/incomplete/unintelligible	1%	1%

8 Cohen's κ was calculated to determine if there was agreement between two independent coders in terms of which response belonged in each category. There was excellent agreement between the two coders, $\kappa = .841$ (95% CI, .786 to .896), $p < .0001$.)

9 Cohen's κ was calculated to determine if there was agreement between two independent coders in terms of which response belonged in each category. There was excellent agreement between the two coders, $\kappa = .908$ (95% CI, .864 to .946), $p < .0001$.

Question 4. How worried, if at all, are you about climate change?

	Not at all worried	*Not very worried*	*Fairly worried*	*Very worried*	*Extremely worried*
RESiL RISK (2019)	5%	15%	40%	25%	15%
EPCC (2016)	15%	23%	41%	12%	7%

Question 5. As far as you know, do you think the world's climate is changing or not?

Yes, I think that the world's climate is changing	89%
No, I do not think that the world's climate is changing	6%
Don't know	4%

Question 6. Thinking about the causes of climate change, which, if any, of the following best describes your opinion?

Climate change is entirely caused by natural processes	5%
Climate change is mainly caused by natural processes	8%
Climate change is partly caused by natural processes and partly caused by human activity	37%
Climate change is mainly caused by human activity	38%
Climate change is completely caused by human activity	12%
There is no such thing as climate change	1%

Question 7. When, if at all, do you think the UK will start feeling the effects of climate change?

	We are already feeling the effects	*In the next 10 years*	*In the next 25 years*	*In the next 50 years*	*In the next 100 years*	*Beyond the next 100 years*	*Never*
RESiL RISK (2019)	64%	16%	9%	5%	2%	2%	2%
EPCC (2016)	61%	12%	11%	6%	3%	2%	3%
2014	55%	12%	12%	8%	5%	2%	2%
2010	41%	13%	14%	11%	5%	4%	4%

Question 8. How serious of a threat, if at all, is climate change to each of the following?

	Not at all serious	*Not very serious*	*Fairly serious*	*Very serious*	*Extremely serious*
You and your family	8%	24%	41%	18%	9%
The UK as a whole	4%	15%	35%	32%	15%
People in developing countries	3%	7%	23%	34%	33%

› Now we would like you think about climate change and all the possible effects it might have on the UK.

Question 9. Overall, how positive or negative do you think the effects of climate change will on the UK?

Entirely negative	*More negative than positive*	*Neither positive nor negative*	*More positive than negative*	*Entirely positive*
20%	49%	22%	7%	1%

Question 10. To the best of your knowledge, what proportion of scientists agree that climate change is happening and that humans are largely causing it?

	A small minority of scientists agree *(20% or less)*	*Some scientists agree* *(more than 20% but fewer than 50%)*	*As many scientists agree as disagree* *(50%)*	*Most scientists agree* *(more than 50% but fewer than 80%)*	*The vast majority of scientists agree* *(80% or more)*	*Don't know*
RESiL RISK (2019)	3%	10%	23%	27%	36%	N/A
EPCC (2016)	5%	6%	20%	28%	30%	11%

Question 11. How much do you think climate change will harm you personally?

Not at all	*Only a little*	*A moderate amount*	*A great deal*
12%	34%	40%	14%

Question 12. Which of these best describes your views about the way in which climate change needs to be addressed?

Addressing climate change requires...	
...an extremely high level of urgency	34%
...a high level of urgency	35%
...a moderate level of urgency	22%
...a low level of urgency	5%
...little or no urgency	3%

Question 13. How serious of a problem do you think the following currently are for the UK, or do you not think they are a problem at all?

	Not at all serious	*Not very serious*	*Fairly serious*	*Very serious*
Snow	9%	41%	37%	13%
Cold winters	7%	34%	41%	19%
Mild winters	15%	44%	31%	10%
Heatwaves	4%	23%	43%	29%
Dry period without rain	4%	23%	44%	28%
Hot summers	5%	32%	41%	22%
Flooding	2%	8%	39%	51%
Periods of heavy rainfall	2%	15%	48%	35%
Coastal erosion (where the sea wears away the land)	2%	11%	43%	45%
Heavy storms with strong winds, rain/hail	2%	13%	46%	38%

› The following questions are about what you think might happen in the UK in the future.

Question 14. How likely or unlikely do you personally think it is that the following will have become more common in the UK in 2050? Even if you are not sure we are interested in your opinion.

	Exceptionally unlikely	*Very unlikely*	*Unlikely*	*About as likely as not*	*Likely*	*Very likely*	*Virtually certain*
Snow	5%	9%	17%	23%	25%	16%	6%
Cold winters	3%	7%	18%	22%	23%	18%	9%
Mild winters	1%	4%	13%	27%	33%	17%	5%
Heatwaves	1%	2%	6%	14%	31%	30%	16%
Dry period without rain	2%	3%	10%	19%	32%	25%	9%
Hot summers	1%	2%	4%	17%	31%	30%	16%
Flooding	1%	1%	3%	9%	29%	34%	23%
Periods of heavy rainfall	1%	1%	3%	10%	30%	34%	22%
Coastal erosion (where the sea wears away the land)	1%	1%	2%	11%	27%	30%	28%
Heavy storms with strong winds, rain/hail	1%	1%	2%	12%	26%	34%	24%

Question 15. How concerned would you be if by 2050 the UK did have...?

	Not at all concerned	*Not very concerned*	*Fairly concerned*	*Very concerned*
...more snow	10%	34%	40%	15%
...more cold winters	9%	32%	39%	20%
...more mild winters	16%	42%	30%	12%
...more heatwaves	7%	20%	38%	35%
...more dry periods without rain	8%	21%	45%	26%
...more hot summers	7%	27%	40%	26%
...more flooding	4%	9%	36%	51%
...more periods of heavy rainfall	5%	12%	44%	39%
...more coastal erosion (where the sea wears away the land)	5%	11%	38%	46%
...more heavy storms with strong winds, rain/hail	5%	12%	41%	43%

› Different people and organisations have made various predictions about the things that might or might not happen as a result of changes to our climate.

Question 16. How concerned would you be if the following did happen in the UK?

	Not at all concerned	*Not very concerned*	*Fairly concerned*	*Very concerned*
More homes being flooded as a result of heavy rainfall	2%	7%	39%	52%
Low lying coasts being permanently flooded or eroded by rising sea levels	2%	8%	35%	56%
Public services like roads, power stations, schools and hospitals being disrupted as a result of flooding.	2%	8%	35%	56%
More people's health suffering in extreme heat, particularly the elderly, due to more frequent, sustained or severe heatwaves.	2%	7%	33%	58%
Disruption to trains, roads, and public transport due to more frequent, sustained or severe heatwaves.	2%	11%	44%	42%
Cities and large towns, which trap heat, becoming unbearably hot due to heatwaves.	3%	12%	40%	46%
Drought causing serious water shortages due to changes in rainfall patterns.	2%	8%	34%	56%
Some types of wildlife are lost or decline in number.	2%	8%	32%	59%
A reduction in marine wildlife from ocean changes (e.g. increasing temperature, greater acidity).	2%	8%	32%	58%
Poor harvests, due to extreme weather, pushing up food prices.	1%	6%	32%	61%
Knock on effects on food supply chains due to poor harvest in other countries.	1%	8%	33%	57%
New pests and diseases, previously only thriving in warmer climates, become common in the UK.	2%	8%	35%	55%
More people permanently move to the UK because of changes in the climate of their own country.	4%	18%	35%	44%
Extreme cold weather and snow disrupting services and public transport.	3%	17%	42%	38%
Wildfires that threaten to destroy wildlife, habitat and property.	2%	11%	32%	55%
Buildings such as schools, offices or homes not providing safe environments in heatwaves (due to inadequate design).	3%	13%	40%	43%

› Next we are interested in your own perspective on the likeliness of these things that might or might not happen in the UK as a result of climate change.

Question 17. How likely do you think it is that each of the following will happen in the UK by 2050? Even if you are unsure, please answer as best as you can, giving your overall impressions.

	Very unlikely	*Fairly unlikely*	*About as likely as not*	*Fairly likely*	*Very likely*
More homes being flooded as a result of heavy rainfall	1%	4%	16%	42%	35%
Low lying coasts being permanently flooded or eroded by rising sea levels	1%	3%	16%	39%	40%
Public services like roads, power stations, schools and hospitals being disrupted as a result of flooding.	1%	5%	22%	45%	28%
More people's health suffering in extreme heat, particularly the elderly, due to more frequent, sustained or severe heatwaves.	1%	5%	19%	40%	35%
Disruption to trains, roads, and public transport due to more frequent, sustained or severe heatwaves.	1%	6%	20%	41%	31%
Cities and large towns, which trap heat, becoming unbearably hot due to heatwaves.	2%	7%	22%	40%	29%
Drought causing serious water shortages due to changes in rainfall patterns.	1%	7%	20%	41%	31%
Some types of wildlife are lost or decline in number.	1%	4%	19%	37%	39%
A reduction in marine wildlife from ocean changes (e.g. increasing temperature, greater acidity).	1%	5%	18%	37%	39%
Poor harvests, due to extreme weather, pushing up food prices.	1%	4%	18%	40%	38%
Knock on effects on food supply chains due to poor harvest in other countries.	1%	4%	18%	40%	37%
New pests and diseases, previously only thriving in warmer climates, become common in the UK.	1%	6%	21%	41%	31%
More people permanently move to the UK because of changes in the climate of their own country.	3%	12%	28%	35%	22%
Extreme cold weather and snow disrupting services and public transport.	2%	9%	23%	37%	29%
Wildfires that threaten to destroy wildlife, habitat and property.	2%	8%	23%	37%	30%
Buildings such as schools, offices or homes not providing safe environments in heatwaves (due to inadequate design).	1%	9%	25%	40%	25%

› *Various policies might reduce climate change or deal with its effects.*

Question 18. To what extent do you support or oppose the following policies in the UK?

	Strongly oppose	*Tend to oppose*	*Neither support nor oppose*	*Tend to support*	*Strongly support*
Introducing tight regulations for household appliances that are not energy efficient	3%	7%	23%	43%	24%
Subsidising renewable energy such as wind and solar power	2%	3%	14%	36%	44%
Increasing taxes on any use of fossil fuels (such as coal, oil, diesel, petrol, gas)	10%	17%	24%	30%	19%
Increasing the price of electricity to reduce our consumption	21%	27%	24%	20%	9%
Reducing carbon emissions to net zero by 2050	2%	4%	19%	34%	42%
A national declaration of climate emergency	6%	8%	26%	31%	29%
Building new reservoirs to store water during periods of drought	1%	3%	15%	42%	40%
Introducing tight regulations on buildings to be able to deal with hotter and drier weather (e.g. insulation, air-conditioning)	2%	4%	19%	44%	32%
Spending public money now to prepare the UK for the impacts of climate change (e.g. building flood defences)	2%	4%	19%	40%	35%
Reducing the UK's dependency on imported goods, especially essentials such as food, gas and energy	2%	4%	18%	42%	34%
Assisting communities at risk of flooding to move elsewhere	2%	6%	26%	41%	26%
Extending nature reserves to enable wildlife to adapt to changed conditions	1%	2%	17%	41%	39%
Improve public transport to reduce dependency on private cars	2%	3%	17%	38%	41%
Subsidies for electric (emission-free) vehicles	4%	5%	24%	35%	32%

Question 19. In Paris in December 2015, most countries agreed to an international agreement that aims to keep global temperature rises below 2 degrees. Do you support or oppose the UK being part of this agreement?

Strongly oppose	*Tend to oppose*	*Neither support nor oppose*	*Tend to support*	*Strongly support*
3%	4%	18%	31%	45%

Question 20. Do you support or oppose introducing high economic penalties for countries that refuse being part of this agreement?

Strongly oppose	*Tend to oppose*	*Neither support nor oppose*	*Tend to support*	*Strongly support*
4%	7%	24%	32%	34%

> Below are some actions that could reduce the causes of climate change or help prepare for its impacts. Not all will necessarily be possible for you, or you may not want to do them.

Question 21. Please indicate how likely or unlikely you are to take each action in the future. If you are already taking any of these actions and intend to continue to do so, please choose "fairly likely" or "very likely" as the response.

	Very unlikely	*Fairly unlikely*	*About as likely as not*	*Fairly likely*	*Very likely*
Persuade relatives or friends to move away from flood plains	15%	13%	34%	25%	13%
Take part in local community projects that aim to increase local protection from climate change impacts (e.g. flooding)	14%	14%	31%	28%	12%
Read about how to avoid heat stress during heatwaves	6%	8%	22%	39%	26%
Plant trees or re-landscape gardens to provide more shade	9%	13%	27%	32%	19%
Donate money to preserve species at risk from climate change	15%	15%	32%	26%	12%
Fit a water saving device in your cistern to save when flushing	7%	9%	24%	35%	25%
Install air-conditioning	25%	26%	26%	15%	8%
Take part in a protest about climate change	33%	20%	22%	18%	8%
Reduce flying for holidays	12%	11%	28%	22%	28%
Turn down your heating by 1 degree in winter	6%	8%	18%	37%	32%
Take more journeys by public transport, bike or walking rather than driving	8%	8%	20%	31%	32%
Eat less meat	15%	17%	21%	25%	22%
Write to your MP about the need for action to reduce the causes of climate change	25%	20%	27%	19%	10%
Persuade relatives or friends to reduce their carbon emissions	12%	13%	28%	31%	17%

Question 22. In 2018 many people around the world started protesting to raise awareness for climate change (Extinction Rebellion, Fridays for Futures). To what extent do you support or oppose international protests taking place to raise climate change awareness?

Strongly oppose	*Tend to oppose*	*Neither support nor oppose*	*Tend to support*	*Strongly support*
14%	15%	24%	27%	20%

› We will now show you a list of recent events. We would like to know whether you would associate any of them with climate change. This is not a knowledge question, these events are caused by a multitude of things and there is no right or wrong answer. We are simply interested in your initial thoughts or what you might have heard.

Question 23. To what extent, if at all, do you think each event was caused by climate change?

	Climate change...				
	...did not play a role in causing this event	*...is unlikely to have played a role in causing this event*	*...likely to have played a role in causing this event*	*...definitely played a role in causing this event*	*No answer*
The hot temperatures in the UK and Europe this summer (2019)	6%	12%	37%	39%	7%
The extended drought period in summer 2018	5%	12%	41%	34%	8%
Major flooding in the UK in the winter of 2014 (e.g. in Somerset levels, West London, Aberystwyth)	6%	14%	41%	32%	8%
Wildfires affecting many houses in California (2018)	7%	13%	38%	34%	9%
Hurricane Matthew in Haiti (2016)	8%	18%	36%	25%	13%
The so called "migration crisis" in Europe (2015)	25%	30%	21%	11%	14%

› We are interested in your opinion about climate change and refugees coming to Europe.

Question 24. To what extent do you agree or disagree that climate change will lead to more migration to the UK in the future?

Strongly disagree	*Tend to disagree*	*Neither agree nor disagree*	*Tend to agree*	*Strongly agree*
6%	14%	39%	28%	12%

Question 25. Do you believe your property is currently at risk of flooding?

Question 26. Do you believe you are personally at risk of experiencing heat stress during summer months in the UK?

	Not at all at risk	*Possibly at risk*	*Definitely at risk*
Flooding	66%	28%	6%
Heat stress	33%	49%	18%

Question 27. Have you, or someone close to you, ever experienced any of the following extreme weather events?

	Yes – to me	*Yes – to someone close to me*	*No – neither to me or anyone close to me*
Heatwave (discomfort/being unable to sleep)	55%	15%	30%
Extreme snow (experiencing disruption to travel or working)	35%	16%	49%
Water restrictions/shortages due to low rainfall	21%	15%	65%
Heatwave (experiencing disruption to travel or working)	20%	13%	67%
Flooding in your local area (e.g. experiencing disruption to travel)	19%	20%	61%
Heatwave (health significantly affected)	16%	17%	67%
Restrictions to food supplies due to extreme weather	8%	9%	83%
Flood damage to your home (not including rain leaking through the roof or burst pipes)	7%	13%	80%
Extreme snow (damage to personal property)	6%	12%	82%
Wildfires during drought periods (disruption to travel, loss of natural habitat)	5%	9%	86%
Relocation due to flood risk or erosion	3%	10%	87%

Question 28. In the future, if our climate continues to change, we will need to prepare for and respond to the impacts. For each of the following items, please indicate what level of protection they should receive when preparing the UK for a changing climate.

	No protection	*Minor protection*	*High protection*	*Extremely high protection*
Health and well-being of all UK citizens	2%	15%	41%	42%
Uninterrupted water supply for citizens and businesses	2%	15%	45%	39%
Uninterrupted energy supply for citizens and businesses	2%	19%	50%	29%
Quick and reliable help for people and businesses affected by extreme events (e.g. storms)	3%	25%	49%	23%
Affordable food supplies across the UK	2%	15%	44%	39%
Maintenance of the UK coastline	2%	21%	50%	27%
Quality of infrastructure such as roads and buildings	2%	23%	54%	22%
Maintenance of historical sites and buildings	6%	40%	40%	13%
Increasing growth of the UK economy	5%	33%	46%	16%
Well-being of the most vulnerable people in our society (e.g. elderly, poor, young people)	2%	13%	39%	47%
Protection of natural landscapes and biodiversity	3%	23%	45%	29%
Protection of plants, animals and people from new pests and diseases	3%	21%	43%	33%
Running of existing social services (e.g. emergency services)	3%	14%	38%	46%

Question 29. We would like you to imagine that you are running the country and need to decide what the priorities should be in relation to preparing for climate change and coping with its impacts.

You have 20 tokens to allocate to the things that you feel should be prioritised as areas for investment/action. These tokens represent the budget that local and national government would have available to spend. The more tokens you give to something the more money would be spent on it. You can use the tokens however you prefer, allocating them to as few (0) or as many (up to 20) different things as you like. Please allocate all 20 tokens.

	Average tokens/resources allocated (Standard deviations in brackets)
Health and well-being of all UK citizens	2.45 (2.90)
Protection of the most vulnerable people in our society (e.g. elderly, poor, young people)	2.23 (2.43)
Ensuring social services are running smoothly (e.g. emergency services)	2.07 (2.12)
Affordable food supplies across the UK	2.04 (2.13)
Uninterrupted water supply for citizens and businesses	1.83 (1.95)
Protection of plants, animals and people from new pests and diseases	1.56 (2.23)
Uninterrupted energy supply for citizens and businesses	1.42 (1.53)
Protection of the UK coastline	1.35 (2.11)
Protection of natural landscapes and biodiversity	1.18 (2.09)
Protection of infrastructure such as roads and buildings	1.13 (1.46)
Quick and reliable help for people and businesses affected by extreme events (e.g. storms)	1.09 (1.45)
To ensure the increasing growth of the UK economy	0.93 (1.62)
Protection of historical sites and buildings	0.72 (1.52)

Question 30. The UK government should...

The UK government should...	
...only focus on reducing the causes of climate change	5%
...prioritise reducing the causes of climate change but also prepare for the impacts (with less priority)	31%
...focus on the causes and impacts of climate change in equal measures	50%
...prioritise preparing for the impacts of climate change but also reduce the causes (with less priority)	10%
...only focus on preparing for the impacts of climate change	3%

Question 31. To what extent do you agree or disagree with the following statements?

	Strongly disagree	*Tend to disagree*	*Neither agree nor disagree*	*Tend to agree*	*Strongly agree*
A focus on preparing for climate change would mean attempts to actually prevent climate change would be forgotten about	6%	20%	34%	32%	9%
If the UK is well prepared for its impacts, I would feel less concerned about climate change	9%	19%	29%	34%	9%
Politicians would be less motivated to reduce the causes of climate change if the country was well prepared for its impacts	4%	14%	35%	37%	11%
When people feel protected from the risks of climate change they will be less motivated to change their own behaviour	3%	13%	27%	44%	13%
I am worried that supporting preparations for the impacts of climate change means that we accept that there is nothing we can do to avoid climate change	8%	21%	31%	31%	10%

Question 32. To what extent do you agree or disagree with the following statements?

	Strongly disagree	*Tend to disagree*	*Neither agree nor disagree*	*Tend to agree*	*Strongly agree*
I am confident that, together, people in the UK can substantially reduce the severity of climate change (by reducing emissions)	5%	11%	29%	41%	14%
I am confident that, together, people in the UK can prepare the country to cope with the impacts of climate change	4%	15%	28%	42%	12%
I am confident that people in my local community would act together if they were faced with severe events (such as flooding or extreme weather)	4%	10%	24%	46%	16%
Being environmentally friendly is an important part of who I am	3%	7%	28%	39%	23%
I think of myself as someone who is very concerned with environmental issues	3%	9%	28%	39%	21%
I would challenge someone who says they do not care about climate change	6%	10%	29%	33%	21%
I don't feel the need to discuss my views on climate change with others	9%	19%	31%	29%	13%
Most people around me take personal action to help tackle climate change	6%	16%	39%	32%	7%
I am surrounded by people who do NOT care about climate change	10%	23%	37%	22%	7%
I feel that helping to tackle climate change is something that is NOT expected of me	19%	33%	30%	14%	5%
Most people around me expect that I care about climate change	4%	9%	41%	34%	11%

Question 33. When you think about climate change and everything that you associate with it, how strongly, if at all, do you feel each of the following emotions?

	Not at all	*A little*	*Moderately*	*Quite a bit*	*Very much*
Sense of loss	21%	22%	26%	19%	11%
Hope	19%	27%	30%	18%	6%
Guilt	29%	24%	25%	16%	6%
Anxiety	20%	23%	25%	20%	13%
Fear	20%	22%	24%	22%	12%
Outrage	23%	21%	24%	21%	12%

Question 34. Some people have moral concerns about climate change. For example, because they think that its harmful impacts are more likely to affect poorer people and countries, or because they feel a moral responsibility towards future generations.

To what extent, if at all, do you have moral concerns about climate change?

Not at all	*A little*	*Moderately*	*Quite a bit*	*Very much*
13%	16%	29%	26%	15%

Question 35. Who is mainly responsible for preparing the UK for the impacts of climate change?

Question 36. Who is mainly responsible for reducing UK emissions which are causing climate change?

	Responsibility for preparing for impacts	*Responsibility for reducing emissions*
Individuals and their families	11%	15%
Local communities	2%	3%
Business and industry	7%	25%
Local authorities	4%	4%
National agencies such as the Environment Agency and the NHS	9%	6%
The UK government	58%	41%
The international community	9%	6%
Insurance companies	<1%	1%
Environmental charities	1%	1%

Question 37. Which people or organisations, if any, would you go to in order to find out information about climate change? Please tick as many as applicable.

Environment Agency	42%
Scientists	38%
UK government	36%
Committee on Climate Change	31%
International Government organisations e.g. the United Nations	31%
Charities (e.g. Greenpeace)	29%
Met Office	28%
Government agencies (e.g. Defra)	26%
Family/friends	16%
Journalists/the media	14%
Your local authority/council	14%
Extinction Rebellion	14%
School children in your family/social circle	4%

Question 38. How much do you trust or distrust the following agencies, organisations, groups or people as sources of information about climate change and its potential impacts?

	Strongly distrust	*Somewhat distrust*	*Neither trust nor distrust*	*Somewhat trust*	*Strongly trust*
Scientists	2%	6%	17%	43%	32%
UK government	15%	20%	32%	28%	4%
Committee on Climate Change	4%	7%	29%	43%	17%
International Government organisations e.g. the United Nations	6%	12%	31%	39%	12%
Charities (e.g. Greenpeace)	6%	10%	27%	39%	18%
Met Office	2%	7%	24%	48%	19%
Government agencies (e.g. Defra)	6%	12%	36%	38%	8%
Family/friends	1%	5%	37%	37%	21%
Journalists/the media	14%	30%	32%	22%	3%
Your local authority/council	5%	18%	42%	30%	5%
Extinction Rebellion	17%	13%	34%	25%	11%
School children in your family/social circle	7%	9%	48%	28%	9%

Question 39. Please indicate how much you feel part of the community of your local area. By local area we mean your neighbourhood, city, village or region you currently live in.

Not at all	*A little*	*Moderately*	*Quite a bit*	*Very much*
15%	31%	31%	16%	8%

Question 40. How is your (physical and mental) health in general? Would you say it is...?

Very good	*Good*	*Fair*	*Bad*	*Very bad*
14%	37%	33%	12%	4%

Question 41. Are you hampered or limited in your daily activities in any way by any longstanding illness, disability, infirmity or mental health problem?

Yes a lot	*Yes to some extent*	*No*
12%	31%	57%

Question 42. How many people aged 18 or over to you care for?

0	1	2	3	4
70%	17%	8%	3%	1%

Question 43. In politics, people sometimes talk of "left" and "right". Using a scale from 0 to 10, where 0 means the left and 10 means the right, where would you place yourself on this scale?

Left										Right
0	1	2	3	4	5	6	7	8	9	10
4%	4%	7%	8%	10%	32%	11%	10%	8%	3%	3%

Question 44. Which of the following best describes your home?[10]

Being bought on a mortgage	22%
Owned outright by household	31%
Rented from Local Authority	11%
Rented from Housing Association/Trust	12%
Rented from a private landlord	22%
Other, please specify	2%

Question 45. Please indicate how many people (over or under 18) are part of your household.

	0	1	2	3	4	5	6
Adults over 18 (including yourself)		31%	51%	12%	5%	1%	
Children under 18	69%	15%	11%	3%	1%		

10 Answers that were chosen by less than 1% of respondents were omitted from this table.

Please remember that your answers are confidential and will not be passed on.

Question 46. To what extent do you agree or disagree with the following statements?

	Strongly disagree	*Tend to disagree*	*Neither agree nor disagree*	*Tend to agree*	*Strongly agree*
I often struggle to pay my bills on time	27%	25%	19%	19%	9%
I feel financially stable	14%	24%	26%	27%	10%
If I want to buy something, I can usually afford to do that	12%	22%	24%	32%	10%

Question 47. Please indicate how long you have lived in your local area. By local area, we mean within a 20 minute walk of your home.

Less than one year	7%
Between 1-2 years	6%
Between 2-5 years	15%
Between 5-10 years	15%
Between 10 - 25 years	25%
More than 25 years	32%

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