CREW CENTRE OF EXPERTISE FOR WATERS

Household flood plans in Scotland: Applying behavioural learnings to inform best practice and uptake

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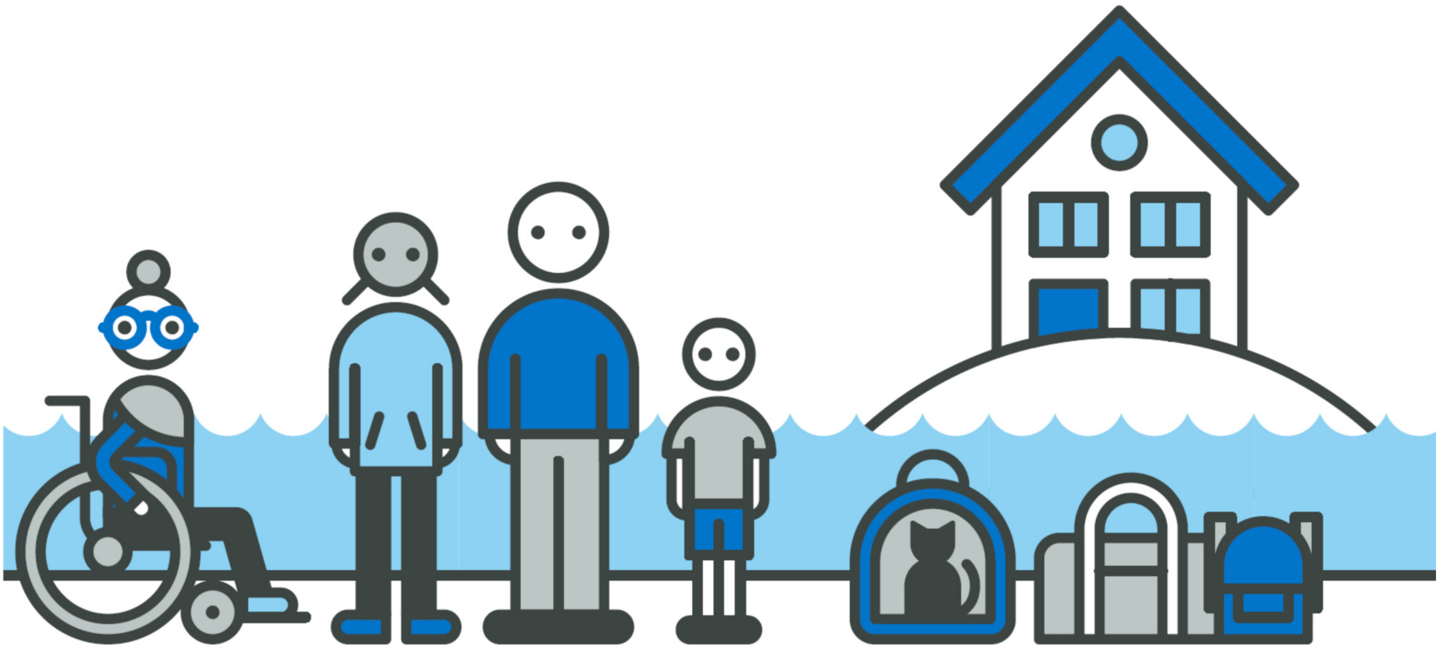

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Cover graphic courtesy of: The Scottish Household Flood Plan Template. Credit: Transform Creative

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Executive Summary

Background

Flooding in Scotland is becoming more frequent and increasingly severe (UK Climate Risk, 2021). Intense rainfall is projected to further elevate the risk of river and surface water flooding throughout the year (Adaptation Scotland, 2021), yet public engagement in flood risk adaptations remains low (Scottish Government 2025a). Public awareness of flood risk is currently limited (Henderson *et al.,* 2022), and only an estimated 3% of Scottish households have installed flood resilience measures (Scottish Government, 2025a).

Purpose of research

This project had two aims.

- Firstly, it aimed to apply the latest behavioural science evidence to produce a household flood plan template which was user tested via community engagement.
- Secondly, the project aimed to consider what future actions could support the uptake of household flood plans and increase the number of households completing them.

A household flood plan is a written or digital document that individual householders complete to create a bespoke flood action plan for themselves and those they live with. It raises flood risk awareness and outlines actions to take to better prepare the household for a flood event. Promoting simple, evidence-based actions such as a well-designed household flood plan (‘the plan’) can help mitigate these risks by empowering people to act to reduce risks themselves (Henderson *et al.,* 2022).

Method

Members of the public and professional stakeholders from across Scotland were recruited to co-create the plan with the research team. In total, 51 participants were interviewed and a further 30 participants attended workshops. All 81 participants commented on and helped co-created the plan. Alongside this data collection, 69 existing public UK household emergency plans were identified, collated into an Existing Examples Portfolio, and analysed for common themes. In parallel, a review of the latest behavioural insight evidence related to flooding was conducted. Data from all these sources informed the plan design and our recommendations for ensuring uptake and engagement.

Findings

Background evidence:

- The public’s awareness of their household flood risk in Scotland remains low as evidenced by previous studies and confirmed by professional stakeholders’ feedback in this research. It is therefore likely that awareness of household flood planning is even lower.
- Shared social learning and developed social norms can enhance householders’ flood resilience.
- New developments in other sectors, like the Flood Performance Certificate currently being developed and piloted by Flood Re[1], in England, suggest that collaboration opportunities will emerge across sectors which could increase the uptake of this plan.
- Place attachment enhances local social capital and connectedness, yet can also prevent vulnerable people from leaving areas at flood risk as their capacity to act diminishes. This increases the risk of negative impacts not only on the vulnerable person but also on those who support care for them e.g. members of the local community, friends, and family.
- Past flood events have demonstrated that many Scottish communities already possess strong community resilience, and that this becomes apparent through the supportive social actions people take during a time of crisis.

Findings related to plan design

- Personalisation is embedded within the plan as the evidence shows that making messages personally meaningful can attract an individual’s attention, while localising messages in preparedness communication can greatly increase the number of homeowners seeking information.

[1]Flood Re is a reinsurer that underwrites flood risk insurance for properties built before 2009 that are at high risk of flooding. It is a joint government and insurance industry initiative to reduce the cost and impact of flooding on households. It advocates preparedness and property-level resilience measures.

- Evidence shows increasing flood risk awareness amongst the public must be balanced with easy achievable actions and signposting to support to ensure it avoids lowering mood and confidence. Actions in the plan have therefore been designed to be easy and achievable, and key organisations have been signposted appropriately.
- The evidence shows that social interaction and support networks can optimise the potentially positive impacts of local place-based shared social learning i.e. the process of individuals acquiring new knowledge and changing behaviour as a result of local people collaborating. The plan therefore includes explicit references to sharing advice and receiving support from others, encouraging social interaction and discussion of local flood risk preparedness e.g. through local social media groups.
- Evidence suggests that timely actions are rarely regretted, even if flooding does not occur, and that such behaviours can help prevent some negative impacts. The plan uses this insight by listing easy, achievable steps that can be taken immediately i.e. when no flood risk is present, and additional actions to take if flooding is likely.
- Evidence shows that even for those households with flood experience, memories of prior flood events and associated learning fade over time. Therefore, to encourage people to view the plan as a 'living' document and periodically review it, the plan includes a dated review box on the front page.

Uptake and dissemination:

- Large scale awareness-raising campaigns are of limited effectiveness. Therefore, alternative ongoing effective engagement approaches are needed. Evidence shows that approaches using social factors, such as social norms and trusted voices, are particularly effective in engaging people with their flood risk, especially when it involves helping others in their community.
- Tenants living in social housing are particularly vulnerable to hidden costs from flood impacts.
- Older people and persons with disabilities and/or long-term health conditions are particularly vulnerable to challenges in developing pre-paredness due to a limited and/or declining capacity to act.
- Category 1 responders reported their work will benefit from households completing the flood plan as it will a) manage the public's expectations of emergency services during flood events; and b) ensure that householders have clear steps to follow, empowering households to respond in a planned and calm manner.
- Trusted messengers identified in this research were local community and flood action groups, third sector organisations, and the Scottish Flood Forum.

Recommendations

The insights gained from this research evidence support the following recommendations, which are structured around key project research questions:

Format and accessibility of the plan
• The plan should be printed and disseminated widely across Scotland in hard copy to ensure that digitally excluded people can access it and that it remains available to people if they have no digital access in an emergency. • The plan should be translated and made available in multiple languages, appropriate to the demographics of the Scottish population. • Any future online version created should be compatible with screen readers and hosted on a site which can facilitate login requirements to allow uptake to be monitored. In the interim, the online screen reader-friendly version could become the public online household flood plan for those who prefer digital access. • To reduce the impacts of existing inequalities on plan uptake and completion, community-based support should be identified and developed to assist vulnerable groups and individuals e.g. through additional financial resourcing to increase capacity of third sector and support organisations.

Increasing uptake

- A dissemination strategy group should be formed, comprised of trusted messengers such as community groups, third sector organisations and the Scottish Flood Forum.
- This group should lead on the public dissemination of the plan, establishing a dissemination strategy and agreeing shared goals and expectations so that public engagement and messaging is consistent across all organisations.
- This group could also identify and address barriers that may diminish trust and reduce motivation to maximise uptake. This includes trust within organisations, trust between organisations, and trust between those organisations and the public.
- Completion of the plan will raise individual awareness of local flood risk. This creates a short window of opportunity for local authorities and community groups to encourage engagement with local flood action groups and community flood plans, helping to strengthen overall community flood resilience. It is therefore recommended that these plans are introduced to groups alongside opportunities for people to meet key local actors, helping to build trust and connections between householders and those that can support them. The approach would depend on the audience and local groups, but examples may include: a local day-time introductory event for vulnerable people in a community hall or other local venue with Flo the flood bus attending; an agenda item included in a regular scheduled tenant's association meeting etc.
- New developments in home insurance, such as the Flood Performance Certificate, may potentially increase the uptake of plans by raising awareness of local flood risk, and should be monitored closely for such opportunities.
- Insurance providers could be supported through membership bodies like ABI/BIBA and Flood Re to help disseminate the plan and encourage uptake as part of their mission to raise flood risk awareness and promote action. They could be invited to do this by signposting the plan to their customers through their websites and/or in customer communications. It is recommended that existing links between these groups and the Property Flood Resilience Delivery Group in Scotland are used as a pathway to explore this opportunity.

Priority target audiences & the plan's impact on inequalities

- Dissemination of the plan should prioritise:
    - Social housing tenants at flood risk as they can endure significant hidden financial costs if they are unprepared for flooding.
    - People at flood risk with limited and/or diminishing capacity to act, temporarily or permanently, including older people, persons with disabilities and/or long-term health conditions, as they should regularly review their capacity to act to ensure they can prepare effectively.
- In flood risk areas, additional support should be provided to older people and those with disabilities and/or long-term health conditions to help them regularly review their capacity to prepare for and respond to flooding.
- Further support should be identified and developed to assist vulnerable groups in completing the plan and preparing effectively for their flood risk, thereby reducing the impacts of existing inequalities.
- A lack of data on flood risk perceptions and preparedness among Scottish people with protected characteristics – including age, gender, disability, and socioeconomic disadvantage – continues to limit understanding of how flood risk and related communication affect these groups. Further nationally representative survey research in this area should be prioritised.

Key motivational messages

- The public should be informed, through communications from dissemination organisations accompanying the plan, that
  - o Creating a personal household flood plan can help them protect themselves and their family in the short term during a flood event.
  - o Completing a plan is a socially responsible action, as it can reduce pressure on emergency services and allow support to be prioritised for more vulnerable households during flooding events.
- Any dissemination strategy should focus on engaging with existing community networks e.g. tenants' associations; local clubs; social clubs for vulnerable people etc. This could increase uptake, as social networks and connections can help motivate people to engage in flood preparedness behaviours through observing others' behaviour and/or supporting others in the community to act.
- By increasing flood risk awareness through the dissemination of the household flood plan, new opportunities may emerge to engage with communities and develop local community flood plans. It is recommended that capacity and resourcing be planned and available should such opportunities arise.
- Category 1 responders should be made aware that encouraging households to complete the plan could reduce demand in peak emergency times, enabling those responders to prioritise the needs of vulnerable groups. This could be achieved through including representatives from organisations like Scottish Collaboration of Transportation Specialists (SCOTS), Public Health Scotland, Police Scotland and Scottish Fire and Rescue on the dissemination strategy group.

Monitoring uptake

- To monitor uptake of this plan, it is recommended that dissemination organisations should a) monitor the number of plans they distribute, who they send them to and where those groups are located; b) monitor what enquiries they have received about the plans; and c) capture any queries, questions or challenges they encounter. Analysis of this data should then inform refinements to future dissemination.
- SEPA flood map visitor data should be collected and analysed when the flood plan is introduced in new places or amongst new groups to demonstrate whether the plan created the 'warm-up' behaviours anticipated i.e. check for an increase in views potentially driven by plan signposting.
- If suitably resourced, the Scottish Flood Forum could potentially provide uptake monitoring data by asking people during their first contact whether they have heard of and/or completed the plan, and if so, whether they were contacting SFF because it was signposted in the plan.
- A small number of questions about flood risk awareness and household flood plan uptake could also be included in the Scottish Climate Survey and/or the Scottish Household Survey to offer an alternative data source to triangulate uptake figures.

Evaluation of the plan and its dissemination

- Once implemented, the plan's effectiveness should be evaluated using a theory of change approach, which explains how and why actions are expected to lead to desired outcomes and long-term impacts. Evaluation of the plan should be conducted over a longer period to ensure that the impact of plan completion on post-flood recovery is measured.
- An evaluation of the effectiveness of the household flood plan dissemination strategy should also be conducted as part of the wider evaluation of the plan.

1 Introduction

Flooding in Scotland is becoming more frequent and increasingly severe (UK Climate Risk, 2021). Intense rainfall is projected to further elevate the risk of river and surface water flooding throughout the year (Adaptation Scotland, 2021), yet engagement in flood risk adaptations remains low (Scottish Government 2025a). Public awareness of flood risk is currently limited (Henderson *et al.,* 2022). Additionally, efforts to increase engagement are complex. Inadequate or poorly designed communication can be counterproductive, leading to maladaptive coping strategies such as shifting responsibility to others (Henderson *et al.,* 2022). Promoting simple, evidence-based actions such as a well-designed household flood plan can help mitigate these risks by empowering people to act to reduce risks themselves (Henderson *et al.,* 2022).

Flood risk preparedness is also shaped by social vulnerability (Henderson *et al.,* 2024). In Scotland, social vulnerability is higher in deprived neighbourhoods (Scottish Government 2020), and vulnerabilities are compounded by the fact these neighbourhoods have higher exposure to flood risk than less deprived neighbourhoods (Kazmierczak *et al.,* 2015; Sayers *et al.,* 2023). Yet people living in vulnerable neighbourhoods are seldom involved in the design of flood preparedness and adaptation measures, nor flood risk communication approaches, thereby reducing the perceived relevance and credibility of such resources amongst such communities (Henderson *et al.,* 2022). This exclusion is compounded amongst marginalised groups e.g. persons with disabilities are often left out of climate adaptation planning, especially for flooding (Kosanic *et al.,* 2022). Flood risk vulnerability is also increased amongst those on low incomes and some minority ethnic groups, while older people, women, and those with long-term health conditions are also more vulnerable (Philip *et al.,* 2020; Harlan *et al.,* 2019).

Despite these structural challenges, a 2024 review found recent Scottish policies, including the Flood Risk Management Act 2009 and the Climate Change (Scotland) Act 2009, are innovative and egalitarian (Henderson *et al.,* 2024). These policies aim to promote equity in flood preparedness and adaptation but are hindered upon implementation by persistent social inequalities (Henderson *et al.,* 2024), and financially pressured institutions (Henderson *et al.,* 2025), limiting efforts to build population-level resilience. There is a pressing need to create low-cost, widely applicable resources for individuals and communities to empower them to engage with, and act upon, their increasing flood risks.

The National Flood Resilience Strategy emphasises the importance of both place and people in flood resilience, adaptation and preparedness through its four guiding principles. The Strategy highlights the need to create solutions within the resources available (p.7 Scottish Government, 2024). A household flood plan offers a low cost way to engage at risk households and support them to take appropriate, tailored actions. A household flood plan is a written or digital document that supports individuals to create a flood preparedness plan for their household. Completing a plan increases their flood risk awareness and helps them prepare their household appropriate to their flood risk. A well-constructed plan can, therefore, raise awareness of personal flood risk whilst also empowering individuals to take steps to prepare effectively for any future risk.

This research framed the design of the Scottish household flood plan template (see Appendix 1 for link to the plan) around insights from members of the public across Scotland and the latest behavioural evidence from the academic research literature. Co-production of the plan was essential as evidence shows that flood risk communication must come from trusted sources if it is to be effective (Henderson *et al.,* 2022). Further, participants also bring with them local expertise and insight which is invaluable in flood risk engagement and should not be overlooked (Henderson *et al.* 2020). The Scottish household flood plan template was therefore co-designed with members of the public across Scotland as an accessible resource intended to build trust in the plan, improve its effectiveness and enhance its credibility.

1.1 The definition of a household flood plan

A household flood plan is a written or digital document that individual householders complete to create a bespoke flood action plan for themselves and those they live with. A household flood plan raises flood risk awareness and outlines actions to take to better prepare the household for a flood event. These low-cost resources can be personalised to support people to take actions appropriate to their flood risk, making them both interactive and specific to individual homes and families.

1.2 The need for a household flood plan template

In Scotland and the wider UK, there is limited household awareness of flood risk (Convery *et al.,* 2021; Henderson *et al.,* 2022). Despite over 280,000 Scottish properties at flood risk today (Scottish Government 2024), estimates suggest only 3% of Scottish households have installed any flood protection measures (Scottish Government, 2025a). There is clear need for a resource that increases awareness and supports preparedness amongst households at risk. Receiving this low-cost household flood plan template could therefore increase awareness amongst those households at risk and encourage them to take actions, including learning more about their risk and installing property level flood protection measures if necessary.

Various forms of household-level guidance and plans have been developed and used by organisations and communities across the UK. Different household flood plans from different organisations cover different time periods. Some only focus on planning that takes place in 'good weather' i.e. when there is no imminent flood threat, while others include 'good weather' planning alongside actions to take immediately before, during and/or after a flood.

In Scotland, actions both during flooding and in the recovery phase are supported by the Scottish Flood Forum. Statutory obligations are delegated from the Civil Contingencies Act 2004 (Contingency Planning) (Scotland) Regulations 2005 to core Category 1 statutory responders including local authorities, fire and rescue, the police, the NHS, SEPA, and the Scottish Government. These organisations already provide guidance on what to do during and after a flood. As there is extensive support available for these stages, this plan focuses on encouraging 'good weather' actions people can take today, alongside actions to take immediately before a flood.

1.3 Project Aims and Objectives

This project had two aims. Firstly, it aimed to apply the latest behavioural science evidence to produce a household flood plan template which was user tested via community engagement. Secondly, the project aimed to consider what future actions could support the uptake of household flood plans and hence increase the number of households completing them. The objectives of the research were planned across two phases:

Phase 1: Co-develop a household flood plan through:

- Collating and analysing existing household flood/emergency/resilience plans and guidance;
- Conducting a literature review of the latest behavioural science evidence around household flood planning and other related resilience behaviours;
- Testing and refining draft plan statements developed from the above analyses with potential users drawn from communities across Scotland.

Key deliverable: A household flood plan template for Scotland.

Phase 2: Engage with public and private sector stakeholders through workshops, focus groups and interviews to gather evidence on how to increase uptake, guided by 7 key research questions:

1. What is the public's awareness around making household flood plans?
2. Who benefits the most from having a household flood plan?
3. How can we help ensure we do not increase inequalities by encouraging the uptake of these plans?
4. Which organisations do the public see as 'trusted messengers' in terms of the delivery of resilience support, such as household flood plans?
5. What engagement/delivery mechanisms would increase the uptake of flood plans?
6. Could there be a connection between community flood plans and household flood plans?
7. How is the landscape of household flood plans evolving in Scotland?

Key deliverable: Recommendations for effectively delivering the household flood plan.

1.4 Method

To address the Phase 1 aim, The Existing Examples Portfolio (EEP) was created using 69 existing UK household flood plans and resilience guidance documents. These plans were collated using online search tools and evaluated for relevance to household flood preparedness by the research team. All plans were assessed for accessibility by reviewing their layout, font size, use of images, whether they were screen-reader accessible, and their availability in easy read format. They were then analysed thematically to inform the design of the household flood plan. Four core thematic areas were identified (see Section 2.1). These themes informed aspects of the subsequent analysis of peer-reviewed academic research and grey literature. The literature search used online databases to collect the latest behavioural insights including those which explored risk perceptions and behaviour, individual engagement in flood risk, theories of behaviour, and planning and preparedness. The findings from the existing example analysis were then combined with the latest research evidence from the literature to produce draft statements for evaluation by members of the public in a series of interviews and workshops (see Appendix 2 and Figure A1).

In total, 81 participants were purposively recruited through existing research team and project steering group (PSG) networks, including third sector and public sector organisations. Recruitment was carefully managed to ensure participants from a diversity of backgrounds and locations reviewed these draft statements and example graphics during the co-creation process. In Phase 1, 49 interview participants evaluated the household flood plan draft statement and graphics through stages of refinement i.e. statements and graphics were revised based on feedback at each stage (see Appendix 3). This process took place between September and November 2025. Interviews lasted approx. 1 hour, and participants varied in their experience of household flooding, ranging from no experience and no awareness of their flood risk to participants with recurrent significant domestic flooding. Some interview participants were also directly involved in local community flood action groups. Vulnerable groups, including persons with disabilities, were actively recruited and interviewed to ensure their insights shaped the statements.

Three workshops were also conducted during the project, two in Phase 1 with members of the public and one in Phase 2 with key organisation representatives. The draft statements and graphics were evaluated during each (see Appendices 4 and 5). The first workshop in Phase 1 was online on 4 November 2025 and involved 10 flood-experienced community participants from Angus The second Phase 1 workshop was held in person in Motherwell town centre on 6 November 2025 with 9 members of the public. All participants in both workshops reviewed the statements and graphics and gave their feedback.

The third workshop was part of the Phase 2 stakeholder engagement. This online workshop on 12 November 2025 included 13 representatives from key public and third sector organisations (see Appendix 2 for organisation list). These participants evaluated the final iteration of the draft statements and example graphics alongside answering the 7 research questions (see Section 1.3). The 7 research questions were also informed by the Phase 1 interviews and workshop responses, the Phase 2 interviews and the Phase 2 survey (see Appendix 7). The Phase 2 interviews were conducted with two insurance industry representatives (one representing Flood Re) in November 2025. The Phase 2 survey was a short online questionnaire distributed through professional networks in December 2025. It was completed by 14 stake-holders, most of whom worked in public-facing roles with operational, strategic and decision-making responsibilities in large (250+ employees) organisations. The data collected was then analysed and the findings used to shape the final development of the plan, and to inform conclusions and recommendations around optimising uptake through strategic dissemination (see Appendix 6).

2. Phase 1 – Applying behavioural learnings to template development

2.1 The four themes

The four themes emerging from the thematic analysis of the Existing Examples Portfolio (EEP) were:

1. **Cognitive** (understanding risks, perceptions of responsibilities, information processing)
2. **Financial** (property flood resilience (PFR) measures, insurance etc.)
3. **Physical** (installing PFR measures, turning off utilities, moving people, pets, cars etc.)
4. **Social** (creating contact lists, sharing on social media, checking on neighbours etc.)

A secondary content analysis explored these themes in more detail to understand the different elements incorporated under each theme (see Table 1). The associated academic literature was then reviewed again to collect behavioural insights around these themes and their elements. These insights highlighted that flood risk communications can fail if they provide too much information without clear, relevant, time specific guidance, and that lengthy materials can leave end users unsure how to respond (Rollason *et al.,* 2018). Therefore, the plan developed in this project includes shorter, time specific action-oriented messages.

The academic evidence also suggested statements should be tailored so that they are relevant to the target audience (Haer *et al.,* 2016). Messages were therefore tailored to the Scottish context. For example, the statement under *Know your responsibilities* highlights that Scottish householders are legally responsible for their property and possessions (see Appendix 1 for link to the plan). This message about responsibility was also important to include to correct the persistent perception that governing agencies are responsible for protecting households from flooding (Henderson *et al.,* 2025).

The 15 elements in Table 1 were tested as draft statements with the participants through four cycles of participant evaluation and feedback. During this process, some aspects were found to work better combined with others and ultimately 11 elements were included in the final template (see Table 2).

Table 1: Elements identified from the analysis of existing example plans.

Cognitive				
Why read this plan	Why make a plan	Know your risk	Know your responsibilities (be ready)	Know your responsibilities (legal)
Financial				
Insurance	Flood protection measures			
Physical				
Grab bag	Physical preparations	Protecting valuables	Protecting your vehicle	Turn off services
Social				
Neighbours & in your community	Personal contacts	Key other contacts		

Table 2: The final 11 elements included in the household flood plan template.

Cognitive			
Why make a plan	Understand your flood risk	Know your responsibilities	
Financial			
Insurance	Preparing your household		
Physical			
Getting your property ready	Prepare your grab bag	Turning off utilities	Moving your car
Social			
Build your support network	Important contacts		

As discussed earlier, the household flood plan focuses on preparations householders should make now, and the actions to take immediately before flooding is likely. The plan signposts to SEPA for up-to-date information on risk using a QR code to enable web links to be accessed from the physical hard copy (see Appendix 1 for link to the plan). It also uses a QR code to signpost to the Scottish Flood Forum, who offer expert support throughout every stage of preparedness and recovery. This support includes guidance on insurance and advice on property level flood resilience measures that would work for their household circumstances (see Appendix 1 for link to the plan). In addition, the *Further Information* section (see Appendix 1 for link to the plan) lists key contact numbers, including the Scottish Flood Forum; SEPA; utilities' emergency phone numbers; and the emergency services.

As each household is unique, personalisation opportunities in the plan were also essential to both engage individuals and to ensure effective preparedness. This is particularly important in groups with additional support needs. Therefore, at several points in the plan, statements include opportunities to personalise actions that can be taken now e.g. *Note your insurance details here; My utilities location;* (see Appendix 1 for link to the plan). Also included are actionable steps to take if a flood is likely e.g. *If a flood is likely, consider moving your car first then returning to prepare the house* (see Appendix 1 for link to the plan).

Academic research evidence from the literature review emphasised the importance of personalisation in preparedness planning. For example, in one study of lived experience of emergency planning involving persons with disabilities, creating personalised plans to ensure specific support needs were met was viewed as part of individuals' own responsibility for preparedness (Chang *et al.,* 2023). Findings from a USA study also suggest that some demographic groups with lower levels of preparedness may be more likely to engage when information is personally relevant (Blackburn *et al.,* 2025), although further UK based research is needed to investigate this in Scotland.

2.2 Key information included

Evidence from behavioural insights research was applied to each element as the draft statements were developed. These draft statements were then revised based on feedback received during interviews. This determined the key information to be included and how it should be presented to motivate householders to act. Research evidence also highlighted that the presentation of flood risk communication without associated protective actions, i.e. simply raising awareness of flood risk, has limited effectiveness in motivating flood preparedness actions (Henderson *et al.,* 2022). Therefore, with one exception, each element within the household flood plan template contains a suggested preparatory action, followed by steps to take if a flood is likely (see *Design Example 1*).

The exception was the element *Know your responsibilities*, which contained information designed to increase the householder's understanding of their role and responsibilities in flood preparedness. In turn, understanding responsibilities can help motivate the householder to adopt other actions in the plan. There is a strong link between people feeling responsible for their home and having the confidence to complete actions to reduce the impacts of flooding on themselves and their household (self-efficacy) (Convery *et al.,* 2021). Therefore, suggestions for actions to be undertaken, alongside raising awareness of householders' responsibilities, were designed to increase householder's confidence in their ability to cope. Clarifying responsibilities plays a dual role, as it corrects misperceptions about who is accountable for preparedness and reinforces the sense of personal agency required for effective action.

The plan also provides context through signposting, highlighting that a supportive infrastructure exists around the individual, with the aim of positively enhancing the essential householder's perception that they have the necessary abilities to respond (Fox-Rogers *et al.,* 2016). Research has consistently found a disconnection between intention and action in flood risk preparedness, often referred to as the *intention-action gap* (Rufat *et al.,* 2020; Diakakis *et al.,* 2018; Fox-Rogers *et al.,* 2016). There are also differences across groups in preparedness. For example, in one USA study, female and unemployed respondents reported lower levels of evacuation planning and were less likely to have an emergency kit than employed male respondents, while adults aged 18–34 were less likely than older people to know where to obtain disaster risk information (Blackburn *et al.,* 2025).

To generate preparedness amongst individuals in all groups it is important that individuals feel confident in their ability to respond, as the evidence shows that for flood risk perceptions to become translated into behavioural responses and overcome the intention-action gap, perceptions must be accompanied by a high coping appraisal (Bubeck *et al.,* 2012). In the longer-term, increasing confidence and raising awareness alongside presenting specific actions to take should reduce long-lasting negative impacts by increasing preparedness and preventing the externalising of responsibility. Taken together, these design aspects aim to ensure that increased awareness is consistently paired with achievable actions, thereby supporting householders to translate intention into actionable preparedness.

Increasing awareness of personal and legal responsibilities amongst householders can also mitigate the maladaptive strategy of externalising responsibility for preparedness to others, most often local authorities (Henderson *et al.,* 2022; Babcicky & Seebauer, 2019). Addressing this is critical to developing a prepared and flood resilient community. Research evidence shows that householders who externalise responsibility are often unprepared for flooding and hence are particularly vulnerable to potentially lasting negative impacts, including on their mental health (Thomas & Niedzwiedz, 2024).

While externalising responsibility is a maladaptive strategy, social support given through an individual's complex web of social networks and social identities within communities is critical to building preparedness (Kuhlicke *et al.,* 2020) and can support mental health. Therefore, the plan encourages the householder to engage with their community and support organisations. Social connections are emphasised in two sections of the plan, the *'My contacts'* box in the *'Important contacts'* element, and the suggestion to reach out to social networks in the *Build your support network* element (see Appendix 1 for link to the plan; *Design Example 3*).

Research evidence has demonstrated that engaging with aspects of a household flood plan can be more valuable than the end product i.e. a completed plan itself (Park & Schein, 2021). This study found that disseminating a household flood plan to the public engages attention and captures the interest of householders who may not otherwise engage with their flood risk (Park & Schein, 2021). In this project, the majority of the interview participants had not considered their flood risk until they saw the draft statements. The impact of this exposure to the plan did capture their attention and interest, as Participant 32's comment suggests:

> *"I never thought of flooding before in terms of ground level floods, I've always thought of it from the roof. But then I've never kind of thought what I would actually do. I guess I can go and look into this myself because there's so many links that I can look at* [in the proposed plan statements].*"* (Participant 32, female, no flood experience, 25–54, Renfrewshire).

Like Participant 32, others who participated in the interviews indicated they would now seek out further information on their own flood risk. This suggests that engaging with the household flood

Getting your property ready

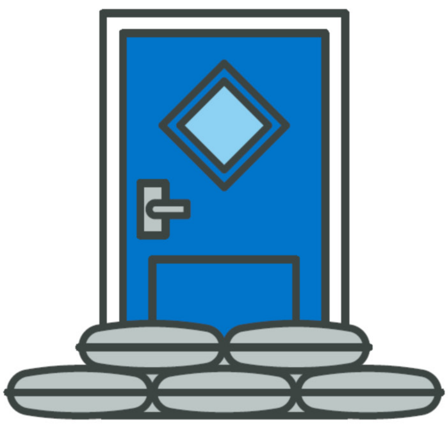
What you can do now:

The Scottish Flood Forum can advise you on ways to prepare your house for flooding. This includes things you may want to buy and install to help keep floodwater out of your home. Search 'Scottish Flood Forum preparing for flooding' or scan the QR code provided.

What you should do if a flood is likely:

If a flood is likely, use your flood resilience measures to prepare your home and make sure everyone in your household is prepared to follow this flood plan.

Use the checklists provided in this flood plan to help.



Design Example 1: Preparatory action and action to take if a flood is likely. Source: Household Flood Plan Template.

plan statements, even in draft form, may trigger 'warm up' behaviours i.e. small preparatory actions that help bridge the intention - action gap. This aligns with recent research demonstrating that such small and easily achieved preparatory planning steps (implementation intentions) effectively support the translation of intentions into action to facilitate behaviour change by strengthening intention-behaviour links. These steps can also recruit non conscious processes, making actions routine or automatic and thereby lessening cognitive load (Conner & Norman, 2022; Papies, 2017; Wieber *et al.,* 2015).

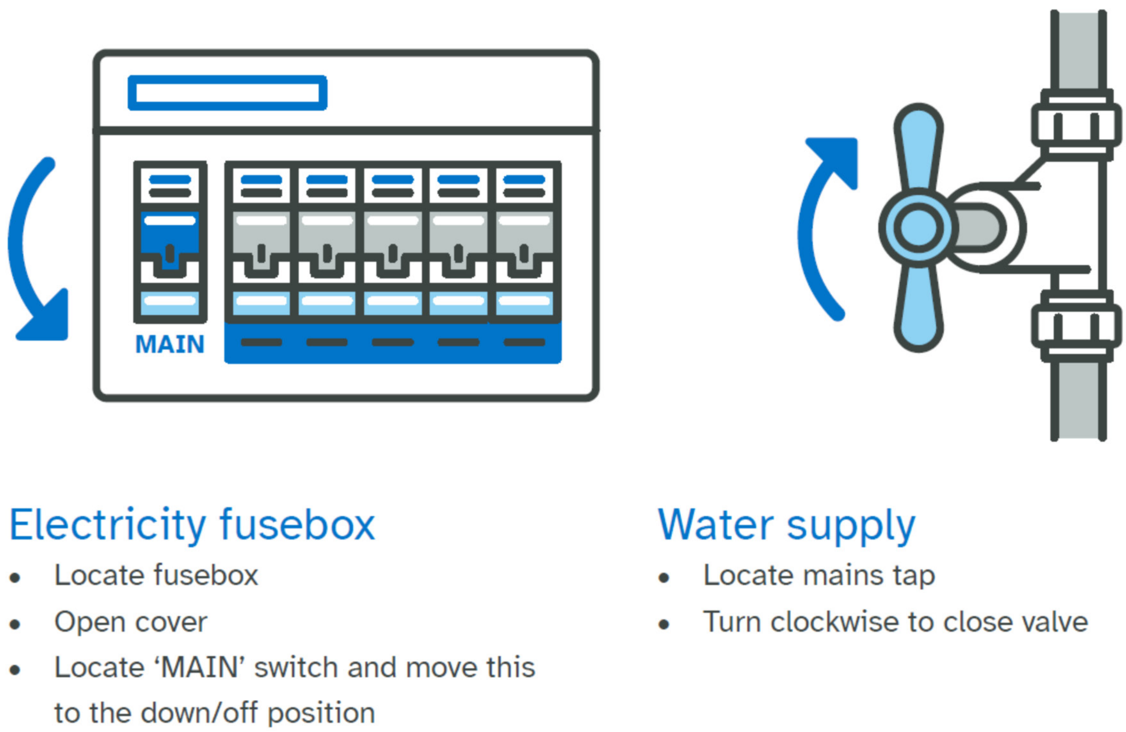
2.3 Design

The plan codesign process carefully considered both the textual and graphic content through close collaboration between the research and graphic design teams. The design process was structured using the evidence-informed and widely tested Easy, Attractive, Social, and Timely (EAST) framework (Behavioural Insights Team, 2024). Using this framework also facilitated the refinement of the plan from participant feedback and enabled the application of behavioural insights to ensure these refinements encouraged steps that were EAST.

2.3.1 Easy

To ensure the plan is easy to complete, consideration was given to how best to reduce the cognitive load involved in engaging with the document (see Section 2.2). Design features which can make a plan easier to complete include 'chunking' elements into clear sections and adding checklists to make tasks feel less intimidating to the householder (Park & Schein, 2021). Accordingly, 3 *'Get Ready'* style checklists were developed and included in the plan to reduce the cognitive load of decision-making if and/or when a flood warning is issued:

1. **The preparedness checklist:** Listing the elements and associated actions to complete now (when no flood is likely), enabling the householder to tick off steps taken to complete each element of the plan (see Appendix 1 for link to the plan).
2. **The grab bag checklist:** A list of items to consider adding to the household grab bag with additional space available to personalise their list of essential items (see Appendix 1 for link to the plan).
3. **The flood-imminent checklist:** Listing the elements and associated actions to complete when a flood is likely to ensure the householder, those they look after, and their assets are safe and protected (see Appendix 1 for link to the plan).



Design Example 2: Clear diagrammatic instructions to improve accessibility. Source: Household Flood Plan Template.

Care was taken during the design of these checklists, and participant opinions of versions of these checklists were collected during the interviews, to ensure the items included are relevant and actionable (Forsyth *et al.,* 2023), and that the volume of items in each list was not overwhelmingly large. In addition, the inclusion of illustrations within these checklists and throughout the plan makes the plan visually easier to navigate and benefits the text comprehension for dyslexic adults (Holmqvist Olander *et al.,* 2017). For example, learning how to turn off utilities within the home was presented with clear diagrammatic instructions (see Appendix 1 for link to the plan; see *Design Example 2*). Finally, to further assist the householder, the *Flood-Imminent* checklist was designed in a 'cut out and keep handy' format so people can remove it from the booklet and have it readily available at a time of emergency (see Appendix 1 for link to the plan).

2.3.2 Attractive

Communication is more effective and hence more attractive to individuals when it is personally meaningful. For example, wildfire preparedness communication that localised the messaging resulted in twice the number of homeowners seeking information compared with generic messages (Nobel & Hiscox, 2025). Therefore, the plan included the advice that the householder check SEPA's flood risk maps to establish the risk in their neighbourhood, thereby enabling the individual to directly identify risk levels. Evidence has shown that engaging with such maps can lead to increased action-driven behaviours (Markanday & Galarraga, 2021), supporting the evidence that the action of checking such maps is itself a 'warm-up' behaviour (see Section 2.2).

However, such engagement can also lead to lower positive affect and lower perceptions of self-efficacy if the actions are too ambitious or costly. As such, the plan was designed to increase agency by presenting actions that are easy and achievable for most individuals in each timeframe, and to include suggestions of support where that might be difficult for some with limited capacity. For example, under *Turning off utilities*, the householder is advised to reach out for support if they are uncertain as follows *'If you're unsure, ask your utility suppliers or a neighbour for help'* (see Appendix 1 for link to the plan).

The inclusion of signposting to supportive organisations was regarded as critical by those interview participants who had previously been flooded. Therefore, links to key support organisations are included in the plan as QR codes (see Section 2.1). Additionally, the flood experienced participants also noted that every household is different so personalising how you prepare is essential if it is to be effective:

> *"I think everybody's situation is quite different… if you stay in a bungalow or one level house…you can't move anything easily upstairs if there's a flood coming…given your own situation, consider what items you may want to move to a higher level to protect them from potential flooding."* (Participant 16, male, over 55, flood experienced, Stirlingshire).

Flood experienced participants also reported that engaging with the referenced support organisations, particularly the Scottish Flood Forum, helped them further tailor their preparations to the specific needs of their household and the flood risk in their neighbourhood.

2.3.3 Social

People judge behaviour as appropriate or acceptable based on whether it aligns with the values, actions and expectations of their significant others (Behavioural Insights Team, 2024). For example, seeing neighbours or friends engage in flood-mitigation behaviours (e.g. installing a flood gate) can significantly increase an individual's coping appraisal by demonstrating feasibility i.e. showing that the action is achievable and beneficial (Bubeck *et al.,* 2018). Socially based processes such as collaborative and participatory approaches are the 'gold standard' of flood risk communication and are considered the amongst the most effective ways to generate preparedness behaviours (see Henderson *et al.,* 2022).

Shared social learning through the observation of close others is also an established and important tool for effective flood risk communication (Seebauer & Babcicky, 2018; Babcicky & Seebauer, 2017; McEwen *et al.,* 2017). Therefore, to optimise the potential positive impacts of social influence and shared social learning, the plan encourages discussion of flood risk preparedness with neighbours and within local social media groups. This approach aims to foster a sense of collective 'co-production' of flood preparedness planning, supporting the implicit development of place-based social norms in the householders' neighbourhoods. Evidence indicates that social norms are often more effective when communicated implicitly rather than explicitly (Mol *et al.,* 2024).

To support shared social learning and the development of place-based social norms, the plan advises householders to reach out to local people for support and to share learning (see Section 2.3.2). This is explicitly within the *Build your network* element, which advises *'Share advice with your neighbours and in your local social media groups so they can get ready too. Keep a note of who can help you and who you can support, like friends or older neighbours'* (see Appendix 1 for link to the plan; see *Design Example 3*).

Interview participants found the idea of engaging with neighbours and others in flood risk preparedness was appealing, although it was not something they automatically considered doing, as illustrated by one participant without flood experience:

> *"I think that it's very relevant…sharing advice and guides and neighbourhood Whatsapps and Facebook groups, because so many people are a part of those these days that that's maybe something that you wouldn't think of if it wasn't mentioned, essentially. I could see myself having like an informal conversation with my neighbours but then I wouldn't think to post it on the Facebook group…having read that then I would have considered it."* (Participant 9, female, 25-54, Lanarkshire).

Shared social learning and social norms can enhance householders' flood resilience. Trusted messengers also play a key role in this shared social learning and in creating positive social norms by ensuring accurate, useful information is disseminated across communities (see Section 3.3).

2.3.4 Timely

Flood risk preparedness has distinct phases of activities and actions. Some actions can be taken in times of good weather to ensure that the household is as prepared as possible for a future flood event. Other actions are only needed if a flood is likely. The guidance within the plan was designed to be specific and explicit about actions to take within these two key timeframes. One example in the plan of planning which could be actioned now is reviewing insurance coverage and noting policy numbers, insurance providers, and insurance company claims phone number (see Appendix 1 for link to the plan). Similarly, the plan suggests householders could identify today a safe parking area for their car that would be unaffected by flooding. Then, if a flood is likely, individuals should *'consider moving your car first then returning to prepare the house'* (see Appendix 1 for link to the plan). This advice is given not only to protect the householder and their vehicle, which is often their most expensive household asset after their home, but also to prevent their vehicle from becoming floating debris and damaging other structures (Martínez-Gomariz *et al.,* 2019).

The plan also offers timely suggestions to move items of value (emotional, financial, or otherwise) to a safe place immediately before a flood. This is designed to promote a 'no regrets' approach to preparedness, as evidence shows these preparedness actions are rarely regretted even if the flood does not occur (Ommer *et al.,* 2025).

2.4 Wellbeing

Flood risk preparedness actions are impacted by pre-existing social vulnerabilities that can limit people's ability to prepare. These vulnerabilities are rooted in structural inequalities and may also shape how effectively different groups can complete a household flood plan. Mitigating the impact of these vulnerabilities is important, as evidence shows that people who experience flooding are at higher risk of depression, anxiety and post-traumatic stress disorder (UKHSA, 2024), which can compound the negative effects of existing disadvantages. Groups who experience disproportionately adverse mental health outcomes after flooding are women, unemployed people, those on low incomes, some minority ethnic groups, older people, people with long-term health conditions, those with pre-existing mental illness, people enduring repeated flood exposure, and those experiencing severe housing damage (Yakubu et al. 2026; Philip *et al.,* 2020; Harlan *et al.,* 2019). Anticipatory anxiety was associated with lower self-efficacy and feelings of helplessness (Fothergill *et al.* 2021), further intensifying impacts amongst vulnerable groups repeatedly exposed to flood risk[1].

The household flood plan was designed to empower individuals by offering specific, easy and achievable steps to increase physical preparedness and strengthen psychological resilience. However, further support should be identified and developed to assist vulnerable groups in completing the plan and preparing effectively for their flood risk, thereby helping to reduce the impacts of existing inequalities. In addition, more research is needed

[1] For further information on the related CREW project, 'Reducing the mental health and wellbeing impacts of flooding', please refer to the publication page: https://www.crew.ac.uk/publications/reducing-mental-health-and-wellbeing-impacts-of-flooding

to better understand the complexity and effects of social vulnerabilities on preparedness, particularly where vulnerability and potential impacts are compounded.

When designing the plan, it was also important to ensure proposed actions and advice did not trigger any psychological distress amongst householders engaging with it. To evaluate this, participants were asked to share any feelings triggered by reading each statement during the co-design interviews and workshops. The resulting responses were consistently positive. Participants reported that while these statements did trigger concern, this was at a level that felt empowering and motivating rather than generating anxiety and helplessness. Amongst the sample without flood experience, several participants described it as reassuring or comforting. Others found it made them feel calmer about the potential risk:

> *"It's useful. You're laying out the advice that "If you look into this it's better than not being prepared and then…[facing the] severe consequences…there's information out there. Please look at it. Make a plan." [It] keeps you calm, makes you think clearly that kind of thing…kind of helps with the anxiety that I would feel anyway just because, when you're in an emergency situation…because flooding can happen at any time very quickly, you know, you're in a panic."* (Participant 28, female, 25-54, no flood experience, Fife)

The participants with flood experience also had a positive response to the plan, and felt it would have supported them if they had known these steps before they were flooded:

> *"I think it's good that people are doing this [creating the plan]…you don't think about that before you flood. I think the trouble is, most people are reactionary, not proactive…I mean, I never thought my house would flood. I didn't know it flooded until it did so… I think it's difficult to anticipate and I don't think people want to look at that, even if they think they are at risk. It's not 'til it happens that you become a sort of learned lived experience of it, if you know what I mean, and you're a bit wiser. But I don't know if I would have thought about any of those things that I know now."* (Participant 21, over 55, flood experienced, Angus).

2.5 Recognised barriers to action

The design and development of the plan also considered recognised factors that may influence how householders engage (or not) with its contents and follow its suggested actions. These include accessibility, digital exclusion, existing health conditions, costs associated with completing the plan, and the current congested communication landscape in Scotland.

2.5.1 Accessibility

Accessibility was carefully considered as a potential barrier to engagement. To ensure the plan was as accessible as possible, persons with a range of disabilities and/or long-term health conditions were interviewed and contributed directly to its co-creation. The resulting design and content adhere to Scottish Government accessibility guidelines (e.g. font type and size, colour use, layout). Accessible versions were also developed alongside the hard copy plan, including easy read and screen reader-friendly formats. For accessibility, any future online version created should be compatible with screen readers and hosted on a site which is capable of facilitating login requirements. By requiring individuals to log in, uptake could be monitored, and as this version would not be designed as a hard copy, printing may be prevented.

2.5.2 Digital exclusion and language barriers

While it is important to create a digital version of the plan in future, this plan (see Appendix 1 for link to the plan) has been designed to be printed and distributed in hard copy to avoid digital exclusion. Evidence highlights that 9% of Scottish households do not have internet access, 14% cannot afford sufficient secure access, and 15% of Scottish adults lack foundation level digital skills (Audit Scotland 2024). To ensure equity of access, the hard copy format is therefore essential. As digital access is not always reliable during flood emergencies, a physical version also ensures the plan remains available at all times.

In Scotland, the 2022 census suggests almost 94% of the population can speak, read and write English (Scotland's Census, 2025). Around 1% of Scottish people speak Polish at home (54,000 people). Around half that speak Chinese languages (27,903 people), Urdu (23,394 people) or Punjabi (23,238 people). The number speaking Gaelic at home (0.5% of the population) fell between

Recommendations

- This plan should be printed and disseminated widely across Scotland in hard copy to ensure that digitally excluded people can access it and that it remains available to people if they have no digital access in an emergency.
- The plan should be translated and made available in multiple languages, appropriate to the demographics of the Scottish population.
- Any future online version created should be compatible with screen readers and hosted on a site which can facilitate login requirements to allow uptake to be monitored. In the interim, the online screen reader-friendly version could become the public online household flood plan for those who prefer digital access.
- To reduce the impacts of existing inequalities on plan uptake and completion, community-based support should be identified and developed to assist vulnerable groups and individuals e.g. through additional financial resourcing to increase capacity of third sector and support organisations.

Chinese languages and Urdu. Other languages are also spoken at home by smaller numbers e.g. French (14,623 people) (Scotland’s Census, 2025). Should resources allow, future printed and online versions should be produced in multiple languages appropriate to the demographics of the Scottish population.

2.5.3 Existing health conditions

Existing health conditions may reduce some people’s capacity to act upon their flood risk. To ensure the plan was effective for differing levels of capability, it was co-created with participants who had existing health conditions and/or information accessibility issues. Several older, flood experienced participants also reflected on their own and others’ declining or increasingly limited physical capabilities and welcomed statements suggesting that people should consider additional support if needed. The plan therefore advises householders to reach out for support and, where appropriate, to offer support to others (e.g. see Appendix 1 for link to the plan; *Design Example 3*).

2.5.4 Costs

Another identified barrier to plan completion was the perceived cost of taking action, both in the time required to complete the plan and in financial cost. The time cost was addressed, alongside considerations of attractiveness and ease of completion, by ensuring the plan remained as concise as possible. Financial cost implications informed the decision to keep advice on property resilience measures to a minimum. Instead, householders are signposted to the Scottish Flood Forum, who provide accurate and personalised advice, including information on costs, potential financial support, and flood resilience products to suit the individual household's circumstances. The plan recommends actions that are free or low-cost.

Build your support network

What you can do now:

Share advice with your neighbours and in your local social media groups so they can get ready too. Keep a note of who can help you and who you can support, like friends or older neighbours.

What you should do if a flood is likely:

Reach out to people in your network to let them know you are at risk of flooding and check they are aware of the flood alert.

Design Example 3: Encouraging vulnerable householders to reach out for support. Source: Household Flood Plan Template.

3. Phase 2 – Applying behavioural learnings to increase uptake

3.1 Motivation

The motivation to engage with the household flood plan is discussed from the perspectives of two key audiences 1) those completing the plan, and 2) the organisations and stakeholders who act as gateways to those groups.

3.1.1 Motivating householders to complete the plan

Motivating households to engage with and complete a plan will be challenging, not least because motivation to prepare for flooding is reduced by the low frequency at which flood events occur in most areas, despite the often-high impact of the consequences (Robinson & Botzen, 2025). Asking people to engage with a risk that is potentially distant from their current situation is further complicated by the confusing language of flood likelihood e.g. communications on return periods using language such as "a 1 in 100-year flood". This language increases the perception that a local flood event is not likely in their lifetime (see Henderson *et al.,* 2022). Indeed, participants in a recent study rejected the use of flood probabilities as an effective method of communicating flood risk (Snel *et al.,* 2024).

The first step in encouraging householders to complete the plan is to engage their interest. This does not necessarily mean a national media campaign, however, as large scale campaigns designed to raise public awareness of flood risk have been found to have limited effectiveness (Osberghaus & Hinrichs 2021). Instead, local interventions based on social influence (i.e. social norms and trusted voices) are usually more effective than other information-based approaches (Gatersleben *et al.,* 2023). Research evidence suggests that helping others can increase an individual's own preparedness and coping capacity, making them better able to prepare for and respond to flooding (e.g. Bixler *et al.* 2021; Hudson *et al.* 2020). Although there is little available research exploring the influence of social capital in UK flood preparedness, evidence from the UK's pandemic lockdowns demonstrate a spontaneous emergence of mutual aid groups, informal volunteer networks, and neighbourhood assistance at a time of crisis (Nicholls *et al.,* 2025).

Flood events in Aberdeenshire in 2015/16 led to an emergence of action arising from 'everyday' resilience amongst householders. This hidden or dormant capacity to take action at a local community level (termed 'latent community resilience') emerged in response to Storm Frank. It proved to be very effective, including in caring for vulnerable 'hidden' householders in need (Philip *et al.* 2020). Completion of the household flood plan could trigger the manifestation of this latent, hidden capacity as the community may wish to take action to protect themselves and each other. This could then provide both motivation and opportunities for the community to come together to work on a community flood plan and/or engage in developing their own flood action group.

Therefore, it is recommended that local organisations/groups involved in that specific community of interest should be involved in the frontline dissemination of the plan to their community e.g. tenant's associations; local clubs; social clubs for vulnerable people etc. These dissemination routes may offer a social and observable motivational influence as others engage with the plan. Furthermore, as evidence shows that helping others can increase an individual's own preparedness and coping capacity, these dissemination routes where individual participants including staff, volunteers and clients are caring for each other may be particularly effective.

Uptake may also be increased if householders are made aware that by completing the plan and hence being prepared for a flood event, they will reduce pressure on the emergency services and enable them to focus their efforts on the most vulnerable in the community (see Section 3.1.2). Changing place-based social norms through these social routes may also be possible and could increase uptake but more research is required to demonstrate this.

Recommendations

- The public should be informed, through communications from dissemination organisations accompanying the plan, that:
    - o Creating a personal household flood plan can help them protect themselves and their family in the short term during a flood event.
    - o Completing a plan is a socially responsible action, as it can reduce pressure on emergency services and allow support to be prioritised for more vulnerable households during flooding events.
- Any dissemination strategy should focus on engaging with existing community networks e.g. tenants' associations; local clubs; social clubs for vulnerable people etc. This could increase uptake, as social networks and connections can help motivate people to engage in flood preparedness behaviours through observing others' behaviour and/or supporting others in the community to act.
- By increasing flood risk awareness through the dissemination of the household flood plan, new opportunities may emerge to engage with communities and develop local community flood plans. It is recommended that capacity and resourcing be planned and available to leverage these opportunities as they arise.

3.1.2 Motivating organisational dissemination

In total, 29 professional stakeholders participated in the study. These stakeholders represented a range of organisations, including local authorities, NHS health boards, Scottish Water, Flood Re and the insurance sector, and a disaster response charity. Participants agreed that public awareness of flood risk in Scotland is low, and that most people, especially those who have not previously experienced flooding, have little to no awareness of household flood plans. Stakeholders highlighted the challenge of encouraging people to engage proactively with their flood risk. They also indicated that, in their experience, public awareness typically increases only after flood events and is usually a reaction to the personal household impacts of flooding.

All 29 participants reported that their organisation would benefit from householders completing this plan and listed several reasons for this support. They stated that public engagement with the plan at householder level would:

- Prompt the public to think about their flood risk and therefore increase flood risk awareness.
- Encourage behavioural actions such as signing up for warnings or taking simple protective measures.
- Improve outcomes during and after flood events by supporting quicker, calmer decision-making during flooding.

The Category 1 stakeholders are the first responders during a flood emergency, and include local authority teams, the emergency services, and the NHS. These participants reported that the household flood plan would assist them in their work for two key reasons. Firstly, the plans support the protection of life by raising awareness and providing advice on keeping households safe. Secondly, they noted that the plan could reduce pressure on Category 1 response teams by lowering demand during a flood emergency, as better-prepared households are more able to keep themselves and their families safe (e.g. see Appendix 1 for link to the plan).

Box 1: Category 1 responders.

"We have this mantra about protecting our most vulnerable and keeping communities safe. I think protecting our most vulnerable is the key part. There's about 8.5% of [our region's] population would need special attention because they're registered blind, deaf, disabled, or any number of other criteria that are clinical decisions made by GPs and social workers. We need to concentrate on them. The 90-odd percent that aren't on that list really need to be self-supporting, self-sustaining. And a part of this leaflet and part of this work allows this larger number of people to be better prepared and less of a burden to the first responders. Then that will help the most vulnerable in their communities get the appropriate support from the authorities. So it's all about triaging, and [completing this flood plan] is part of that process." (Participant 73, male, local authority resilience team).

Recommendations

- Category 1 responders should be made aware that encouraging households to complete the plan could reduce demand in peak emergency times, enabling those responders to prioritise the needs of vulnerable groups. This could be achieved through including representatives from organisations like Scottish Collaboration of Transportation Specialists (SCOTS), Public Health Scotland, Police Scotland and Scottish Fire and Rescue on the dissemination strategy group.

3.2 Target audience

The household flood plan is designed to be relevant to households across Scotland, regardless of their previous flood experience or the level of flood risk they face. It is likely to be especially beneficial for people who are at risk but currently unprepared, such as those with no prior flood experience and low awareness of their local risk. However, these unprepared groups vary widely in their capacities and resources, and for those with reduced ability to act, increasing flood risk awareness without adequate support could unintentionally deepen existing disadvantages.

A lack of data on flood risk perceptions and preparedness among Scottish people with protected characteristics – including age, gender, disability, and socioeconomic disadvantage – continues to limit understanding of how flood risk and related communication affect these groups (Scottish Government, 2025b). To mitigate these challenges and ensure the plan does not exacerbate inequalities, dissemination should initially focus on two priority groups: social housing tenants, and people with limited or declining capacity due to ill health or ageing. These groups, and the reasons for prioritising them, are outlined in the following sections.

3.2.1 Social housing tenants

Evidence demonstrates a strong link between housing affordability and poverty, and the purpose of social housing is in part to reduce housing-cost-induced poverty (Scottish Government, 2019). Figures from 2019 show that social housing tenants are more likely to be in the lower income deciles than private rented householders (Scottish Government, 2022). In addition, the Scottish Household Survey 2024 found that only 28% of social rented households reported managing well financially, compared with 65% of owner occupiers (Scottish Government, 2025c). Hence, for social housing tenants, the sudden additional hidden costs associated with flooding could have a significant financial impact and potentially push them into poverty.

The hidden costs of flooding have been estimated for different types of UK tenants, including out of pocket expenses, displacement costs, lost income and health-related costs (Cebr, 2026). For homeowners, hidden costs are higher due to repair costs and are estimated at £3,662 rising to £4,134 for severe flooding (Cebr, 2026). For renters, hidden costs are also significant and are higher for social housing tenants i.e. £2,992 for social tenants compared with £2,610 for private renters for low to midlevel floods, rising to £3,677 for severe flooding compared with £2,755 for private renters (Cebr, 2026). Therefore, it is recommended that those living in social housing should be a prioritised audience for the plan, as they could benefit significantly from its completion.

3.2.2 Groups with limited capacity to act

People's emotional connection to place, known as place attachment, has increasingly been seen as a motivating factor driving protective actions (Van Valkengoed & Steg, 2019). Yet, as with most aspects of motivation and preparedness, the effects of place attachment on climate adaptation behaviours are fluid and complex, and subject to both the climate risk perceptions and personal values of individuals (Jayakody *et al.,* 2024). Furthermore, while place attachment may benefit preparedness through strong social bonds and social capital, it can also become a barrier to relocating to a safer home as people do not want to leave their community and/or area (Willcocks-Musselman *et al.,* 2025). In terms of flood risk preparedness, this is emerging as a challenge as people continue living in areas at risk despite declining capacities to respond.

In this study, several flood experienced participants reported declining health in their household. As a result, their capacity to respond effectively to future flooding is temporarily or permanently diminished (see Box 2). Therefore, people with diminishing capacities need to plan how they will prepare for future flooding, particularly where they can no longer rely on the strategies they used in the past. Completing the household flood plan could be especially beneficial for groups with existing or emerging health conditions, and for those experiencing age-related declines in capacity, as it encourages them to reflect on their ability to act today. The plan also prompts vulnerable people who are not currently known to services to consider alternative options, like asking for assistance from utility providers or neighbours.

Recommendations

Dissemination of the plan should prioritise:

- A lack of data on flood risk perceptions and preparedness among Scottish people with protected characteristics – including age, gender, disability, and socioeconomic disadvantage – continues to limit understanding of how flood risk and related communication affect these groups and further nationally representative survey research in this area should be prioritised.
- Social housing tenants at flood risk as they can endure significant hidden financial costs if they are unprepared for flooding.
- People at flood risk with limited and/or diminishing capacity to act, temporarily or permanently, including older people, persons with disabilities and/or long-term health conditions, as they should regularly review their capacity to act to ensure they can prepare effectively.
- In flood risk areas, additional support should be provided to older people and those with disabilities and/or long-term health conditions to help them regularly review their capacity to prepare for and respond to flooding.
- Further support should be identified and developed to assist vulnerable groups in completing the plan and preparing effectively for their flood risk, thereby reducing the impacts of existing inequalities.

Box 2: Diminishing capacities

"...during the worst of the floods, the emergency services couldn't get anywhere near us and there was an elderly lady lives in the house opposite. Luckily her ground floor wasn't flooded, but they couldn't have got her out of there if she'd had an emergency, they just couldn't.... [She is] 82 years old... very frail and we all want to help her, but we can't get over there to put out sandbags and things. So...when it's flooding, there is this real constraint on what the neighbours can do to help her. Yes, we can ring her and make sure that she's upstairs and all that sort of thing. And when it abates, we can go and help her clean up, which all of these things we've done... she does struggle with stairs. She can do it but she's fallen quite a few times and does struggle and I can't hurry up the stairs."

(Participant 45, over 55, female, flood experience, Perth and Kinross).

3.3 Trusted messengers and dissemination pathways

Evidence from previous research has shown that communication about flood risk must come from trusted sources if it is to be effective (Seebauer & Babcicky, 2018; Kellens et al, 2013; Kuhlicke *et al.,* 2011). Therefore, targeting specific groups who should benefit most from engaging with the household flood plan, like social housing tenants, will only be effective if householders trust the organisations and groups disseminating it.

Trust in organisations is fluid, situational and multi-dimensional, and hence can and should be built between the public and institutions before new resources or initiatives are rolled out (Larson *et al.,* 2024). Building this trust in credible information sources can then help address the often-unchallenged trust individuals put in unevidenced information which can spread rapidly through communities (Larson *et al.,* 2024). Trust-building elements necessary before a new public intervention begins include early engagement to build relationships, alongside ensuring all interactions are transparent, establishing shared goals and expectations, and actively addressing barriers to trust before the public receives the resource. (Lansing *et al.,* 2023).

Therefore, to maximise the potential for uptake before the household flood plan is rolled out to the public, consideration should be given to developing a proactive partnership involving key actors such as housing associations, the Scottish Flood Forum, the NHS (including service managers, health improvement teams etc.), local authority resilience teams, community planning partnerships, flood action groups, community groups, social care partnerships and services, and third sector organisations who support older people, the disabled, and those with long-term health conditions. This partnership should consider developing a shared strategy for dissemination and may also wish to involve other organisations in raising the profile of the plan, such as SEPA and Scottish Water.

From the responses received from Phase 2 participants in this study, stakeholders in key institutions and organisations welcomed the opportunity to engage and co-create this dissemination strategy. These organisations shared a common goal of improving the Scottish public's flood preparedness (see Section 3.1.2), although those in local authorities were also open about the challenges they have in building trust with local householders. While local authorities may not currently be seen as trusted messengers in some places, this is fluid and may change in future. Despite this perceived mistrust, local authority representatives were still very supportive of disseminating the plan and recognised its benefits, as highlighted by the example in Box 1. Local authorities also play an important role in sharing who the trusted messengers are in communities with other agencies and organisations, as a Phase 2 workshop participant from the NHS noted:

> *"We've talked about trusted voices, and…I'm just thinking of ethnic minorities…*(and linking with) *a representative there…to help others understand what these* (plans) *are…trusted voices within your community…might not necessarily be the local authority in all cases, but they* (the local authority) *should be able to link in with who might be best placed to communicate that message.* (Participant 74, Public Health Scotland).

Participants in this study identified the most trusted messengers in Scotland as community groups, including flood action groups, third sector organisations, and the Scottish Flood Forum. It is recommended that these groups are involved throughout the co-creation of the dissemination strategy, as they are already heavily engaged in communicating flood risk preparedness and bring valuable expertise and support to the dissemination process. Furthermore, as well as co-creating the household flood plan in this project, these groups also welcomed and supported the idea of having a single household flood plan promoted across multiple channels, as one participant from a community flood group noted:

> *"If we can have something that everyone can read [and] know that the information is… valid, it's all factual…we can spread it through groups…I think to have one document that could be Scotland-wide…every organisation has that [same] document that people can look at, it would be definitely a step forward."* (Chair, local flood action group, east central Scotland).

Recommendations

- A dissemination strategy group should be formed, comprised of trusted messengers such as community groups, third sector organisations and the Scottish Flood Forum.
- This group should lead on the public dissemination of the plan, establishing a dissemination strategy and agreeing shared goals and expectations so that public engagement and messaging is consistent across all organisations.
- This group could also identify and address barriers that may reduce trust and reduce motivation to maximise uptake. This includes trust within organisations, trust between organisations, and trust between those organisations and the public.
- Completion of the plan will raise individual awareness of local flood risk. This creates a short window of opportunity for local authorities and community groups to encourage engagement with local flood action groups and community flood plans, helping to strengthen overall community flood resilience. It is therefore recommended that these plans are introduced to groups alongside opportunities for people to meet key local actors, helping to build trust and connections between householders and those that can support them. The approach would depend on the audience and local groups, but examples may include: a local day-time introductory event for vulnerable people in a community hall or other local venue with Flo the flood bus attending; an agenda item included in a regular scheduled tenant's association meeting etc.

4. The future of household flood plans

Members of local flood action groups and representatives from local authority resilience teams were among the participants in this study who had lived experience of supporting individuals to build their household flood risk preparedness. These stakeholders stated that the plan will directly benefit their work by preparing at-risk households (see Section 3.3 and Box 1). This wider community and organisational support from flood action groups, local authority resilience teams, and others will not only assist with the uptake of household flood plans but also strengthen future community flood resilience through the co-creation of new community flood plans and increased community group membership.

An increase in uptake of household flood plans could also be supported by developments in home insurance. In particular, the emergence of the proposed Flood Performance Certificate will show current residents, insurers, mortgage lenders and prospective purchasers the current flood resilience of the property, as well as the property-level measures needed to improve that resilience (Flood Re, 2024). For homeowners, this may become a significant financial incentive in future, as taking steps to make their home more resilient could reduce their home insurance and enhance its resale potential. The certificate is focused on property flood resilience and therefore does not help people prepare their household or their lives for potential flood events. Consequently, the household flood plan will retain a crucial complementary role in domestic flood risk preparedness if the proposed Flood Performance Certificate is implemented across the UK.

Indeed, the household flood plan resource aligns directly with Flood Re's core purpose of reducing the cost and impact of flooding. Flood Re operates primarily in the background as a reinsurer, working with government and insurers rather than the public. However, there has been increasing effort in recent years to engage directly with householders to improve their understanding of flood risk, and to encourage the uptake of property-level resilience measures. Less flood damage ultimately reduces insurance claims and supports Flood Re's longer-term transition objective as it prepares for the end of its current scheme in 2039. Insurance providers similarly do not engage directly with the wider public on flood preparedness as a core activity, but they do engage indirectly through contact with their customers, particularly those identified as higher flood risk.

Improving household awareness and increasing household preparedness actions are therefore seen as critical by both Flood Re and insurance providers as they attempt to facilitate a smoother transition to a more risk-reflective insurance market. The interviewed insurance provider viewed household flood plans as a low-cost, complementary intervention that supports their organisation's objectives. Both this insurance provider representative and a representative interviewed from Flood Re suggested that they may be open to signposting customers to freely available household flood plans via their websites or through customer communications, particularly where this raises awareness and encourage preventative action. It is recommended that this pathway to dissemination be explored.

Recommendations

- New developments in home insurance, such as the Flood Performance Certificate, may potentially increase the uptake of plans by raising awareness of local flood risk, and should be monitored closely for such opportunities.
- Insurance providers could be supported through membership bodies like ABI/BIBA and Flood Re to help disseminate the plan and encourage uptake as part of their mission to raise flood risk awareness and promote action. They could be invited to do this by signposting the plan to their customers through their websites and/or in customer communications. It is recommended that existing links between these groups and the Property Flood Resilience Delivery Group in Scotland are used as a pathway to explore this opportunity.

5. Evaluation and Monitoring

The evidence shows that the uptake of the plan can be supported in several ways and hence it is recommended that a clear strategy for dissemination is developed by a collaborative group of multiple organisations (see Section 3.3). By developing a collaborative dissemination strategy, systematic implementation becomes more feasible and ad hoc implementation is avoided, as this would increase the difficulty of accurately monitoring uptake. The dissemination strategy group could also share data around plan uptake and effectiveness to create a clearer understanding of the plan's impact on households across Scotland.

Recommendations for monitoring uptake

- To monitor uptake of this plan, it is recommended that dissemination organisations should a) monitor the number of plans they distribute, who they send them to and where those groups are located; b) what enquiries and questions they have received about the plans; and c) capture challenges they encounter.
- SEPA flood map visitor data should be collected and analysed when the flood plan is introduced in new places or amongst new groups to demonstrate whether the plan created the 'warm-up' behaviours anticipated i.e. check for an increase in views potentially driven by plan signposting.
- If suitably resourced, the Scottish Flood Forum could potentially provide uptake monitoring data by asking people during their first contact whether they have heard of and/or completed the plan, and if so, whether they were contacting SFF because it was signposted in the plan.
- A small number of questions about flood risk awareness and household flood plan uptake could also be included in the Scottish Climate Survey and/or the Scottish Household Survey to offer an alternative data source to triangulate uptake figures.

Recommendations for evaluation of the plan and its dissemination.

- Once implemented, the plan's effectiveness should be evaluated using a theory of change approach, which explains how and why actions are expected to lead to desired outcomes and long-term impacts. Evaluation of the plan should be conducted over a longer period to ensure that the impact of plan completion on post-flood recovery is measured.
- An evaluation of the effectiveness of the household flood plan dissemination strategy should also be conducted as part of the wider evaluation of the plan.

6. Conclusion and recommendations

The research project applied the latest behavioural science evidence to produce a household flood plan template which was user tested via community engagement. It also considered what future actions could support the uptake of household flood plans and thereby increase the number of households completing them (see Appendix 1 for link to the plan). Our conclusions from the analysis of behavioural insights and the data collected are reported below, after which our recommendations are outlined.

6.1 Conclusions from Phase 1: Developing the household flood plan

The following findings from Phase 1 draw on the combined analysis of the Existing Examples Portfolio (EEP), the interviews and workshops, and the literature review:

- The plan manages cognitive load by limiting the volume of information and using concise checklists supported by visual illustrations to guide users.
- Personalisation was embedded in the plan because locally relevant and personally meaningful preparedness messages are more effective at attracting attention and encouraging homeowners to seek further information.
- Flood risk maps were signposted to provide personalised engagement with household flood risk, while accompanying guidance focuses on simple, achievable actions and signposts to support organisations to maintain confidence and encourage preparedness.
- The plan encourages discussion and sharing of preparedness advice within local communities, recognising that social interaction and place-based learning can strengthen engagement with flood risk preparedness.
- The household flood plan promotes timely preparedness actions, highlighting simple steps that can be taken both now and when flooding is likely, as such actions can reduce potential impacts and are rarely regretted.
- The plan includes a review prompt to encourage regular revisiting of flood preparedness information, recognising that awareness and learning from past flood events can fade over time.

6.2 Conclusions from Phase 2: Supporting and increasing uptake

The second phase of the project focused on capturing the experience of professional stakeholders from a range of key organisations. A number of conclusions emerged from combining the analysis of this Phase 2 data with the data from Phase 1 (see Appendix 7). The following findings are grouped according to the research questions the study sought to answer

RQ1. The public's awareness around making household flood plans

- The public's awareness of their household flood risk in Scotland remains low as evidenced by previous studies and confirmed by professional stakeholders' feedback in this research. It is therefore likely that awareness of household flood planning is even lower.

RQ2 & RQ3. Who benefits most and ensuring inequalities are not increased

- People renting their accommodation, particularly those in social housing, may be pushed into poverty by the hidden costs associated with flooding. Therefore, while everyone at risk could benefit from having a household flood plan, those who rent homes in at-risk areas have a particularly pressing need.
- Place attachment can strengthen local social capital and connectedness. However, it may also prevent vulnerable individuals from leaving areas at flood risk as their capacity to act diminishes, potentially increasing risk to both the individual and those who support them within the community.
- Vulnerable individuals with limited capacity, including persons with disabilities, would benefit from planning in advance how they would prepare for flooding, particularly where their capacity may decline temporarily through illness or more permanently through natural ageing.
- Category 1 responders may also benefit from households completing flood plans, as this can help manage public expectations during emergencies and provide households with clear steps to follow, enabling a more prepared and calmer response.

RQ4. Which organisations do the public see as 'trusted messengers' in terms of the delivery of resilience support, such as household flood plans?

- The public should have trust in organisations and institutions promoting the plan before the plan is disseminated.
- Organisations identified by stakeholders as trusted messengers in this study include local community and flood action groups, third sector organisations, and the Scottish Flood Forum.
- Key stakeholders from organisations working closely with the initial target groups may be well placed to identify barriers to building trust.
- These barriers, and their potential impact on the uptake of the household flood plan, can be addressed during the co-creation of the dissemination strategy by drawing on the collective experience of participating organisations and stakeholders.

RQ5. Engagement/delivery mechanisms that could increase the uptake of flood plans

- Large-scale awareness campaigns appear to have limited effectiveness, whereas social influence (i.e. social norms and trusted voices) within communities can more effectively engage people with their flood risk, particularly through motivation to support others.
- Latent community resilience may encourage uptake of household flood plans when flood preparedness is framed as a social responsibility to protect vulnerable people and support emergency services, potentially helping to establish new social norms of readiness. Further research is required to explore this.

RQ6. Connection between community flood plans and household flood plans

- Increased awareness of flooding through exposure to household flood plans may, when combined with support from flood action groups and local authority resilience teams, help activate latent community resilience and encourage more neighbourhoods to develop community flood plans.

RQ7. The evolving landscape of household flood plans in Scotland

- Developments in home insurance may increase uptake of household flood plans by raising awareness of local flood risk. In particular, the emerging Flood Performance Certificate will highlight the current flood resilience of properties to residents, insurers, mortgage lenders, and prospective buyers, while identifying opportunities for improvement.
- The household flood plan aligns closely with the core purpose of Flood Re, which is to reduce the cost and impact of flooding.
- Insurance providers and Flood Re have indicated openness to supporting the household flood plan by signposting customers to freely available plans through websites or customer communications, particularly where these encourage awareness and preventative action.

6.3 Project Recommendations

The insights gained from this research evidence support the following recommendations, which are structured around key project research questions:

Format and accessibility of the plan
• This plan should be printed and disseminated widely across Scotland in hard copy to ensure that digitally excluded people can access it and that it remains available to people if they have no digital access in an emergency. • The plan should be translated and made available in multiple languages, appropriate to the demographics of the Scottish population. • Any future online version created should be compatible with screen readers and hosted on a site which can facilitate login requirements to allow uptake to be monitored. In the interim, the online screen reader-friendly version could become the public online household flood plan for those who prefer digital access. • To reduce the impacts of existing inequalities on plan uptake and completion, community-based support should be identified and developed to assist vulnerable groups and individuals e.g. through additional financial resourcing to increase capacity of third sector and support organisations.

Increasing uptake

- A dissemination strategy group should be formed, comprised of trusted messengers such as community groups, third sector organisations and the Scottish Flood Forum.
- This group should lead on the public dissemination of the plan, establishing a dissemination strategy and agreeing shared goals and expectations so that public engagement and messaging is consistent across all organisations.
- This group could also identify and address barriers that may reduce trust and reduce motivation to maximise uptake. This includes trust within organisations, trust between organisations, and trust between those organisations and the public.
- Completion of the plan will raise individual awareness of local flood risk. This creates a short window of opportunity for local authorities and community groups to encourage engagement with local flood action groups and community flood plans, helping to strengthen overall community flood resilience. It is therefore recommended that these plans are introduced to groups alongside opportunities for people to meet key local actors, helping to build trust and connections between householders and those that can support them. The approach would depend on the audience and local groups, but examples may include: a local day-time introductory event for vulnerable people in a community hall or other local venue with Flo the flood bus attending; an agenda item included in a regular scheduled tenant's association meeting etc.
- New developments in home insurance, such as the Flood Performance Certificate, may potentially increase the uptake of plans by raising awareness of local flood risk, and should be monitored closely for such opportunities.
- Insurance providers could be supported through membership bodies like ABI/BIBA and Flood Re to help disseminate the plan and encourage uptake as part of their mission to raise flood risk awareness and promote action. They could be invited to do this by signposting the plan to their customers through their websites and/or in customer communications. It is recommended that existing links between these groups and the Property Flood Resilience Delivery Group in Scotland are used as a pathway to explore this opportunity.

Priority target audiences & the plan's impact on inequalities

- Dissemination of the plan should prioritise:
    - Social housing tenants at flood risk as they can endure significant hidden financial costs if they are unprepared for flooding.
    - People at flood risk with limited and/or diminishing capacity to act, temporarily or permanently, including older people, persons with disabilities and/or long-term health conditions, as they should regularly review their capacity to act to ensure they can prepare effectively.
- In flood risk areas, additional support should be provided to older people and those with disabilities and/or long-term health conditions to help them regularly review their capacity to prepare for and respond to flooding.
- Further support should be identified and developed to assist vulnerable groups in completing the plan and preparing effectively for their flood risk, thereby reducing the impacts of existing inequalities.
- A lack of data on flood risk perceptions and preparedness among Scottish people with protected characteristics – including age, gender, disability, and socioeconomic disadvantage—continues to limit understanding of how flood risk and related communication affect these groups and further nationally representative survey research in this area should be prioritised.

Key motivational messages

- The public should be informed, through communications from dissemination organisations accompanying the plan, that
  - o Creating a personal household flood plan can help them protect themselves and their family in the short term during a flood event.
  - o Completing a plan is a socially responsible action, as it can reduce pressure on emergency services and allow support to be prioritised for more vulnerable households during flooding events.
- Any dissemination strategy should focus on engaging with existing community networks e.g. tenants' associations; local clubs; social clubs for vulnerable people etc. This could increase uptake, as social networks and connections can help motivate people to engage in flood preparedness behaviours through observing others' behaviour and/or supporting others in the community to act.
- By increasing flood risk awareness through the dissemination of the household flood plan, new opportunities may emerge to engage with communities and develop local community flood plans. It is recommended that capacity and resourcing be planned and available should such opportunities arise.
- Category 1 responders should be made aware that encouraging households to complete the plan could reduce demand in peak emergency times, enabling those responders to prioritise the needs of vulnerable groups. This could be achieved through including representatives from organisations like Scottish Collaboration of Transportation Specialists (SCOTS), Public Health Scotland, Police Scotland and Scottish Fire and Rescue on the dissemination strategy group.

Monitoring uptake

- To monitor uptake of this plan, it is recommended that dissemination organisations should a) monitor the number of plans they distribute, who they send them to and where those groups are located; b) monitor what enquiries they have received about the plans; and c) capture any queries, questions or challenges they encounter. Analysis of this data should then inform refinements to future dissemination.
- SEPA flood map visitor data should be collected and analysed when the flood plan is introduced in new places or amongst new groups to demonstrate whether the plan created the 'warm-up' behaviours anticipated i.e. check for an increase in views potentially driven by plan signposting.
- If suitably resourced, the Scottish Flood Forum could potentially provide uptake monitoring data by asking people during their first contact whether they have heard of and/or completed the plan, and if so, whether they were contacting SFF because it was signposted in the plan.
- A small number of questions about flood risk awareness and household flood plan uptake could also be included in the Scottish Climate Survey and/or the Scottish Household Survey to offer an alternative data source to triangulate uptake figures.

Evaluation of the plan and its dissemination

- Once implemented, the plan's effectiveness should be evaluated using a theory of change approach, which explains how and why actions are expected to lead to desired outcomes and long-term impacts. Evaluation of the plan should be conducted over a longer period to ensure that the impact of plan completion on post-flood recovery is measured.
- An evaluation of the effectiveness of the household flood plan dissemination strategy should also be conducted as part of the wider evaluation of the plan.

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Appendix 1: Link to the household flood plan template

The household flood plan template can be found on the CREW publication page for this project: https://www.crew.ac.uk/publications/household-flood-plan

Appendix 2: Methodology

Phase 1

Phase 1 data collection involved developing a portfolio of existing examples called the Existing Example Portfolio (EEP). This fed into both the co-design of the plan themes and statements and informed the literature review. The literature review also assessed evidence on behavioural insights, and both analyses from this EEP and insights evidence informed the design of the plan and the statements within it (see Figure A1).

Phase 1 Existing Examples Portfolio (EEP)

The *Existing Examples Portfolio* (EEP) was created from database searches and Google to collect and collate published examples of household plans from across the UK. This included emergency and resilience plans alongside household guidance documents which covered flooding to ensure a broad range of examples. A follow-up search of individual Scottish local authority websites was also conducted to find publicly available local plans on web pages which may not have been identified by the search engines. The collated plans were reviewed by members of the research team and duplicates were removed. A final list of 69 unique documents was included in the EEP. The content of each plan was then analysed to establish thematic areas essential in a household flood plan. Within these established thematic areas, examples statements from existing plans were then organised under appropriate sub-themes (e.g. 'know your risk'; 'insurance'; 'physical preparations' etc.) and their content analysed.

The messages within each analysed theme (e.g. insurance; preparing your home; important contacts etc.) were reconstructed and refined to create multiple example statement groups within each theme. The research team then selected statements from those groupings for evaluation by participants. Using artificial intelligence (Copilot and ChatGPT), multiple versions of these statements were then created with the same core content phrased in multiple ways. This process of refining and rephrasing was undertaken most extensively between Stages 3 and 4 (see Figure A1). The final draft plan was presented to a wide group of participants during the fourth stage.

Phase 1 Literature review

Alongside investigating the four emergent themes from the EEP, the literature review used online search engines and databases to collect robust research evidence on:

- Theoretical frameworks
- Risk perceptions and behaviour
- Embedding behavioural insights into the design of a household flood plan
- Encouraging engagement in household flood planning

Phase 1 Qualitative methods

The Phase 1 qualitative methods included interviews with an embedded evaluative think-aloud process, and community workshops. Both flood experienced and non-experienced participants participated in the interviews and workshops. These participants evaluated the draft plan statements and graphics between September and November 2025.

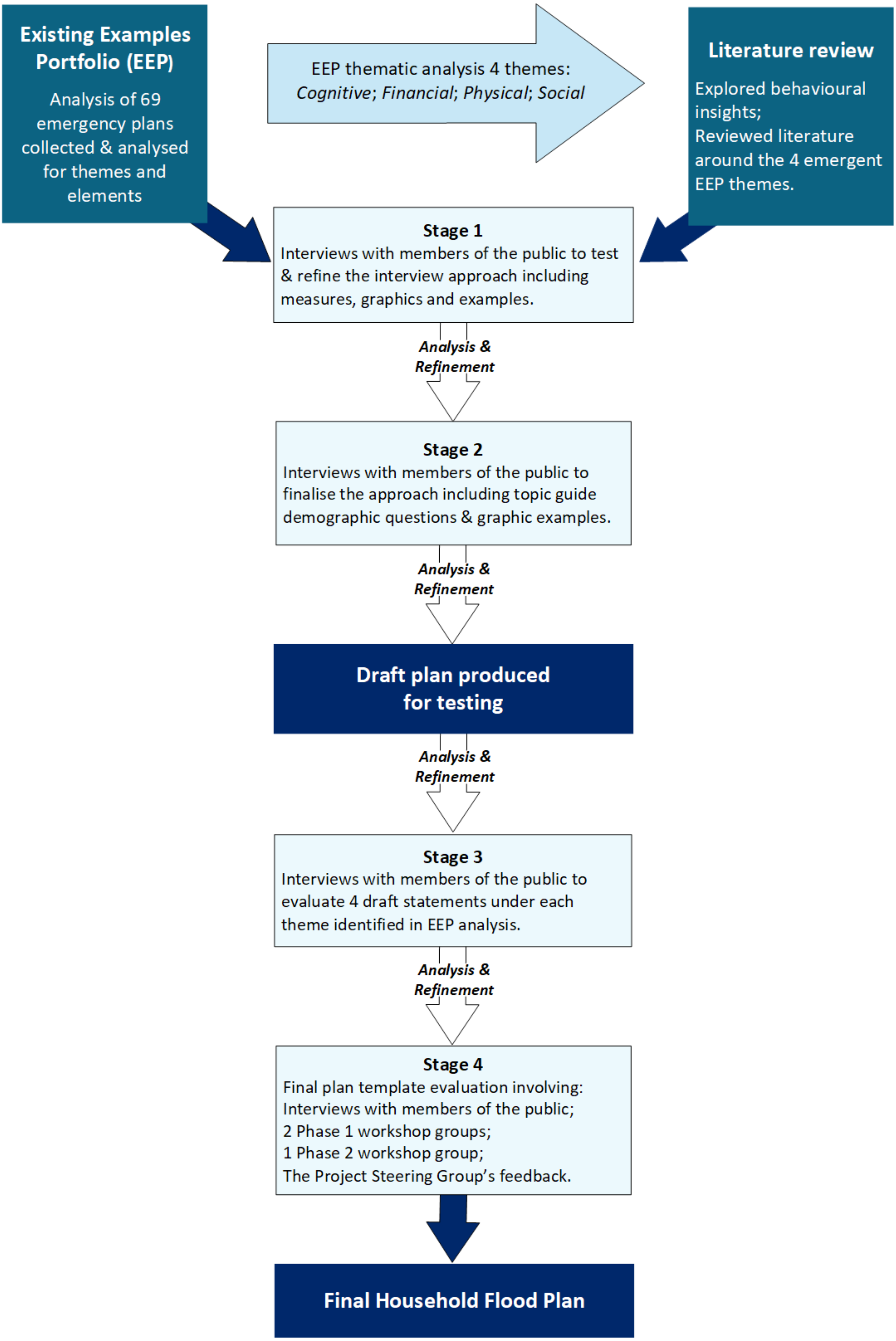

Figure A1: Phase 1 methodological approach

Participants and the 4-stage approach

Interview participants were recruited from existing networks and by purposive snowballing i.e. participants were invited to share the project details with others in their network who might be willing to participate. Using the Scottish 2021 census profile to understand the demographics of the Scottish population, recruitment was balanced to reflect Scottish society as much as possible, including by age, capabilities and ethnicity. Children under 18 were excluded from this exploratory study. Purposive recruitment also ensured householders were represented from Scottish neighbourhood deciles as classified by the Scottish Index of Multiple Deprivation (SIMD). University ethical approval was granted and all interviews were audio-recorded and transcribed for analysis. In total, 49 people were interviewed within this Phase 1 sample between September and November 2025.

A pilot topic guide, initial example statements, and example graphics were developed from the literature and EEP analysis. They were tested across 4 stages:

Stage 1 – Exploratory pilot testing of the feasibility of the planned approach, including existing graphic examples of grab bags, and topic guide questions.

Stage 2 – Pilot testing of potential statements, including existing graphic examples of grab bags, and topic guide questions.

Stage 3 – Refined thematic groups of statements evaluated by users; new graphics developed by the graphic design team; checklist preferences.

Stage 4 – Final statements evaluated by users; graphics evaluated.

Stages 1 to 3 were conducted as part of the interview process only, while the fourth and final evaluation was conducted both by Phase 1 interview participants and by participants in 2 community workshops. The first of these community workshops was an online workshop on 4 November 2025 and involved 10 community participants with flood experience from Angus. The second workshop was held in-person in Motherwell with 9 community participants who had little or no flood experience. Finally, 13 professional stakeholders in Phase 2's online stakeholder workshop on 12 November 2025 also evaluated the final statements and graphics. In total, 81 participants reviewed the household flood plan drafts statements in the co-creation process, of which 54 participants evaluated and gave feedback on the Stage 4 full draft statements.

Phase 1 Interview process

The interviews were conducted online on Teams and Zoom due to the time constraints of the project and were recorded and transcribed using online tools. Interviews began with demographic questions asking participants about their level of education, occupation, whether English is their first language, age, health conditions, postcode, household, the dwelling they live in, insurance cover, flood risk awareness and flood experience (see Appendix 3). These questions were designed to ensure we sampled a diverse range of participants from across Scotland, and to open up discussion of participants' experiences and perspectives. Collecting specific data on income was considered to be beyond the scope of what was absolutely necessary to conduct this research. Instead, data was collected on participants' occupation (or last occupation if retired) and their postcode, to determine the level of deprivation in their neighbourhood.

We used the 4 Stage 1 interviews to a) assess the language used in the interview questions and prompts and b) to help design the co-creation process. The interview/feedback approach underwent minor revisions and was tested again with another 4 interview participants in Stage 2, conducted during the first week of October 2025. Stage 2 interview materials were tested in pairs to a) assess their ease and effectiveness and b) generate discussion between the participants as a think aloud i.e. they verbalised their feedback as they worked through the test materials then discussed potential consensus with their interview partner. Both this approach and the content were acceptable to these participants.

These pilot interviews with Stage 1 and 2 participants highlighted a key challenge, specifically that presenting 15 slides in one interview session was too much content to complete in an hour or less. Each slide presented one theme with 4 draft statements. To protect the participants from fatigue, Stage 3 (n=19) participants were split into 2 groups i.e. flooded and non-flooded participants. Those with no flood experience evaluated the flood risk awareness themes, including *Why read this document; Why make a plan; Know your risk; and Know your responsibilities.* Those with flood experience evaluated *Insurance; Flood protection measures; Grab bag; Physical preparations; Protecting valuables; Protecting your vehicle; and Turning off services.* Both groups also evaluated the 3 Social themes – *Neighbours and in your community; Personal contacts; and Key other contacts.* Both groups also gave feedback on example grab bag graphics.

The findings from Stage 3 were analysed and the most preferred statement in each theme was identified form the collective responses. For some themes, the single statement comprised of preferred phrases from multiple test statements. These statements then formed the Stage 4 slides. Each statement sat under its heading e.g. *Know your risk; Insurance* etc. and were listed across 5 slides. This Stage 4 version was shorter than either of the Stage 3 versions and was used with all participants i.e. all Stage 4 interviewees (n=22) and workshop participants (n=19) were presented with this 5-slide version along with example grab bag graphics for evaluation and feedback.

Phase 1 Community Workshops

Two Phase 1 community workshops were facilitated in November 2025 to evaluate the plan as described above. The first was an online Teams workshop with flood experienced participants in Angus which lasted 1 hour and was recorded and automatically transcribed. The 10 participants were given a presentation on the project aims and background and were then shown the Stage 4 draft plan in full before they discussed its contents together as a group.

The second workshop was in-person in Motherwell and held in a hall in the town centre. As they arrived, the 9 participants were split into 3 tables of 3. A facilitator from the research team was present at each table to take notes and to audio-record the discussions. The session began with a presentation to the whole group outlining the project aims and background, before participants were then invited to discuss their experiences of flooding within their small table groups. Following this discussion, participants were shown the Stage 4 draft statements and shared their verbal feedback within their small groups. The whole group then came back together again to discuss the graphic examples and share their preferences. The audio recordings were transcribed using Microsoft Word Transcribe.

Phase 2

Phase 2 aimed to consider what future actions could support the uptake of household flood plans and increase the number of households completing household flood plans. Insights gained during Phase 1 and from the behavioural science literature review were used to frame the engagement with public and private sector stakeholders (see Figure A2 and Appendix 7 for detailed Phase 2 data collection methods and evidence produced). Themes in Phase 2 were drawn from the following research questions:

1. What is the public's awareness around making household flood plans?
2. Who benefits the most from having a household flood plan? Should they be targeted at everyone or at key at risk groups? If targeted, how could that be achieved?
3. What engagement/delivery mechanisms would increase the uptake of flood plans?
4. How is the landscape of household flood plans evolving in Scotland?
5. How can we help ensure we do not increase inequalities by encouraging the uptake of these plans?
6. Which organisations do the public see as 'trusted messengers' in terms of the delivery of resilience support, such as household flood plans?
7. Could there be a connection between community flood plans and household flood plans?

Phase 2 Stakeholder Workshop

An online stakeholder engagement workshop was run on 12th November 2025 with 13 professional participants from key stakeholder organisations including Scottish Water; REACT; Public Health Scotland; NHS Lanarkshire; South Ayrshire, Perth and Kinross; Clackmannanshire, Fife and Dumfries & Galloway local authorities; Transport Scotland; and NHS Fife Health and Social Care Partnership. The workshop began with a presentation to all participants about the project aims and background. The participants then split into small groups and evaluated the Stage 4 slides. They then had a break before returning to their small group to have discussions around the themes drawn from the 7 questions above. Audio recordings were transcribed automatically by Teams.

Phase 2 Interviews

Two online interviews were held in Teams on 26 November 2025 with representatives from the insurance industry (Aviva and Flood Re). This data supplemented the stakeholder workshop findings from the insurance industry perspective. These participants also discussed the themes drawn from the 7 questions above and were shown the Stage

4 slides so they could understand the plan and its potential. The audio was transcribed automatically by Teams.

Phase 2 Online survey

A 15-minute online survey was distributed to stakeholder organisations identified through the professional networks of the research team and the Project Steering Group in the week commencing 24th November 2025. The aim of the survey was to supplement the Phase 2 data by collecting more data on the most effective format, who could benefit most, usefulness to their organisation, trusted messengers, and barriers /challenges. There were 15 survey responses. Most respondents' organisations operated at a national or regional scale, rather than exclusively local: 53% national (Scotland-wide); 27% regional (local authority scale); 7% regional and national; 7% local, regional and national; and 7% UK and international). The majority (93%) were from large organisations (250+ staff). All respondents were public-facing, working directly with the public and with 500+ people/year. Respondents held senior, technical or leadership roles, including emergency planning and resilience; flood and sewer flooding management; engineering and water management; service and business planning; and communications, data analysis and operations. Responses therefore reflect operational, strategic and decision-making perspectives.

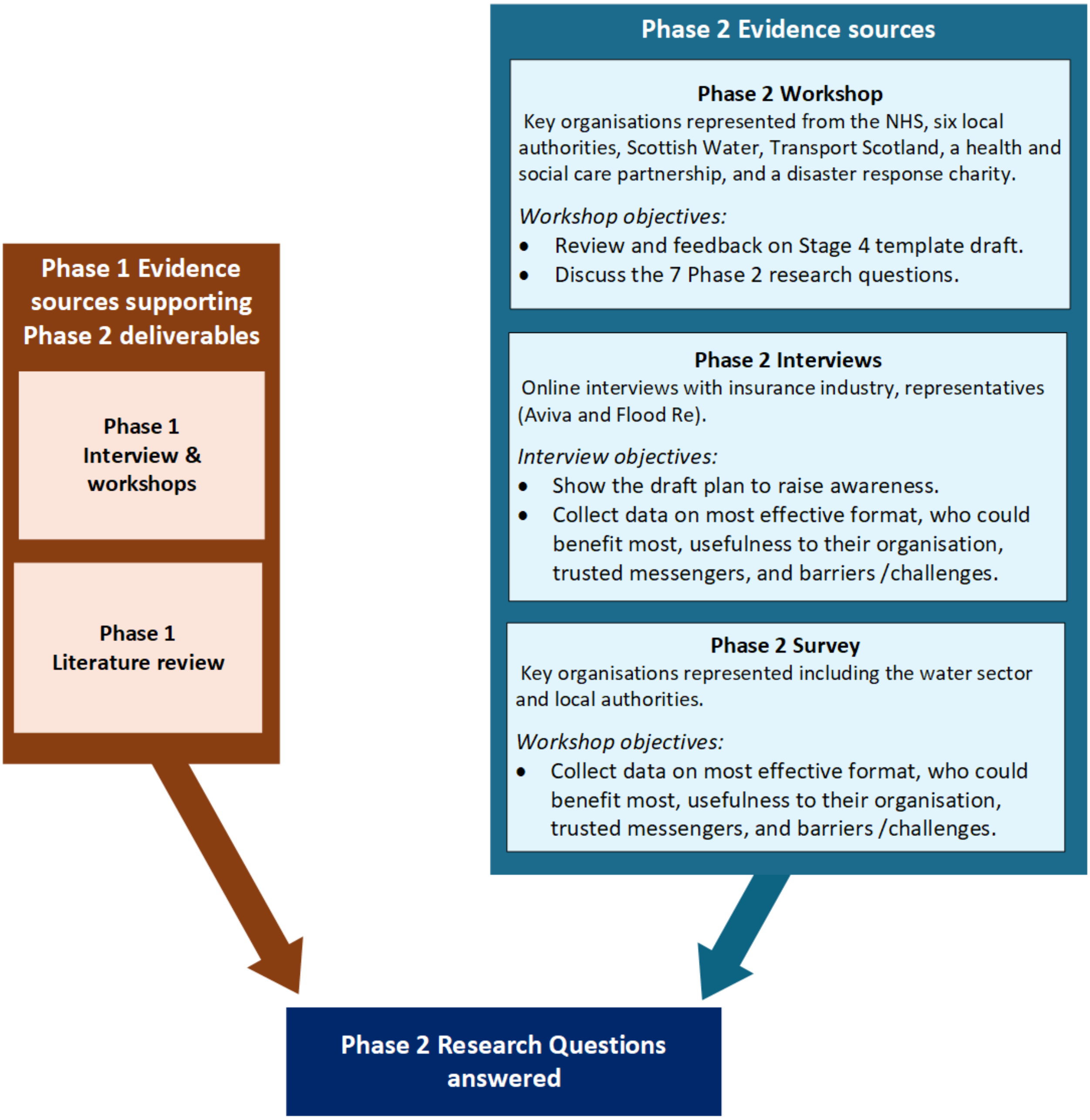

Figure A2: Phase 1 & 2 methodological approaches supporting Phase 2 deliverables.

Appendix 3: Phase 1 Topic Guide for interviews

Part 1 – Demographic information

Instructions: *As we develop the template, we need to gather the views of as many different people as possible. This means we need to know more about you, so I am going to start by asking you some questions. Please feel free to decline to answer.*

1. To begin, can you tell me what stage of education you completed, for example, high school, College, a University degree?
2. What is or was your last job?
3. Is English your first language? Are any other languages spoken at home
4. Which category would you describe yourself as being in: age 18 to 24, 25 to 54, or over 55 ?

Instructions: *I am now going to ask a few questions about your health & wellbeing. This is to ensure we speak to a broad range of people with different life experiences. We do not need to know any details about those conditions. Again, please feel free to decline to answer.*

5. Do you have any health conditions that impact your ability to access information in any way?
6. Do you have any health conditions that impact your mobility in any way?

Ask 7 ONLY if one or more above is YES:

7. Do you believe any of these conditions would impact your response to an emergency situation in your home and surrounding area?

Instructions: *As this is a household flood plan, I am now going to ask you a few questions about your home and who you live with. This is because flood risk affects different households in different ways.*

8. So we can understand your local area, would you mind sharing your postcode, please?
9. To better understand what people need from a household flood plan, how many people do you live with?
10. Can you tell me what your home is? For example, a tenement flat, a terraced house, a caravan, a bungalow.
11. Do you have both buildings and contents insurance cover?

Part 2 – Flood experience

Instructions: *We would now like to understand your previous and current awareness and understanding of flooding.*

12. Who is responsible for protecting your home and your household from flooding?
13. Have you ever been flooded? If NO – > Q12c (Slideshow: Non-flooded group)

b. (Only if yes) Can you tell me more about that experience? (Slideshow: Flooded group)

c. (Only if no) Are you concerned about the risk of flooding in your home?

14. Where do you get your flood risk information from?
15. What measures do you already take to prepare for potential flooding events or a household emergency like loss of power etc.?
16. How confident do you feel that you can protect your home from flooding if it were to happen?

Part 3a – The examples slideshow - Statements

Instructions: *I'm now going to show you some statements that could be in a household flood plan. I am interested in what you think about the language used and the tone of the statement. I would also like to know if any of the statements cause you to feel anxiety, stress or any other emotion. Please also tell me what you think about the statement's relevance and importance to you. Finally, after reading each statement, I would like you to consider whether that statement has too much or too little information in it, and whether anything is missing. To help you remember those 4 different aspects, they are written in lighter text across the top of every slide. Do you have any questions before we start? Here is the first slide. Can you read the text okay?*

Please read these statements.

- After you read each statement, please tell me your thoughts in a few words, including about language and tone, emotion generated, relevance, and the amount of information included.

[Stage 3 only once they have read all 4 statements on the slide]

- Please tell me which single statement, if any, you think would be best for a Scottish household flood plan and why? You can also pick out phrases to make a new statement if you prefer. Please explain why you like that statement/new version.

Part 3b – The examples slideshow – Graphics

Instructions: *Here are two different examples. These examples are presenting information specifically about a flood kit or grab bag's contents.*

C. Which one of these two examples do you prefer, number 1 or number 2? Why?

D. Would you prefer completing a checklist like Number 1, or a checklist like Number 2? Why?

Instructions: *That ends this part of the interview. I just want to close by capturing your concluding thoughts.*

Part 4 – Concluding thoughts

i. Having seen the material today, what are your overall thoughts? E.g. Any suggestions? Any potential challenges?

ii. Is there anything else you would like to add or ask me before we conclude the interview?

Interview ends

Appendix 4: Agenda from Phase 1 community workshops

Workshop Outline:

- Welcome and introductions
- About this project
- Reviewing the statements
- Graphics evaluation
- Final discussions

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Appendix 5: Agenda from Phase 2 stakeholder workshop

Workshop Outline:

- Welcome and introductions
- About this project
- Phase 1 Summary
- Activity 1: Reviewing the statements

Coffee Break

- Activity 2: Discussion of research questions
- Graphics evaluation and Final Thoughts

Appendix 6: Phase 2 themes for interviews and survey

- Background to participant's role and organisation
- Participant's awareness of household flood plans and experience of using similar tools (if any).
- Perceived usefulness (or not) of the plan to their organisation's work.
- Participant's perception of flood risk awareness amongst the public.
- From their professional experience, participants' suggestions/opinions on:
  - Most effective format for the plan e.g. printed through letterbox, online.
  - Targeting audiences.
  - Who the public see as trusted messengers.
  - Who their organisation would regard as trusted messengers.
- Barriers and challenges to household engagement with flood plans and uptake.

Appendix 7: Methods mapped on research objectives

Green: Evidence supported answer to this RQ Red: No relevant evidence from this method	Method useful in deriving the evidence					
	Phase 1			Phase 2		
	EEP	Literature Review	Interviews Workshops	Workshop	Interviews	Survey
Phase 1: Development of household flood plan	Green	Green	Green	Green	Red	Red
Phase 2: Research Questions (RQs) –	Red	Green	Green	Green	Green	Green
1. What is the public's awareness around making household flood plans?	Red	Green	Green	Green	Green	Green
2. Who benefits the most from having a household flood plan? Should they be targeted at everyone or at key at risk groups? If targeted, how could that be achieved?	Red	Green	Green	Green	Green	Green
3. What engagement / delivery mechanisms would increase the uptake of flood plans?	Red	Green	Green	Green	Green	Green
4. How is the landscape of household flood plans evolving in Scotland?	Red	Red	Green	Green	Green	Green
5. How can we help ensure we do not increase inequalities by encouraging the uptake of these plans?	Red	Green	Green	Green	Green	Green
6. Which organisations do the public see as 'trusted messengers' in terms of the delivery of resilience support, such as household flood plans?	Red	Green	Green	Green	Green	Green
7. Could there be a connection between community flood plans and household flood plans?	Red	Red	Green	Green	Green	Green

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