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Supporting the uptake of resilient repair in the recovery process (FD2706): Final Report

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We hope that communities requiring support to enhance their resilience to flooding will benefit from the results of this research.

Glossary

Betterment (avoidance of): UK insurance policies are based on reinstating a building to the same condition as it was before the flood damage/loss occurred (indemnity principle). Any 'improvements' to a customer's home constitute 'betterment' of the property and are not, therefore, covered by the insurance policy.

Claims Management (companies): companies that specialise in managing claims including putting in place contractors to undertake the necessary drying and repair work (damage management companies). They may represent a policyholder in their claim independently or be instructed by insurers; may take the form of claims managers, independent loss assessors, loss adjusting companies, contractors, or other professionals.

Damage Management (companies): specialise in the organization and management of the stabilization, mitigation and restoration of properties, contents, facilities and assets following incident damage (BS12999-2015).

Loss Adjuster: an independent claims specialist who assesses loss and damage and investigates large or complex claims; usually employed by the insurance company.

Loss Assessor: a company or individual who is employed by the policyholder to negotiate on their behalf to progress a claim to resolution.

Recoverable measures: (Also known as flood repairable approaches, water entry strategy, resilient reinstatement, resilient repair or wetproofing). These are defined as measures that are designed to limit loss, damage and disruption in the event that water enters the building envelope during a flood.

Reinstatement (flood reinstatement) the process of assessing, drying, replacing and repairing a property and contents to bring policyholders back to pre-flood condition.

Repair (building repair) the building process of repairing existing or replacing stripped out building elements after drying and necessary strip-out following flooding.

Reinstatement/repair (companies): specialise in the post-drying repair of a property.

Resilient adaptation: implementation/retrofit of property level resilient measures (including but not limited to resilient repair).

Resilient reinstatement: an approach to reinstatement that includes reducing unnecessary strip-out and implementation of resilient repair.

Resilient repair: implementation of resilient measures within the process of flood damage repair sometimes known as "build back better".

Risk: the probability of harmful consequences or expected losses resulting from a given hazard to a given element at danger or peril over a specified time period (Risk is normally calculated as Probability x Consequence).

Risk management: the systematic process of risk assessment, options appraisal and implementation of any risk management measures to control or mitigate risk.

Secondary Damage: secondary damage is the avoidable damage that occurs after a water damage incident that may be caused by lack of prompt action such as removal of water or by transfer of water vapour to unaffected parts. Examples of secondary damage include increased moisture penetration and the onset of mould/fungal growth, in areas that were not originally affected.

Micro-businesses: those employing fewer than 10 people.

Small businesses: those employing 10-49 people

Small and Medium-sized Enterprises: those employing fewer than 250 people.

Soft strip-out (resilient strip-out): removal of wet contents and building fabric is often required to prevent secondary damage and facilitate drying. Soft strip-out is an approach that seeks to retain and dry materials in situ where possible.

Abbreviations

ABI	Association of British Insurers
BDMA	British Damage Management Association
B&B	Bed and Breakfast (alternative accommodation)
CDM	Construction (Design and Management) Regulations 2015 (UK)
CII	Chartered Insurance Institute (UK)
Defra	Department for Environment, Food and Rural Affairs
EA	Environment Agency
FEMA	Federal Emergency Management Agency (USA)
FGD(s)	Facilitated Group Discussion(s)
KPI	Key Performance Indicator
NFIP	National Flood Insurance Program (USA)
NGO	Non-governmental organisation (for example, charities)
PCA	Property Care Association (UK)
SME	Small and Medium-sized Enterprises
T&C	Terms and Conditions
UWE	University of the West of England, Bristol

Executive Summary

This Defra research project (FD2706) was concerned with how the professionals and organisations involved in the recovery process following a flood incident interact with householders and business owners. In particular, the way in which decisions are made about reinstatement was examined, as there is a need to improve the understanding of the opportunities within the process for encouraging resilient repair. Resilient repair is the application of property flood resilience measures during the recovery period so that, should there be another flood, the householder or business owner can re-occupy their properties more quickly, which has well documented benefits. Installing some measures during recovery has also been shown to be more cost effective and potentially less disruptive than the retrofitting of measures at other times.

The project had three elements: a quick scoping review; a series of case studies involving in-depth interviews with flooded households, small/micro-businesses and their repair networks; and, a series of facilitated group discussions with stakeholders to validate the findings of the Quick Scoping Review and case studies. Flow charts of the on-site and off-site processes and of the decisions involved in the repair of insured properties were developed to highlight the main points at which the 'resilience' of the reinstatement is determined. A list of 55 barriers and facilitators and a further list of 49 suggestions for change or wider application of good practice were extracted from the literature and interviews. Themes for improvement were developed and a selection of the suggestions was further explored in the facilitated group discussions.

This document summarises all three elements of the project. The detailed findings of the Quick Scoping Review are also available in a separate report. Detailed findings from the in-depth interviews and workshops are available as appendices to this report. The summary of key findings below relates to the whole project.

Key findings and recommendations

The project has identified a shift in the thinking about/practice of resilience in recovery within some sections of the industry. This thinking places greater emphasis on retaining existing resilience and reducing strip-out rather than replacing existing materials with more resilient ones. Therefore the term 'resilient reinstatement' is used in this report to describe the approach that includes the consideration of reduced strip-out and 'resilient repair' refers to the introduction of more resilient options during the repair phase of reinstatement.

Evidence suggested that having an overview (shared by all parties) of the whole process before strip-out and a shared plan could lead to resilient reinstatement where: i) contractors do not strip out fabric that is already resilient; ii) contractors do not spend time and energy drying contents and fabric that will later be replaced with more resilient alternatives; iii) consideration is given to selecting a reinstatement process that will enhance resilience within reasonable levels of cost and disruption.

Based on literature, interviews and case studies, the project found that the delivery of reinstatement presents many challenges – even before issues of resilience are taken into account. This is particularly the case in the aftermath of a large flood event. Despite insurers' and professionals' efforts, and acknowledged improvements in some areas since the 2000 and 2007 floods, the interviews for this project revealed that there are frequent delays to reinstatement and that the process of reinstatement is not transparent to stakeholders or policyholders. The project also found that the proliferation of different approaches to managing reinstatement since the millennium may have added to the confusion. Policyholders are often unhappy with the process and feel disempowered and disengaged. Professionals are naturally very concerned with the challenges of meeting their agreed contractual obligations.

Many of the recognised barriers to uptake are related to the fact that the challenges within the standard reinstatement process prevent the engagement needed to develop a shared plan. Therefore measures for simplifying decision making were proposed such as clarity around expectations and authorities within the professional supply chain, a clear presumption in insurance terms and conditions and contractual frameworks towards resilience; increased devolution of authority where appropriate, such as automatic implementation of neutral cost resilience or where funds are available from other sources.

In the same vein of simplifying decision making, given the inherent challenges, where cash settlements are agreed, the authority to decide on resilience rests solely with the policyholder. For those who wish to pursue resilient reinstatement, and are able to effectively manage the project (directly, or through an appointee), cash settlement can be an effective means to reduce administrative challenges. However, in itself, it is not a driver of resilient reinstatement and will not encourage uptake for policyholders not already predisposed to consider resilient reinstatement particularly if non-specialists are engaged. If insurers wish to encourage resilience, and can resolve the process issues, they are in a better position to influence uptake through the managed route rather than through cash settlement.

Whether the whole insurance industry (insurers and professionals) wish to actively encourage resilience, and what kind of resilience they would encourage is still unclear. The project revealed that there are different perspectives and goals even within the same company or associated supply chain. While the need for competition and commercial differentiation is recognised and acknowledged, other goals for reinstatement are more widely shared and clearly understood, and receive more attention from the industry. Standardisation across the industry could be encouraged through external influence e.g. government regulation or facilitation of self-regulation or agreements. In addition, general reinstatement standards (BS12999) and guidance (PCA Code of Practice) could be revised to include greater emphasis on resilient repair.

Streamlining the delivery of resilient repair could also make resilience during recovery more acceptable. Identification of established routes to source specialised materials and

trades can address many potential delays. There is also need to upskill professionals to meet the new expectations.

Acceptance of resilient reinstatement by policyholders is critical if uptake is to be increased. However, as the research supported, the recovery process is stressful and discussions of resilience are likely only to be constructive within trusted relationships. Therefore streamlining decision making needs to be balanced by improved engagement with policyholders' and better communication of decisions. Development of trust between professionals and policyholders enables acceptance of changes that are considered standard and understanding of options on which policyholders need to make informed choices. The research found evidence to suggest that policyholders relate well to companies and individuals that are in meaningful, frequent contact, are able to show empathy to the emotional aspects of flooding, and are delivering tangible, practical assistance.

The amount, quality and delivery of communication around resilience needs to increase. Insurers and professionals need to recognise the potential for trauma and stress to limit the ability of policyholders to base decisions on new information. During reinstatement, the concept of resilience should be introduced early and revisited at key points. Messages need to be consistent based on a consensus between professionals of the options to be discussed and their implications, including a recognition of any emotional aspects of suggested changes. Having a shared plan, clear lines of authority and a single informed point of contact within the insurance company can facilitate good communication.

Despite these improvements the potential benefits of resilience may need to be confirmed by independent sources before they are trusted. Some policyholders already consult trusted advisers (such as insurance brokers and the National Flood Forum) and some may welcome the opportunity to consult with independent sources of advice. There is, however, currently no clear funded route for this. Suggestions included funding for local authorities or charities, government guidance and signposting to existing independent guidance, industry-wide standards and codes of practice.

The project was focussed on the recovery process rather than broader questions about uptake of property flood resilience (such as awareness, funding or effectiveness) that have been covered by previous research. The project also sought to pinpoint issues specific to building reinstatement while recognising that effective flood recovery includes many more human, social and financial aspects. During the research suggestions were often raised that covered broader issues. These are generally captured in the detailed reports but two aspects are highlighted here: i) plans for resilient reinstatement are ideally formed before an event occurs both within the industry and by policyholders and therefore communication about resilience is needed at the point of policy purchase; ii) flood resilient repair can be included during any reinstatement process, not just after a flooding, if a known flood risk exists. Inclusion of guidance on flood resilience in reinstatement standards and codes of practice can, therefore, be generic and widely applicable.

1. Background

Despite investment in flood risk management assets, both in the past and planned for the future, households and small/micro-business premises remain at residual risk of flooding. The financial cost of flooding is borne by a variety of stakeholders including direct insurers, reinsurers (including Flood Re) together with households and businesses themselves. Just as important, however, are the non-financial costs, such as the distress and disruption caused, the ensuing mental health costs that affect society and the indirect impacts on national and local economies. Delays in recovering from flooding also result in costs to local authorities, for example where relief from paying council tax is granted. Recovery can be facilitated by the prevention, or reduction, in physical damage that can be achieved through property flood resilience (PFR). PFR includes measures to keep water out of the property (resistance, or water exclusion) and measures to prevent damage once water has entered the building (resilience, recoverability or repairable measures). The adoption of PFR can reduce the financial and non-financial impacts of flooding, by enabling householders and businesses to re-occupy their properties more rapidly. Despite the provision of grant funding removing some of the financial constraints, take up of resilient reinstatement still appears low.

It has been demonstrated that it is more cost beneficial and less disruptive to make internal adaptation in the aftermath of flooding when it is part of recovery work (Royal Haskoning, 2012; Joseph, 2014). Recent research for Defra (FD2682) (Lamond *et al.*, 2017) confirmed these findings, and revealed that resilient reinstatement could also be undertaken piecemeal. Low cost resilient reinstatement (as opposed to the more expensive packages previously considered) was found to pay back the initial costs after a single subsequent flood event, in some cases.

Lamond *et al.* (2017) also developed a series of innovative practices to assist professionals and practitioners to generate more opportunities to install repairable measures (for example, a checklist for use by loss adjusters/building surveyors). Trialling of these innovations revealed some operational constraints, relating to current insurance reinstatement practices that form barriers to the uptake of resilient reinstatement. These included: funding under the principle of 'avoidance of betterment'; timing issues (such as insurers' reluctance to risk works perceived as delaying completion); the short available time window for making recommendations and for policyholders to make choices; the lack of motivation for households and small/micro-businesses to agree to changes that may delay reoccupation; and lack of knowledge and experience in resilient reinstatement within the general reinstatement industry.

These factors are in addition to well-recognised barriers such as denial of risk, abrogation of responsibility by owners, and homeowner reluctance to consider reinstatement that does not replicate the way their homes looked prior to the flood. The latter issue is not simply a matter of aesthetics, but can be an attempt to reassert control after the perceived

'despoiling' of an intimate, identity-laden space. By recognising that some of these financial and emotional factors are relatively fixed constraints that will take time to change, this project sought to improve the delivery of resilient reinstatement to ensure it is more easily understood and more accessible to householders and small/micro-businesses.

By understanding how to remove logistical and process barriers that currently act to entrench attitudes, and deter otherwise willing parties from undertaking resilient reinstatement, the aim was to discover ways to make the process more straightforward, more consistent and more 'normal'. In the short term, this is expected to increase uptake (Harries, 2008) which in itself will help to erode some of the more intractable barriers via improved experience with resilient reinstatement.

The long term goal of this research, therefore, is to understand how to increase the take-up of resilient measures and materials by householders and small/micro-businesses during the recovery period. This would help to ensure that more properties are adapted to minimise the damage and disruption following flooding.

Project aims

The research aims were to:

- Understand the standard process of recovery for insurers, professionals, householders and small/micro-businesses and how this could be made more inclusive of resilient repair following a major flooding incident;
- Examine ways in which the delivery of resilient repair could be improved to ensure it is more easily understood and more consistently accessible to householders and small/micro-businesses across England;
- Identify opportunities for key actors (Government, insurers and professionals) to ensure resilient repair can be included in the repair and reinstatement work that takes place.

The research also sought to answer the following research questions that support the research aims:

1. What are the facilitators and barriers to the take-up of resilient repair in high flood risk areas, especially during and after major flooding incidents when local resources are stretched?
2. What approaches by those who commission work (including the Government, councils, builders, insurers and surveying industry) would ensure that professionals are better prepared to deliver resilient repair following major flooding incidents?
3. How does the reinstatement process currently work following a flooding incident? How can competing demands from insurers and the wider goal of delivering resilient repairs be harmonised at the professional level?

4. What approaches could be taken to make the implementation of resilient measures more effective in the recovery process following flooding incidents?
5. How do householders approach the 'project management' of the repair process, and how could awareness and knowledge about resilience be better supported in this process?

The scope of the project covers households and small/micro-businesses (focusing on those that occupy premises of a similar construction type to domestic property). The process of flood recovery is known to be complex, as it involves multiple professional stakeholders who interact directly with households and businesses (Soetanto, 2008; Samwinga, 2009; H M Govt *et al.*, 2010). To identify realistic opportunities for change, the project needed to understand the planned process (as seen through the eyes of insurance companies and administrators), and the lived process (as seen through the eyes of flooded households and small/micro-businesses, as well as the property professionals assisting them in recovery) (Woodhead, 2012).

2. Description of approach

The aims of this project required an approach that delivered a holistic understanding of the recovery process informed by the experience of households, small/micro-businesses and the reinstatement professions. First, a broad overview of the processes was constructed; second, an in-depth understanding of some of the potential challenges to resilient reinstatement was gained; finally opportunities to improve uptake of resilient repair during the recovery process were identified and validated. The approach was delivered through three data collections phases:

1. A Quick Scoping Review of the challenges and opportunities that included academic and policy literature and consultation with industry experts;
2. '360-style' case-studies, involving interviews with households, small/micro-businesses and the reinstatement professionals who had been involved with their recovery;
3. Facilitated group discussions with experts from major stakeholder groups to explore the validity of interim findings and suggested opportunities for improving the reinstatement process.

The 'Quick Scoping Review' which formed the initial phase of this project is available as a separate report¹.

2.1 Quick Scoping Review

The Quick Scoping Review sought to understand the available evidence about the process of resilient reinstatement and the associated facilitators and barriers. The Quick Scoping Review was carried out through an initial scoping of literature, combined with a series of interviews with experts in the claims process. This strategy combined published research with current practice. It was particularly important in this case because it is recognised that the evolution of the industry claims process has been driven by major flooding over the period 2014-2018 and the majority of published research findings precede this. (Full details of the protocol and search strategy are to be found in the Quick Scoping Review report¹).

2.1.1 Primary question for the Quick Scoping Review

The primary question for the Quick Scoping Review, based upon the need to gather evidence to support the 'broad overview' referred to above was:

¹ Lamond, J. and C. Rose (2018). Supporting the uptake of resilient reinstatement during the recovery process (FD2706): Quick Scoping Review. London, Defra.

“What do we know about facilitators and barriers to resilient repair during the recovery process of households and small/micro-businesses following major flooding?”

2.1.2 Supplementary research questions

The supplementary research questions for the Quick Scoping Review were developed from the project research questions, in order to focus the search upon the relevant evidence from all the sources to be interrogated. The full text sources accessed (147 in all) were scored for relevance against these supplementary questions (Table 1) which hereafter will be referred to as SRQ1-6.

Table 1 - Supplementary research questions

SR NUMBER	SUPPLEMENTARY RESEARCH QUESTION
SRQ1	<i>What processes and project management arrangements characterise existing approaches to reinstatement?</i>
SRQ2	<i>How do these processes and project management arrangements restrict or encourage resilient repair?</i>
SRQ3	<i>How is/can resilient repair be funded/resourced?</i>
SRQ4	<i>What are the criteria for successful reinstatement from the perspective of different stakeholders?</i>
SRQ5	<i>What are the challenges faced by households and small/micro-businesses in project-managing the process of resilient repair and how can they be addressed?</i>
SRQ6	<i>What hampers the engagement of professionals with resilient repair and how can these issues be addressed?</i>

2.1.3 Expert Interviews

Fourteen expert interviews were undertaken to capture additional evidence on the process of recovery from their perspectives as experts involved in supporting, overseeing and advising on recovery. Five target groups were identified, namely: insurance company representatives; loss adjusting professionals; insurance brokers; cleaning and drying contractors; and reinstatement contractors. Individuals were identified through existing contacts and internet searching and contacted through email, telephone and ‘LinkedIn’ messaging, before being formally invited to participate using a project information sheet, invitation letter and consent form in concordance with UWE ethics protocols². Respondents were asked to recommend further contacts for interview. Semi-structured interviews were also employed to collect qualitative data under the themes of role and

² UWE REC REF No: FET.17.11.014.

experience, the process of reinstatement, experience with resilient reinstatement and barriers and opportunities for resilient reinstatement.

Content analysis of the literature and interviews was undertaken under the research questions and data was extracted on barriers, facilitators and suggested improvements.

Following completion of the Quick Scoping Review, the research moved into the next phase, which is discussed in the following section.

2.2 '360-style' case-studies

This case-study method was chosen to gain insight into the process of reinstatement from the point of view of those most closely involved in it.

Objectives

- a. Understand the process of reinstatement as it is experienced by the various actors involved with individual properties
- b. Learn about these actors' views of, and experiences of, resilient reinstatement
- c. Understand how the relationships between these actors influence the use of resilience within the reinstatement process

Approach

- a. Interview a diverse range of owners/tenants of flooded homes and owners/tenants of flooded business premises
- b. As far as possible, interview those professionals that might have influenced the use of resilient methods/materials during the reinstatement of these properties

2.2.1 Selection of geographical areas

The sampling began with the identification of parts of England where flooding had occurred during the three previous years. Five different areas of England were selected, covering a range of type of flood experiences. These included one or more areas in which there had been flooding of a substantial number of small/micro-businesses, and one in which the most recent flood event had not been eligible for central government flood resilience/ protection grants. To protect confidentiality and anonymity, the details provided in this report are kept to a minimum.

2.2.2 Recruitment

The research team used a variety of methods to recruit domestic and small/micro-business policyholders including direct mailing (through loss adjusters) and internet searches, and local government reports to identify flooded businesses and homes. Some contacts were asked to recommend others that had flooded and would make potential participants.

In each of the interviews with owners/tenants of flooded properties, participants were asked to name the people/companies (hereafter, 'professionals') involved in the reinstatement of their home/business and to give written permission for them to discuss

their specific case with the research team. Professionals were only approached if interviewees gave their permission and if there was no evidence of animosity between parties. Professionals were approached by telephone/email. This resulted in 6 ‘360-style’ case studies and 11 single interview case studies. During the recruitment process the opportunity arose to include a case study based on a building occupied by Defra in Carlisle and restored to be resilient. This case study is included in Appendix 6. A ‘360-style’ process was used to gather information in the case study. As Crown buildings are not insured, however, the learnings were not included in the main findings of this report.

2.2.3 Sample

Ten flooded households and seven flooded business owners were interviewed, with the characteristics shown in Tables 2 and 3 below. For further details, see Appendix 1.

Table 2: Characteristics of households interviewed (n=10)

CHARACTERISTICS	NUMBER	
SOME RESILIENT REPAIR	5	
GOVT GRANT AVAILABLE	7	
TENURE	Owner occupiers	10
	Tenants	0

Table 3: Characteristics of businesses interviewed (n=7)

CHARACTERISTIC	NUMBER	
SOME RESILIENT REPAIR	3	
GOVT GRANT AVAILABLE	6	
BUSINESS CATEGORY ³	Retail/ whole-sale	2
	Accommodation & food	1
	Insurance & finance	1
	Arts, Entertainment & Recreation	2
	Other services	1
	TENURE	Owner occupiers
	Tenants	4

The nine professional interviewees comprised an architectural technician, an insurance broker, two independent builders, the manager of a restoration franchise, the landlord of a business premises, two surveyors and a loss adjuster. These were associated with three flooded businesses and three flooded households.

³ See the European Union’s NACE Rev-2:
http://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_NOM_DTL&StrNom=NACE_REV2&StrLanguageCode=EN

2.2.4 Data collection

Participants were interviewed for between 30 and 75 minutes – flooded businesses and householders mostly in person; professionals exclusively by telephone. Interviews were semi-structured. All interviews were audio-recorded and professionally transcribed.

2.2.5 Analysis of case study data and development of themes

Following analysis, the research team developed ‘themes for improvement’ initially using the lists of suggestions for change, as well as the facilitators and barriers that had been identified by the Quick Scoping Review (see Appendices 2 and 3). These themes were further refined using the findings from the case studies, which also provided supplementary themes. Specific suggestions for improvement or further roll-out were categorised against the themes. To illustrate some of the themes for discussion at the focus group discussion, three ‘hybrid’ case studies were created to depict key features of the narratives revealed in the interviews (see Appendix 5). Each hybrid case study is an amalgam of a number of different cases reported in the interviews. Each reports without judgement the views and recollections of professionals, tenants and property owners that were interviewed.

2.3 Facilitated group discussion validation

The facilitated group discussions specifically addressed Research Question 4 of the overall research project:

What approaches could be taken to make the implementation of resilient measures more effective in the recovery process following flooding incidents?

The purpose of the Facilitated Group Discussions was to validate findings from interviews and the Quick Scoping Review. A mapping process and “stress testing” of interim findings was undertaken with key experts in a series of three events. The participants were chosen to cover a range of professions relevant to resilient recovery and were drawn from contacts within the project team and the Defra project board. These discussions engaged with 16 professionals from the insurance, damage management and surveying industries as well as representatives from the private, public, academic and third sectors. Within each discussion, between four and eight professionals from a mixture of backgrounds discussed the interim findings.

All participants who attended the Facilitated Group Discussions were asked to sign a consent form⁴ confirming their informed participation. All information provided in the Facilitated Group Discussions was treated as confidential. Any comments made during the discussion are presented anonymously in the reporting which follows.

⁴ The consent form had received ethics approval from the University of West of England, Bristol, as was the methodology and data storage arrangements.

The Facilitated Group Discussions were structured into four activities, with each activity consisting of a presentation followed by a structured discussion.

2.3.1 Facilitated group discussion process

Activity 1 of the Facilitated Group Discussion commenced with a presentation of the interim findings of the research. Participants were given the hybrid case studies from the '360-style' interviews. Working in two groups, participants reviewed the case study with the aim of identifying any experiences or aspects mentioned that were unfamiliar to them, or surprised them. They were then asked to consider key changes that would have made a difference.

In Activity 2 participants were shown a revised process plan, including decision points of the reinstatement process and a description of the different actors involved derived from the Quick Scoping Review and refined by data from the professional interviews. There followed a discussion of the process, with any additional information felt to be relevant being added to the process chart by means of post-it notes.

Activity 3 involved 'stress testing' both the themes derived from the evidence. Participants were asked to assess whether the themes were sensible and as they would have expected. They were then asked to rank the themes in order of importance to the overall process, as well as highlighting any modifications they felt were needed. In the fourth and final activity participants were presented with a selection of suggestions that could encourage resilient reinstatement in the recovery process. Working in two groups, they were asked to reflect on how realistic the suggestions were, where they would fit within the process, and which professionals would need to make changes if these were to be taken up. Participants were also asked if they felt any suggestions were 'easy wins' or key priorities to pursue.

The detailed structuring of these sessions varied according to the participants who attended (for example, their professional backgrounds and familiarity with the research project). In activities, half of the project team acted as facilitators, and half as note-takers. Activities were recorded by note-taking from several members of the project team, and audio recordings were collected of all plenary and group sessions.

2.3.2 Approach to analysis

Facilitated group discussion notes were compiled into a Word document, and the associated recordings into a digital audio folder. The notes were analysed inductively to investigate emergent themes, through use of coding to gather information about recurrent themes. Audio recording was subsequently used to sense-check the coding and emergent themes from the analysis.

3 Findings

Findings are presented below by method under the principal research methods and then summarised by emergent theme. The findings from the Quick Scoping Review presented are the conclusion from the Quick Scoping Review report⁵ and therefore include some recommended actions.

3.1 Findings from Quick Scoping Review

A list of 55 barriers and facilitators and a further list of 49 suggestions for change or wider application of good practice were extracted from the literature and interviews. These are listed in the Quick Scoping Review report. Findings from the Quick Scoping Review are presented in relation to the supplementary research questions (as listed in Section 2.1.2 above).

3.1.1 SRQ 1 & 2: What processes and project management arrangements characterise existing approaches to reinstatement? How do these processes and project management arrangements restrict or encourage resilient repair?

Flood reinstatement, as currently experienced, emerges as a set of physical processes that in the main need to be carried out sequentially (for example, repair work cannot normally be commenced until the property has been assessed as being sufficiently dry). These physical processes depend upon assessments, decisions and project management tasks, whose timing and sequencing is slightly more flexible. For example, decisions regarding final finishes in a property may be made at any point in time, provided this precedes actual implementation.

Processes

The Quick Scoping Review revealed that the five 'post event phases of recovery' (First Notification of loss and stabilisation; cleaning and stripping out; drying and decontamination; repair and reoccupation) are not, in practice, necessarily distinct and sequential. For example, an inventory of contents can be taken before or after the contents are removed from the building. Similarly, payments for alternative accommodation can be delayed, and loss assessment may take place after a decision on drying methods has been made. Project management arrangements, including associated decisions and changes to the order of various assessments and decision points can often cause these 'phases' to overlap significantly.

⁵ Lamond, J. and C. Rose (2018). Supporting the uptake of resilient reinstatement during the recovery process (FD2706): Quick Scoping Review. London, Defra.

Each phase does, however, have physical processes associated with it that should precede the next phase (if they occur). The simplified and idealised process diagram (Figure 1) introduces the idea of several parallel streams of processes with time flowing vertically down the figure. The activities in rows 1- 4 restrict the actions in the on-site critical path (row 5, highlighted in orange) such that the plans (row 3) should be in place before the implementation on site. The plans are (ideally) based on assessments that precede them but sequencing changes (within certain limitations) are possible on the parallel process flows.

Moving from top to bottom on Figure 1, assessments should occur before the plans on the same time step are prepared. The procurement and on-site physical process occur after the plan, and this is shown on Figure 1 as being on the same or following time step. The on-site critical path is largely sequential, although the stabilisation and cleaning/strip-out phases may overlap. The amount of strip-out may also be negligible, depending upon the nature of the materials already in place within the property. The blanks in the on-site critical path represent potential delays or pauses between activities. These may be lengthy, either due to non-availability of contractors, procurement delays or protracted discussions around plans.

It is recognised that this idealised flow is challenging to achieve in practice and that the organisations involved in the different activities will vary. It does, however, allow the identification of decision points where choices about resilience are made, whether actively or by default.

In terms of facilitating or inhibiting resilient reinstatement, there are four planning stages that can impact upon the potential to add resilience to a property, which are: 1) the strip-out; 2) drying; 3) repair; and 4) choosing fixtures planning stages (row 3). The 'repair plan' (also known as the 'repair schedule') usually incorporates stages 3 and 4 and is the most significant decision point, as it specifies the materials that are to be used. This schedule may be prepared at any time before active repair begins, which in turn means that the latest possible point at which the decisions regarding resilience can be taken occurs after drying and before repair.

Resilient reinstatement can, however, include the retention of appropriate existing materials wherever possible. A critical finding to the understanding of resilience during recovery is the increased emphasis on resilient reinstatement as a concept that incorporates less strip-out (leaving resilient materials in place, sometimes called 'resilient' or 'soft' strip-out) and resilient repair (replacing stripped out materials with more recoverable ones and introducing avoidance strategies).

Decisions about resilience, therefore, need to be made before strip-out commences. Notwithstanding that, typically there will be some assessments and further discovery that occur during the strip-out and drying processes that can inform the final decision on repair.

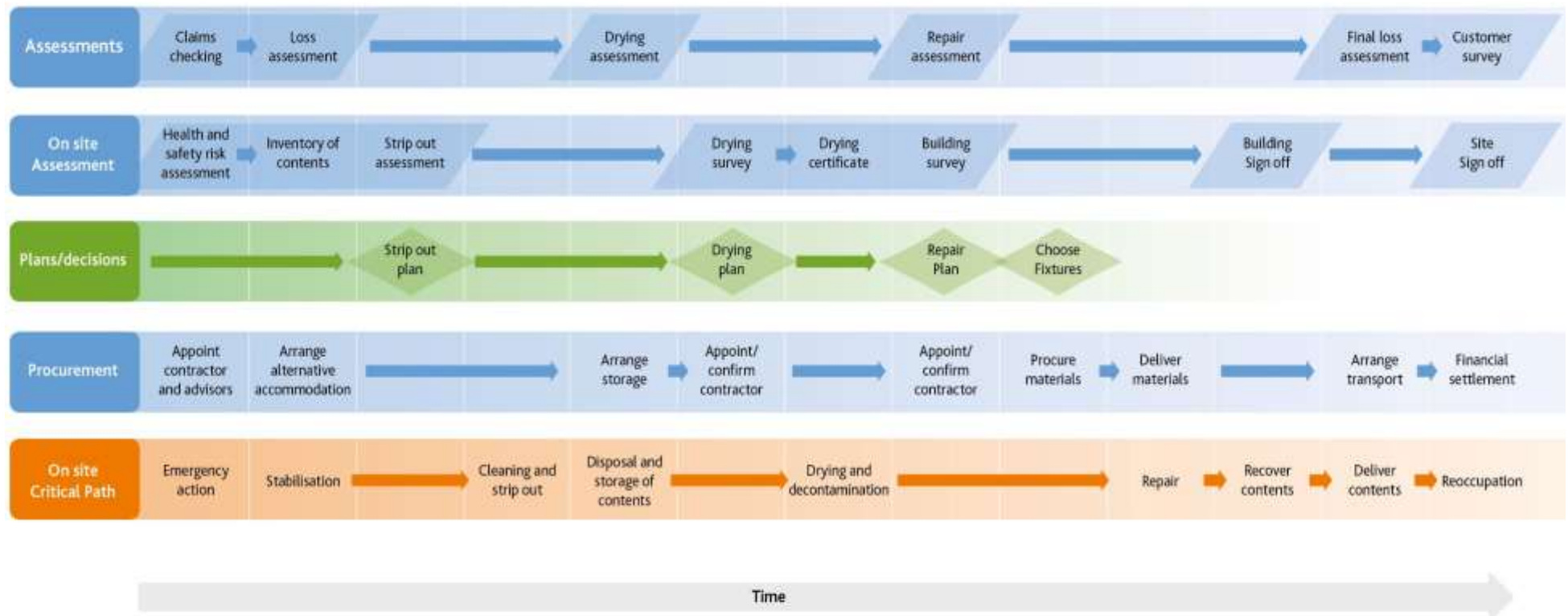


Figure 1: The reinstatement process – high level process, including critical path.

The decision pathways taken during the recovery process are represented in **Error! Reference source not found.** This acknowledges that a level of resilience is always present (existing resilience), as decisions to retain materials can maintain existing resilience, while decisions regarding strip-out and reinstatement can variously result in reduced, maintained or enhanced resilience. Materials, particularly fittings and contents, may be stripped out temporarily and then recovered (on or off site), while other materials may be discarded and replaced with resilient choices.

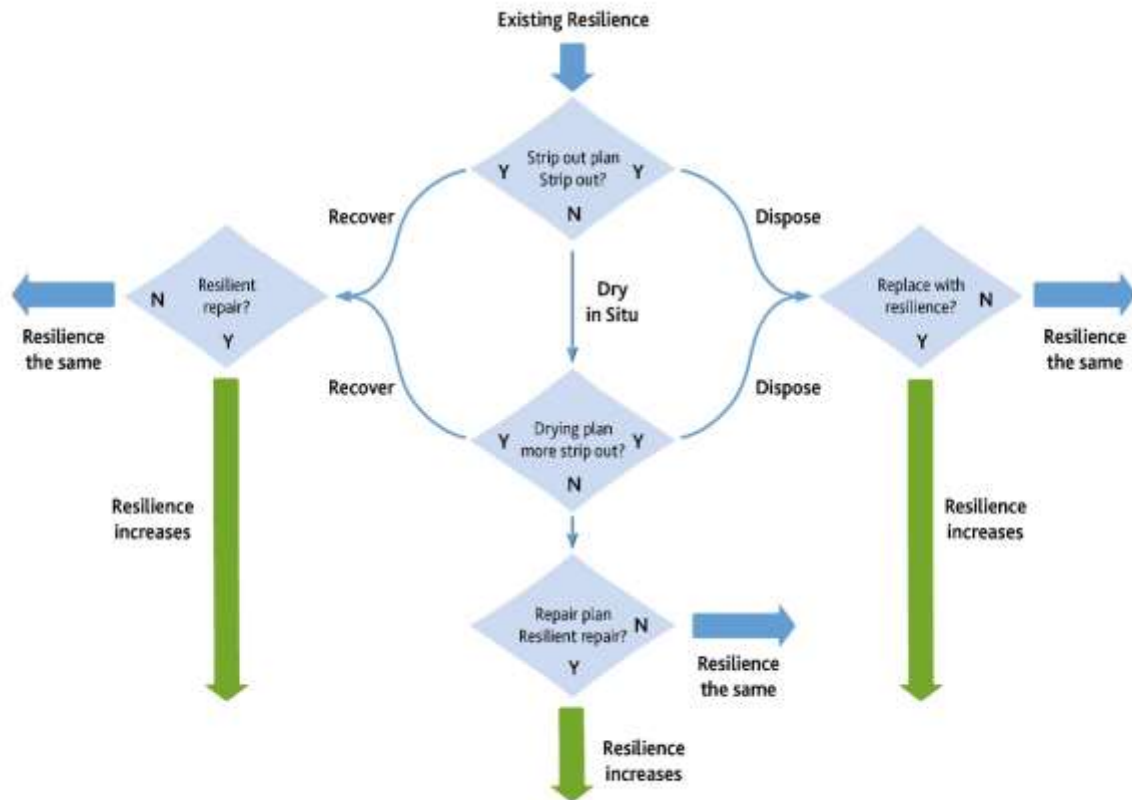


Figure 2: Process diagram showing key decision points

Project management

The professional roles that have involvement in the process are shown in **Error! Reference source not found.** The Quick Scoping Review found that company boundaries are not fixed around roles. For example, a surveyor tasked with overseeing the repair process may work for an insurer directly, or the policyholder, a loss adjuster, a reinstatement company, a building contracting company or a broker. The review identified a large number of different types of company from a limited number of interviews, but there may potentially be others. It was concluded that it is not possible to represent all the different potential pathways through the recovery process at this time.

In many cases, the complexity in the number and range of professionals involved represents a potentially overwhelming situation for a policyholder. Whether or not they are managing the process, the policyholder may have to interact with a large number of individuals representing different companies. This confusion can be exacerbated when roles and responsibilities in the overall process vary between neighbours and between claims.



Figure 3: Key roles/stakeholders engaged during the process of reinstatement

The Quick Scoping Review concluded that given that decisions during the initial phases can influence the opportunity to maximise resilience, the judgement should be made as early in the process as possible. Therefore, it is important that the coordination between the different professionals starts early, as recent developments in claims processes can now see reinstatement and drying companies being first on the scene. Lack of communication between companies, fragmentation within the supply chain, and between individuals in different operational divisions of a single company can also create difficulties. Given these facts, our conclusion is that clear contractual terms incentivizing resilience and good communications are essential.

The Quick Scoping Review suggested, therefore, that in order to maximise the potential for resilient reinstatement, project management and oversight should be provided by the same person, or team, across the three critical phases (cleaning and stripping out; drying

and decontamination; and repair). This team/person would need to have appropriate knowledge and experience of resilient reinstatement. Project management arrangements that currently hand oversight from one professional to another would, therefore, need to be modified to incorporate checks and feedback loops. Oversight should also be independent, in the sense of choosing the optimal strategy for both the building and policyholder. Such a strategy may affect the balance of work to be undertaken by different contractors, but a 'one-size-fits-all' approach does not facilitate the uptake of resilient reinstatement.

This would work differently for each of the four models of oversight which are common for the three critical phases, namely a loss adjuster, a surveyor, a damage management specialist or a policyholder (residential or small/micro-business). When a loss adjuster or surveyor is involved from the start of the reinstatement process, rather than being brought in later, there is an increased chance of achieving the coordination required. If a damage management company is charged with oversight they would ideally be appointed at the start of reinstatement. There is scope for insurers to increase control over the process by bringing such expertise 'in-house' to encourage resilient reinstatement (if they wish to do so). Individual policyholders who are motivated towards resilient reinstatement can be in a very strong position to oversee the process, provided they can access the relevant advisors (whether by taking on the project management role, or where a cash settlement can be agreed).

3.1.2 SRQ 3 & 4: How is/can resilient repair be funded/resourced? What are the criteria for successful reinstatement from the perspective of different stakeholders?

Cost, time and quality are benchmarks for construction in general and are also important for building repair. Cost and time are the dominant themes that recur in the literature and in the interviews (Lamond *et al.*, 2016), whereas quality is less talked about except in reference to the difficulties in achieving good quality and the shortage of good contractors. No performance indicators were mentioned by the interviewees relating to quality.

The Quick Scoping Review suggested that claims cost control is reflected in contractual arrangements with the insured customer and the supply chain. Controlling cost often translates into limited appetite to support resilient reinstatement if it costs more to implement. However, not all resilient reinstatement is more costly to implement.

The alternative thinking suggests that by employing resilient reinstatement insurers should be able to save money by reducing the amount of strip-out. This view of resilient reinstatement has the potential to increase uptake of some forms of resilience while potentially, by reducing the need for repair, lowering the chance that the most effective measures are installed.

Resilient repair, in some areas, has been funded from government grants following major floods in 2013/14 and 2015/16. There is also the potential for grants to be made available

by non-governmental organisations (NGOs) such as charities. As insurers are currently constrained by the principle of 'no betterment' the funding available for resilience through such routes is likely to exceed that available from insurance claims, if these are to remain cost-neutral. The cost of administering grant schemes (including the necessary professional survey costs) can, however, reduce the amount available to spend on measures themselves. Innovative local schemes have also sought to set up recovery funds that could be used for resilience. Domestic, and small and medium-sized enterprises (SME), policyholders (including micro-businesses) can also contribute to the cost of resilient repair themselves. All SME's are now eligible for a scheme that prices policies to reflect any risk reduction measures adopted (British Insurance Brokers' Association, 2018). This does not reduce the cost of the measures themselves, but does provide a long-term benefit in reduced premiums/excesses.

The time taken to repair a property is also perceived as a major barrier to resilient repair by all stakeholders, as insurance companies seek to minimise the time that people are out of their homes or businesses following a flood. There is currently a perception, in some sectors of the business, that carrying out resilient repair will delay reinstatement, and thus re-occupation, of the property. There have also been claims that resilient properties take longer to dry out following a flood. The Quick Scoping Review showed very little evidence to generalise one way or another on the additional length of time it takes to install resilience, or on the actual changes to the drying times due to changes in building fabric. Existing case studies provide contradictory evidence, but this is probably due to variety of approaches taken in making the properties resilient in the examples (Lamond *et al.*, 2016). The views of insured policyholders have long been represented in the literature as prioritising the minimisation of time and avoidance of disruption during the current reinstatement over any future risk reduction (Lamond *et al.*, 2017).

Aesthetics and perceived quality are also important criteria that can limit the desire to accept resilient reinstatement (for example, Harries, 2010). Literature also indicates a need for policyholders to be consulted. Some policyholders desire to feel in charge of the process, while others would rather leave it to the experts. Businesses regard the speed of recovery as the most important aspect (for example, Wedawatta and Ingirige, 2012). Examples of practices for higher net worth customers and businesses suggest that low profit margins may hamper insurers' potential to act on flood resilience. It has been suggested that insurers might consider offering enhanced 'claims handling packages' that improve customer outcomes (including speed of reinstatement and enhanced resilience) to those customers willing and able to pay for such a service.

To summarise, as the literature shows, where appropriate resilience measures have been installed on a previous occasion then, when another flood occurs, many common goals could be achieved, particularly reduced loss and the rapid re-occupation of homes and business premises (Crichton, 2006; Pitt, 2008; Samwinga, 2009; Woodhead, 2012; Bhattacharya-Mis and Lamond, 2014). Resilient reinstatement should logically, therefore, be a desirable step for the insurance industry and property owners alike. However, pursuit

of rapid reoccupation after each individual event via alternative strategies may prevent the installation of resilient measures which would reduce average loss and disruption in the longer term. Therefore, an explicit goal to increase resilient reinstatement may be needed to drive change.

3.1.3 SRQ 5 & 6: What are the challenges faced by households and small/micro-businesses in project managing the process of resilient repair and how can they be addressed? What hampers the engagement of professionals with resilient repair and how can these issues be addressed?

Households and small/micro-business owners are not generally well equipped to project-manage construction works due to a lack of experience. In the aftermath of a flood and alongside their normal lifestyle and commitments, it will normally put strain on them to do so. They are unlikely in these circumstances to engage with resilient repair unless highly motivated. Once motivated, the lack of clear guidance and availability of well qualified professionals is a further deterrent. Once a policyholder has taken ownership of a claim, they may be unable to identify and engage specialists with expertise in reinstatement, and instead employ a (known) local contractor who may be less knowledgeable, but perceived as capable of performing work to a high standard (Fernández-Bilbao and Twigger-Ross, 2009; Samwinga, 2009; Whittle *et al.*, 2010).

Professionals in the supply chain lack incentives to engage with resilience (Whittle *et al.*, 2010; Lamond *et al.*, 2017). They are experts in the processes they currently employ and change will incur training costs, a potential risk of reduced quality, perception of poor customer service or even negligence claims. Fragmentation of the chain exacerbates these issues as there is the risk of damaging professional relationships with other suppliers, damaging reputation and reducing profitability.

Although there have been some initiatives to increase uptake of resilience (such as limited government grants) these cannot be relied upon as sources of future funding. The individuals and companies involved in the industry require a consistent 'direction of travel' and this has resulted in some supply chain professionals calling for the insurance industry (Flood Re, ABI and insurers) to provide that sense of direction. Insurers can also see the benefit in a concerted and consistent industry stance.

3.1.4 Summary

The Quick Scoping Review identified a shift in the thinking and practice of resilience in recovery within some sections of the industry towards a greater emphasis on retaining existing resilience and reducing strip-out rather replacing existing materials with more resilient ones. It also identified the main points at which the 'resilience' of the reinstatement is determined and processes where additional resilience can be incorporated. Decisions at the strip-out phase can lead to the retention of existing resilience, whereas decisions at the repair phase are most influential in introducing additional resilience.

This highlighted the importance of having an overview of the process before strip-out begins and a shared plan. Such an overview helps ensure that the decisions are compatible and that: i) contractors do not strip out fabric that is already resilient; ii) contractors do not spend time and energy drying contents and fabric that will later be replaced with more resilient alternatives; iii) consideration is given to different options in order to select a reinstatement process that will enhance resilience within reasonable levels of cost and disruption.

The Quick Scoping Review also revealed the lack of clarity and guidance in the expectations and processes with regard to resilient reinstatement between insurers and their professional supply chain. This was found to be a major barrier to improving uptake because it complicates the process of decision making and makes the process of resilient reinstatement appear as an extra administrative and practical burden on an already complex process. Many of the attitudinal barriers and other capacity issues stem from, or are exacerbated by, this lack of clarity.

3.2 Findings from the case study interviews

The interviews with flooded households/businesses and the professionals involved in the reinstatement of their buildings revealed a number of useful insights into the barriers to resilient reinstatement. These are presented here. A full and detailed account is provided in Appendix 1 to this report.

3.2.1 '360-style' case studies

To illustrate some of the themes that emerged from the case study interviews, a summary is provided here of four of the six '360-style' case studies conducted in this part of the study. Each case study summary reports without judgement the views and recollections of the professionals, tenants and property owners that were interviewed. Pseudonyms are used for all tenants and property owners and words in quotation marks are taken directly from the transcripts of the interviews.

Case Study 1 shows how differently professionals and policyholders can view the relationship that they have with each other: when the policyholder sees himself as having to be "pushy" in order to compensate for lax professionals, this is seen as ideal by the professionals, who view the policyholder as "low maintenance". Case Study 1 also shows how responsibility for resilience can fall between the cracks in the reinstatement system, with the loss adjuster seeing it as the surveyor's responsibility and the surveyor having too little contact with the policyholder to be able to persuade them of its value.

Two of the case studies reveal the extent of the disagreements between professionals on issues of resilience. This is shown in disputes about the use of K11⁶ (Case Study 1), over

⁶K11 is a generic term for salt resistant cementitious tanking compounds used for the protection of structures against water from the ground and structures which may potentially be subject to hydrostatic pressure

how to deal with an under-floor void (Case Study 1) and over when it is necessary to strip out flood-affected plaster (Case Study 2).

Case Study 2 also reveals the difficulties experienced when interviewing different actors to ascertain the barriers to resilient reinstatement. The two interviewees provide different explanations for not installing a resilient kitchen, making it hard to establish what the true cause was. While Dave reported that he had decided it was “unnecessary”, the surveyor implied that it would have been beneficial but that he had advised against it for reasons related to the process of reinstatement. Case Study 3 shows some of the difficulties caused when the business using a building is not also the policyholder for the building insurance. In such cases, the power to implement resilient reinstatement is held by a party that has less motivation to do so (the landlord) and the party with the greatest motivation to implement resilience is powerless to put this into practice. This, the case study suggests, can lead to blame-shifting, passivity and some animosity between the parties.

Case Study 4 illustrates how cash settlement and the existence of a network of trusted professionals can facilitate the incorporation of resilience into the reinstatement process.

Case Study 1

Case Study 1 was a mid-terrace 2-storey house occupied by a single older woman, whose nearby son dealt with the reinstatement process. The house was given a new kitchen, and floorboards, joists, plaster and wallpaper were renewed throughout the ground floor. Flood resilience was enhanced by using K11 on the walls, raising sockets and dropping socket feeds from the ceiling instead of taking them up from the floor. The policyholder was out of her house for eleven months.

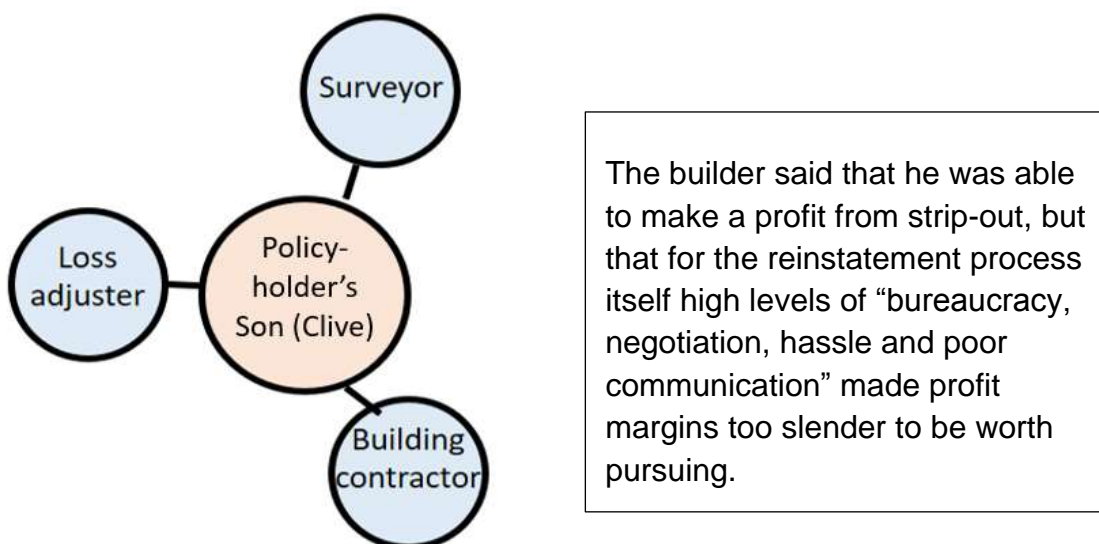


Figure 4 – interviews conducted for Case Study 1 – a householder case study

Four people were interviewed for this case study: the policyholder's son, Clive, the loss adjuster, the surveyor and the building contractor. Clive, who was described as "*low maintenance*" and "*switched on*" by the loss adjuster, reported that he had to "*push*" to get his mother's home put back in under a year.

The loss adjuster adhered to the principle of no (financial) betterment but was willing to facilitate resilience by moving money around. However, he did not feel sufficiently informed to promote the resilience adaptations himself, this being, he said, the surveyor's responsibility. He also did not seem to consider surveyors as independent representatives of the policyholder, but rather as "*colleagues*" with "*the same aim*".

The surveyor was only allocated to this case three months after the flood and, because he had to travel a long distance, was only able to visit every four weeks. His late arrival and infrequent visits, he argued, made it harder for him to provide Clive with a "*responsive service*"; this may explain why Clive considered him obstructive. For example, his delayed arrival and inability to visit more frequently prompted him to try to agree the specification of works at an earlier stage than he would otherwise have done, and before the policyholder had been able to reflect on the issue of resilience. The infrequency of his visits also made it harder to gain Clive's trust, and his perception that policyholders generally placed little reliance on surveyors' expertise probably exacerbated this difficulty. The surveyor said he tries to avoid situations in which policyholders pay for additional spend on reinstatement. He gave two reasons for this: that builders under contract to insurance companies tend to charge more than the going rate for such work, and that giving resilience work to a different builder causes too many disputes about responsibility and accountability. He argued that in the case of Clive's mother, nothing could have been done in any case to make the house more resilient.

The builder appeared to agree that nothing much could have been done to improve resilience. A local authority grant paid him to install K11, but he felt its effectiveness might be compromised when the plaster on top of it had to be removed after the next flood. He was not keen on doing insurance-funded domestic flood reinstatements for a number of reasons. Firstly, the only part of reinstatement that was profitable, he said, was the strip-out. Secondly, the bureaucracy, negotiation, "*hassle*" and poor communication that characterised domestic reinstatement processes made for very slender profit margins, so he only did this where he had a pre-existing relationship of trust with the policyholder and wanted to help them get back into their home more quickly. Even then, he hesitated to suggest resilient repair to householders if insurers were not going to fund it, for to do so would be to give the householders ammunition with which to later criticise him.

Case Study 2

Dave had installed some home-made protection measures after a previous flood; he and his wife Trish were proud of their flood plan and efforts to keep water away from the house. Despite this, they were unable to move back into their terraced house until a year

after the most recent flood. This study included interviews with the drying contractor, the surveyor, and Dave and Trish themselves.

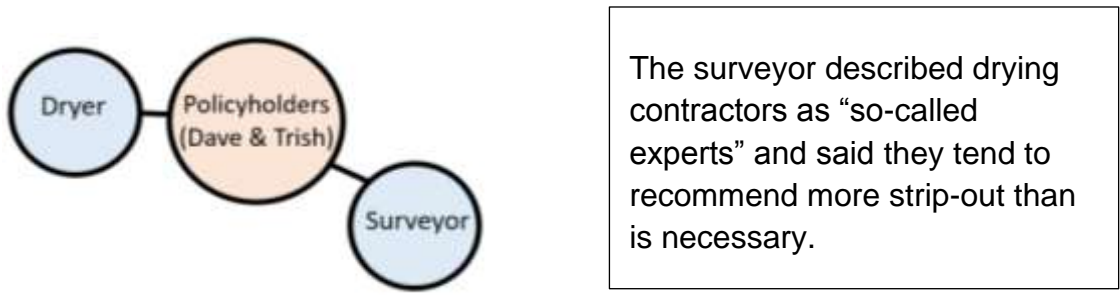


Figure 5 – interviews conducted for Case Study 2 – a householder case study

Dave and Trish commissioned an acquaintance to do the strip-out so that they could ask him to do other work that could be done more cheaply and conveniently alongside the insurance-funded reinstatement. The strip-out work had already been done when the surveyor arrived at the property ten days after the flood. The surveyor said that he would have asked for less strip-out than had been done: the timbers, skirting boards and architraves, but not the plaster, which he would have tried drying *in situ*. Describing drying contractors as “so-called experts”, he argued that they tend to recommend more strip-out than necessary. In contrast, the drying contractor felt surveyors were less expert on such matters and should accept dryers’ recommendations.

At first, Dave and Trish intended to use the same local builder for the reinstatement as they had for the strip-out. However, the loss adjuster felt that this builder did not have sufficient capacity to do the work, and Dave and Trish were concerned about damaging their social relationship with this builder in the event of a dispute arising. For these reasons, they were persuaded to use the builder recommended by the insurer.

Dave and Trish made good use of the surveyor to sound out his ideas for improving the property’s resilience and for advice on what to apply for with the local authority grant. Dave and Trish reported that he had considered paying extra for a flood resilient kitchen but had decided it wasn’t necessary. The surveyor intimated that he didn’t recommend using the grant to buy a resilient kitchen because it would not be possible to install it within the anticipated length of reinstatement works. Insurance companies, he said, are reluctant to close claims on homes that do not have fully functioning kitchens because problems can result if the builders doing the main reinstatement on the insurer’s behalf choose the locations of service entry points (e.g. electrical wiring, plumbing) before knowing which kitchen layout is going to be used. When kitchens are subsequently installed by a different contractor and the service entry points found to be inconveniently located for the chosen kitchen design, this, he said, sometimes led to disputes about who was responsible and who should pay for them to be moved.

According to the loss adjuster, Dave and Trish wanted to do as much as they could to make his home “watertight” without making it “look industrial”. This indicates that Dave and Trish’s first preference was to keep water out of the house. Perhaps because of this focus, resistant measures dominated the changes agreed by Dave and Trish. They paid up-front for flood gates and non-return airbricks in the hope that a local authority grant would eventually refund him the cost (as it indeed did). They followed the surveyor’s advice by taking steps to waterproof the under-floor void they added to their insurance money to replace the flood damaged carpets with higher-quality, more flood resilient, and more costly floorboards. After they agreed to economise on the replacement cost of some internal doors, the insurance claim also funded a water-resilient UPVC external door.

Case Study 3

The third case study was centred on a business whose listed premises were owned by the landlord of several other local at-risk businesses. Interviews were conducted with the landlord and the owner of the business, Paul. In the flood, the first time the building had flooded in living memory, internal water levels had reached up to five feet. This resulted in the business closing for four months and obliged Paul to draw on his personal savings to prevent permanent closure.

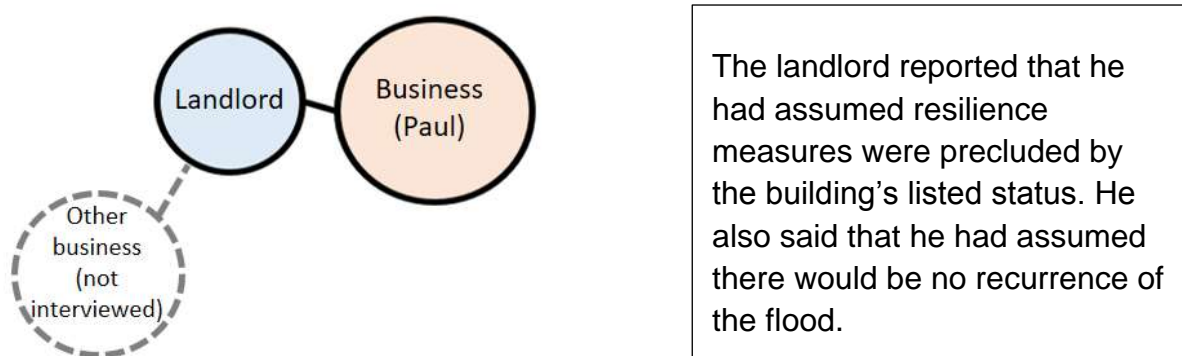


Figure 6 – Case Study 3 – flooded business

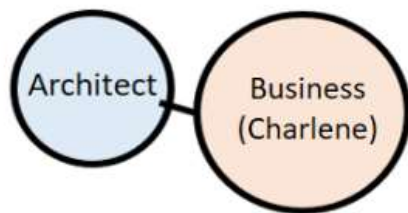
Paul seemed to be focussed on the need to keep floodwater out even though he felt there was no way of waterproofing the building. Another reason he gave for his reluctance to consider any other forms of resilience was the need to apply for planning permission, and the additional delay this would cause to reopening his business. He reported that the landlord had promised to install anti-backflow valves in the sewers but had not done so for reasons he was unaware of. The landlord was, he argued, “not particularly bothered” about resilience so long as there was no interruption to the rental income.

The landlord reported that the reinstatement had not justified the involvement of a surveyor and that he had employed a general builder to do the drying and reinstatement. No resilience measures were introduced because the landlord assumed that these were precluded by the building’s listed status and that there would be no recurrence of the flood.

The same landlord had introduced numerous resilience measures in another of his commercial buildings that had flooded numerous times; some of these were funded by the insurer.

Case Study 4

The final case study was a social enterprise. Interviews were conducted with Charlene, its director, and the architect engaged by the organisation to help it apply for a local authority resilience grant. The premises had been flooded several times previously. According to the architect, the frequency of flooding meant that people in the area “*understand that they can’t stop [floodwater from entering their buildings]*”.



The architect reported that despite the building owner completing the grant survey before the insurer’s loss adjuster had done his specification of works, the insurance company was unwilling to include grant-funded resilience in its reinstatement planning.

Figure 7 – Case Study 4 – flooded business

The business had introduced progressively more extensive resilience measures after each of the previous floods. Hence, although it was still insured against flooding prior to the most recent event, Charlene felt that the organisation would be able to reinstate for less than the annual premium for flood cover. On the recommendation of her insurance broker she appointed a loss adjuster. The loss adjuster was unable to commit sufficient time to their case due to being over-committed, so the additional negotiations slowed things down substantially. Charlene took a cash settlement to accelerate the process (which would otherwise be held up by further negotiations about costs and specifications) and to make it simpler for her organisation to contribute extra funds for resilient reinstatement.

The organisation also received local authority resilience grants, having asked for assistance with their application from an architect with whom it was acquainted. This architect reported that despite her completing the grant survey before the insurer’s loss adjuster had done his specification of works, the insurance company was unwilling to include grant-funded resilience in its reinstatement planning. Being in an area that flooded frequently, the architect had good relationships with numerous builders that had skills in resilient reinstatement and was able to recommend these to Charlene.

3.2.2 Communicating with policyholders about resilience

We now move on to a discussion of each of the key themes that were identified in the full set of interviews, beginning with the theme of communication with policyholders.

Effective communication of messages about resilient repair was found to be a challenge due to the emotional turbulence caused to policyholders by flooding and its aftermath. Timing and tact were said to be vital in this regard. One surveyor felt that the best approach was to “*drip-feed*” information about resilience in preparation for policyholders’ decisions and to ensure they receive this information when they need it and are most receptive.

Trust between message giver and message recipient was also an important influence on the effectiveness of communication about resilience. This was affected by a number of factors. Policyholders tended to assume that rather than representing the policyholders’ interests, surveyors’ and loss adjusters’ principle aim was to minimise the size of insurance claims. In addition, they were more likely to trust professionals who were local because they assumed they would better understand local circumstances, better understand the social and emotional impacts of the flooding and be more sympathetic. Hence, when additional professionals were brought from unaffected areas to assist with recovery from large incidents, it was harder for them to win trust. Professionals were also more likely to be trusted if they provided more tangible services (e.g. stabilising companies) or were more able to empathise with policyholders because they themselves had experience of flooding. Frequent face-to-face contact with policyholders also generated trust, so loss adjusters who stayed with a particular case from beginning to end were sometimes more trusted than surveyors.

The communication of information about resilience was, in addition, affected by the extent of professionals’ own motivation to promote resilience to householders. Some hesitated to press the case for resilience if policyholders expressed initial reluctance, lest this was considered inconsistent with insurance companies’ requirements for them to be client-led. Some were also concerned that the adoption of what one called a “*sales posture*” might actually reduce policyholder trust, and that it might not be wise to raise policyholders’ hopes about resilience when it was unlikely insurance companies would fund it. Others, however, were highly motivated in their promotion of resilience. A builder and an insurance broker felt it was incumbent on them to promote resilience: for reasons of professional ethics, but also because they felt it would increase customer loyalty if they demonstrated their concern for the long-term interests of property owners.

Policyholders’ attitudes also influenced how receptive they were to messages about resilience. One builder reported that householders with experience of multiple floods needed no convincing about the need for resilience and, indeed, drove forward the resilience agenda themselves. One insurance broker reported that his commercial clients were easily convinced to pay for resilient reinstatement when he told them that flood

insurance might not be available to them in future. In contrast, policyholders were less amenable to the resilience message if:

- the desire to manage the physical impacts of future floods was overshadowed by a desire to manage more short-term emotional impacts (see Harries 2008);
- they did not feel 'listened to' by professionals involved in the reinstatement process;
- they felt their own attempts at dealing with the risk had not been valued by professionals;
- they experienced the reinstatement process as particularly stressful and were afraid that a focus on future resilience would exacerbate this effect by making the process still more complex.

3.2.3 Small building companies

Contrary to what is sometimes argued (for example by professionals interviewed during the Quick Scoping Review), the '360-style' interviews suggested that some small building companies have the necessary skills for resilient reinstatement. Interviewees in one area reported that the frequency of recent flooding had made it worthwhile for local professionals (such as builders) to acquire the necessary skills to offer resilience services. Additionally, by dint of their personal connections with people who had flooded, and their connections with the community more generally, local builders were also sometimes considered to have more of the necessary emotional insights.

However, the small builders interviewed for this research expressed little enthusiasm for post-flood reinstatement jobs that involved liaison with insurers and their agents. They gave two reasons for this reluctance. The first reason given was the time and effort required to negotiate with loss adjusters. The second was insurance companies' reluctance/inability to fund resilient reinstatement, which they felt made post-flood work unsatisfactory and potentially unethical.

3.2.4 Cash settlements

Cash settlements were considered by those that had received them to have some advantages regarding the implementation of resilience measures. Recipients of cash settlements reported increased flexibility in the way they allocated their insurance payments and, hence, an ability to fund resilience in some areas by reducing the quality and cost of reinstatement in other areas. Cash settlements also made it possible for policyholders to use their own money to fund additional resilience without this causing difficulties for loss adjusters. Work funded by cash settlements had the further advantage of reducing the bureaucracy faced by building contractors, thereby making the work more attractive to small builders (including those that specialised in resilient reinstatement).

3.2.5 Differences between small/micro-businesses and households

The interviews highlighted several differences between policyholders that were small/micro-businesses and those that were households. First, they indicated that businesses were motivated to implement resilience by an awareness that they might not be able to get any insurance cover for future flood events. Second, they suggested that flooded businesses tend to have more regular contact with their insurers/their insurers' representatives than householders do. Third, they suggested that businesses are more willing to use their own financial resources to pay for resilience measures.

3.2.6 Summary and suggestions arising from the Case Study interviews

The case study interviews highlight the emotional turbulence experienced by policyholders after a flood event. These emotional impacts sometimes overshadow the material aspects of flooding, making it harder for them to focus on practical issues such as resilience and focussing their attention on the re-establishment of a state of emotional normality (see Lazarus and Folkman, 1984). The timing, content and delivery mode of communications about resilience need to take this into account, our analysis suggests. Clarity of communication will of course remain important. However, communications will also need to convey empathy. Furthermore, their delivery would ideally be timed/staged so that it was in-step with policyholders' emotional journeys and they were able to assimilate messages. This requires particular skills of the professionals who formulate and deliver such communications. Professionals were aware that they might not have these skills in sufficient quantity and therefore sometimes hesitated to suggest resilience. In fact, policyholders' preferences for professionals with some experience of flooding (either directly, or from living in flooded areas) was in part a response to this issue.

The interviews illustrated that an important factor in the effectiveness of communication is the degree of recipients' trust in the message sender. The interviews indicated a sense of solidarity with other affected people that served to exclude those not impacted by that, or a similar, event. Hence, outsiders were sometimes treated with particular suspicion and could sometimes be seen as 'in hock' to insurance providers and unable to represent the interests of policyholders. This, we conclude, also helps explain some policyholders' preference for local builders and local advisers. This suggests that professionals (particularly those from outside the affected area) need to win the trust of flooded people, and cannot assume that their professional status will automatically cause them to be trusted.

Given the distrust and emotional context just described, it is perhaps unsurprising that professionals are sometimes a little reluctant to promote flood resilience during the reinstatement process. Our analysis of the case study interviews indicates that professionals sometimes hesitate to suggest resilience measures because of the risks they believe this entails for themselves. When policyholders themselves are not already engaged in the resilience discourse, professionals might feel they would be failing in their duty to be client-led if they promoted resilience. Persuasion on the issue of resilience,

some felt, would threaten their ability to build trust with policyholders regarding the reinstatement more generally. Furthermore, because resilience is generally associated with betterment, some professionals assume that insurers are unlikely to support most forms of resilience and are wary of raising false hopes amongst policyholders. This suggests that professionals will need better guidance and reassurance from insurers if insurers want them to take a more pro-active role in encouraging resilience.

A final overarching factor emerging from the case study interviews concerns the desire to avoid extending the reinstatement period. Both professionals and policyholders expressed frustration with the length of time it took to conclude reinstatement processes. Likewise, both professionals and policyholders sometimes felt that attempts to introduce resilience measures would make the reinstatement process more fraught and delay its conclusion still further. For building contractors, this was seen as reducing profit margins to the point at which contracts became commercially untenable; for some policyholders, it was seen as extending the period of disruption for the sake of long-term benefits that might never be realised.

The data from the case study interviews suggest that the use of cash settlements can overcome some of the difficulties just described. Cash settlements reduce the number of actors involved in making decisions about reinstatement. This creates a relational climate more conducive to consideration of resilience, and can reduce anxiety about the creation of additional delays. Cash settlements also reduce the administrative burden for property owners who are able to fund resilience by topping up insurance payments with their own money or providing resilient betterment by diverting insurance money from one part of the reinstatement to another. These arguments appeared to be particularly pertinent amongst small/micro-businesses, where the prospect of the withdrawal of flood insurance acted as a clear incentive for resilience.

3.3 Findings from the Facilitated Group Discussions

The Facilitated Group Discussions were carried out to validate some of the findings from the other two data collection methods (Quick Scoping Review and case studies). The key research question these discussions addressed was RQ4:

What approaches could be taken to make the implementation of resilient measures more effective in the recovery process following flooding incidents?

Results are presented under the four activities carried out in each Facilitated Group Discussion (see section 2.3 for details).

3.3.1 Activity 1 – response to case studies

From this a number of key issues emerged that relate to the research question.

Issue 1 - Improve communications between the different actors and clarity on who owns the process

To improve communications suggested approaches included co-ordination and an understanding of each actor's roles in the reinstatement process to enable householders' understanding and acceptance of resilience. Participants argued that resilience should be on the agenda of all actors. The lack of ownership for resilience across the supply chain was discussed by groups in **Facilitated Group Discussions 2 and 3**, with professionals arguing that the 'responsibility' of resilience should be shared by all actors within the reinstatement supply chain, although it should ultimately be driven by insurers and introduced by loss adjusters.

Participants in **Facilitated Group Discussion 1** reflected that the surveyor was needed to be involved much earlier on in the process to improve communications.

Issue 2 - Reduce the uncertainty relating to time leading to anything extra e.g. resilient repair being seen as increasing time and therefore to be avoided.

Participants emphasised the need to communicate the true length of time needed to reinstate a property at the outset, to manage homeowner expectations and enable them to plan. One of the two groups in **Facilitated Group Discussion 3** went further and felt that resilience should be introduced in "peacetime", at the point at which insurance policy is taken out, so that citizens have a pre-emptive understanding of resilience measures and how they can play a part of the reinstatement process. However, the opportune moment was also felt to vary on a case by case basis, and if homeowners had 'Flood Re' insurance or not.

Issue 3 - Increase skills in resilient repair

Groups said that appropriately qualified actors need to be used in a more streamlined process, where there are synergies between actors rather than conflict. One participant also felt there is a need to encourage local expertise, rather than promoting resilient products, which may be a more straightforward part of understanding resilient repair. One group reported that some insurers have modified their policy to allow for local builders to be involved in the process.

Groups also suggested instigating a resilience qualification and providing training materials of case study experiences for brokers. The creation of an advice line that surveyors can use was also proposed. An independent source providing advocacy and a steer on resilience could also support the process.

Issue 4 - Reduce the ambiguity as to what resilient repair is

All participants called for a flood resilient repair standard, which could for example be deployed for all buildings in a high flood-risk area (i.e. for all reinstatement opportunities – not just after flooding), and also on the agenda at the point of property sell. Groups in **Facilitated Group Discussions 2 and 3** suggested that a consistent and reliable standard in industry for resilience could alleviate a current lack of understanding and responsibility within the supply chain.

3.3.2 Activity 2 - The repair process and actors involved

The second activity involved a presentation of the process diagrams elaborating on what they represented. Participants then asked questions and reflected on where might there be the opportunities to enhance resilience within the process diagram? A number of suggestions emerged from this:

- 1) Have wide ranging disaster recovery plans and maintenance plans as a first step to the repair process
- 2) First stage of the repair process critical to integrating resilience, introduce as early as possible in the strip-out and drying stage
- 3) Key to arrange processes with key actors early on
- 4) Include consideration of resilient repair when the insurance policy is being taken out.

There were, however, a number of key barriers to implementation of resilient repair options, as well as potential facilitators.

3.3.3 Activity 3 - Themes for improvement

The third activity involved a presentation of the themes for improvement that had emerged from the earlier research process, as follows:

1. Build trust between actors (between different professionals, and also between professionals and policyholders)
2. Increase communication
3. Normalise resilient reinstatement
4. Provide funding mechanisms
5. Streamline delivery of resilience (so that it does not cause delays, and reduces the perception of resilience as a costly and time-consuming process)
6. Streamlining delivery of the whole process (to make room and 'emotional space' for resilience, but avoiding sense of haste and confusion)
7. Allow for emotions
8. Build trust in resilience (not only in the policyholder but also in the supply chain)

After the presentation participants were asked for comments and invited to discuss whether the themes were as expected. Some of the participants' comments built upon suggested approaches for implementation of resilient measures, and also highlight which themes were emphasised during the discussion. These can be summarised as follows:

- 1) Improved co-ordination between professionals during 'peace time' is needed to reduce the recovery gap (the suggestion was this could be led by local authorities);
- 2) Incorporation of resilience with building regulations is needed, to ensure sufficient guidance, training and skills development of professionals to be able to implement resilient repair;
- 3) Careful consideration of what could be enacted by default in relation to resilient repair, therefore becoming normalised within the recovery process.

The discussion was split into two parts, firstly *suggested improvements for the whole recovery process* and secondly discussion of *specific improvement for the implementation of resilient repair*.

3.3.4 Suggestions for improvement

In the final task, participants were given a number of the suggestions for improvement that had come from the Quick Scoping Review and interview stages. Each of the Facilitated Group Discussions were given different suggestions from a number of these themes, as appropriate to the participants' backgrounds. The suggestions made, and the feasibility of these, were then categorised by use of a 'traffic light' system as shown in Table 4 (for full details, see Appendix 4).

Table 4: Suggestions considered by the Facilitated Group Discussion participants: Green = considered feasible or an "easy win"; Yellow = partly feasible; Grey = not considered feasible at present.

Theme	Suggestion	FGD
1. <i>Build trust between professionals and between professionals and policyholders</i>	Consistent and informed point of contact for policyholder and contractors	1
	Clearer communication of requirements/ limitations for resilience from insurers to loss adjusters/ supply chain	2
	Learning and feedback after a major event	3
2. <i>Increase communication</i>	Shared plans and workflow documents	1
	Shared decision making (all professionals meeting before drying equipment is delivered)	2
	Use of technology/ shared technology to manage claims and improve communication	3
3. <i>Normalise resilient reinstatement</i>	No-cost changes that don't change appearance to be specified by surveyor	1
	Set up a "flood agreement" between insurers similar to the "subsidence agreement"	2
	Reinstatement companies offer resilient finishes alternatives within each quality/ price band	3

Theme	Suggestion	FGD	
4. <i>Provide funding mechanisms</i>	Provide resilience (as a featured benefits or as an extra add on) as a feature on price comparison websites to make it visible	1	2
	Higher premiums to allow for betterment as an add on	3	
5. <i>Streamline delivery of resilience so that it does not cause delays and reduces the perception of resilience as a costly and time consuming process</i>	Create improved supply chain for resilience products	2	
	Local support network of professionals can create knowledge in local contracting network	1 and 3	
6. <i>Streamline delivery of the whole process to make room and emotional space for resilience (but avoiding sense of haste and confusion)</i>	Streamlining process (even between different insurers) in the initial stages of a big event to reduce travel time for experts and improve standardisation e.g. One surveyor one street regardless of insurer	1 and 3	2
7. <i>Allow for emotions</i>	Allow space and time for emotional adjustment and empathy	3	
	Training of professionals in the emotional aspects	2	
8. <i>Build trust in resilience (not only in the policyholder but also in the supply chain)</i>	Information for professionals and more promotion of the insurance industry	3	

4. Synthesis of findings

The synthesis of findings across the three sources of evidence is presented in this chapter by the themes for improvement. These themes emerged from the Quick Scoping Review and case study interviews and were explored further in the Facilitated Group Discussions. The themes overlap and some of the barriers and suggestions for improvement address more than one theme. We have reduced the initial eight themes to seven by merging the two relating to trust.

4.1 Build trust

4.1.1 Between actors

Trust is important between policyholder and professionals and also between professionals.

The case study interviews revealed both the importance of developing trust, and a diverse range of trust factors that may influence the engagement of policyholders with any discussions about resilience. Policyholders sometimes perceive that surveyors and loss adjusters are acting in the interests of insurers to reduce the cost of claims rather than to help them. A continuous involvement can build trust over time and those that are contributing (well) to on-site improvements are seen as trustworthy. There is also sometimes a tendency to trust local people over experts brought in from other locations. Those with the best expertise and oversight to recommend a holistic strategy for resilient reinstatement, managing from a distance, may therefore be least trusted.

The Quick Scoping Review and the case study interviews revealed there may be a lack of trust between professionals and insurers and between different professionals working on a claim. Competitive pressures, and avoidance of blame (and therefore liability) can lead to silo thinking and lack of respect for each other's professional judgements. In regard to insurers some builders reported that they were deterred from engaging in post-flood reinstatement by their lack of trust in the good faith of insurance companies.

Suggestions for building trust between actors that found resonance with Facilitated Group Discussion respondents were:

- to ensure clear and consistent communication of insurers' requirements, expectations and limitations to their professional and contractor networks;
- to provide consistent and well informed points of contact and negotiation for policyholders (or their representatives) and contractors.

A further suggestion to build trust through transparent feedback activities after an event was seen as potentially valuable, but there were concerns about the best format for feedback activities, the best timing (given the length of recovery varies greatly) and the means of resourcing such activities.

4.1.2 In resilience

The Quick Scoping Review revealed that there is a lack of trust in the minds of some policyholders and some professionals about which recoverable measures will deliver desired outcomes. In part this may be due to the lack of evidence and experience. While there is plenty of anecdotal evidence that recoverable measures can prevent loss and damage and desk studies predicting the expected loss and damage prevention, there is yet to be a study that systematically evaluates the actual loss and damage prevention over a statistical sample. Another factor regarding trust in resilience is the different goals that are held by stakeholders with regard to a successful recovery and future risk reduction.

The Quick Scoping Review suggested policyholders are perceived to be most interested in processes that ensure reoccupation, good aesthetics, keeping water out and the ability to reinsure. Professionals may be more interested in lowering cost, speed of handling the current claim and customer satisfaction. Quality and resilience are not benchmarks that are much discussed in the literature or recognised by professionals interviewed.

Therefore there is a need to build trust in resilience not only by the policyholder, but also in the supply chain. It was suggested that, to increase take up, the insurance industry could promote trust by providing information to policyholders and professionals. This suggestion was supported in the Facilitated Group Discussions where it was felt there was not enough information readily available demonstrating the benefits of resilience.

4.2 Normalise resilient reinstatement

Normalising resilience (making resilient reinstatement the normal expectation rather than being seen as strange and potentially disruptive) was proposed by the Quick Scoping Review findings as a strategy to increase customer demand and provide incentives for streamlining and upskilling professionals within in supply chains. The Facilitated Group Discussions endorsed the concept of normalisation as critical to the increased engagement of professionals with the necessary training and skills development. Normalisation would also help to make the application of resilient reinstatement more consistent across locations and between events.

The Facilitated Group Discussions also highlighted that normalisation could involve multiple strategies including some changes in building regulations and other industry initiatives to consider making some resilient measures an industry default in areas at risk.

The Quick Scoping Review suggested that resilient reinstatement is an emerging concept already gaining some acceptance in the industry both in the sense of reducing strip-out (leaving resilient materials in place, 'sometimes called resilient' or 'soft' strip-out) and resilient repair (replacing stripped out materials with more recoverable ones and introducing avoidance strategies).

Three suggestions for normalisation were explored by the Facilitated Group Discussions, as follows:

1. There was consensus on the suggestion that suitable measures that incur no extra cost and do not change the appearance could be specified by a surveyor as a default in risk areas.
2. Measures that change appearance would require more consultation with the policyholder and this was suggested to be simplified by a standardised set of choices tailored to the quality/cost band of the original fixtures and fittings.
3. A “resilience checkmark” or even a “traffic light” system could be developed for the purpose. Facilitated Group Discussion participants questioned whether the resilient finish could be specified with the policyholder having the option to opt-out. This is particularly important as a particular resilient material may not be suitable in all cases.

The suggestion to create a *'flood agreement'* that created the expectation of resilient reinstatement, “*similar to the subsidence agreement*”⁷, was questioned on a technical note as the subsidence agreement relates to the long term nature of damage from subsidence. However, Facilitated Group Discussion participants were open to the thought of an industry wide agreement that created reciprocal expectations on insurers to take actions that could be demonstrated to reduce the total claims burden on the industry and be equitable and affordable in the short term. Government, the ABI or Flood Re were seen as potential facilitators of such an agreement. However, literature has noted that this benefits new companies that enter into the insurance market because claims are dealt with by the existing insurers, new insurers in the market have no legacy of previous claimants while benefitting from the betterment spend of other insurers.

4.3 Streamline delivery

4.3.1 Of the general reinstatement process

The Quick Scoping Review highlighted the complexity of the reinstatement process and that there are multiple models of claims management with low levels of standardisation (Lamond *et al.*, 2017). The required on-site physical processes, assessments, decisions and project management tasks may be accomplished by a bewildering range of professionals, and the timing and sequence may vary. After a major flood event these issues are exacerbated by the shortage of suitably experienced professionals and the need to ensure all policyholders are contacted or visited in the shortest possible time.

The case study interviews and the Quick Scoping Review suggest that this complexity is confusing for policyholders and makes it difficult for them to engage with the added burden

⁷ Can be assumed to refer to ABI 2011. Domestic Subsidence/Heave/Landslip "Change of Insurer" Claims Agreement. London: ABI.

of thinking about resilient reinstatement. This finding was also borne out in the Facilitated Group Discussions.

The Quick Scoping Review also suggested that complexity and accompanying fragmentation of the process into distinct phases sometimes led by separate contractors (for example, Samwinga, 2009) made it more challenging for professionals to implement resilient strategies.

Suggestions for streamlining the process emerging from the Quick Scoping Review included coordinating resources between different insurers in the immediate aftermath of a major event to reduce travel time for experts, making more time for assessments and discussions about resilience and improving standardisation. This was recognised by Facilitated Group Discussion participants as potentially useful in principle, but problematic to implement in cases where insurers are managing the reinstatement due to competitive factors and competition law. Further investigation of this possibility is needed. A role for the local authority was suggested in coordinating and highlighting local resources to those managing the recovery for themselves, but it would need to be resourced.

The review also suggested that in order to maximise the potential for resilient reinstatement, project management and oversight should be provided by the same person or team across the three central phases of cleaning and strip-out, drying and repair and that this team/person should have appropriate knowledge and experience of resilient reinstatement.

4.3.2 Of resilience

The Quick Scoping Review found that choices about retaining or enhancing resilience during recovery are made at several points during the reinstatement process. While the repair schedule is key to resilient repair, the decision to retain existing resilience is made during strip-out and drying. The Facilitated Group Discussions concurred with the need to consider resilience early on in the process and suggested a recovery plan incorporating resilience should be in place in advance of flooding.

The Quick Scoping Review also highlighted differences of opinion on the average impact of these decisions on the duration of an ongoing claim, both in terms of the effectiveness of drying in-situ and on the supply chain and other factors that might lengthen repair times. A case by case assessment is needed to select an appropriate strategy taking into account the reduction of future loss against the loss and disruption experienced during the ongoing claim. The possibility of delay can be seen as a major barrier by policyholders, professionals, and insurers.

It was suggested that any innovations that made resilient reinstatement cheaper, easier or quicker to implement would reduce delays and also the perception of resilience as a costly and time consuming process. An improved supply chain for any specialised resilience products could form part of this strategy. Facilitated group discussion participants

supported this suggestion in general, however it is not clear how this suggestion may be implemented. Improved local knowledge and local support networks of professionals and tradespersons expert in resilience was seen as a partial solution that is applicable in areas that flood regularly.

4.4 Improve Communications

Case study interviews highlighted the challenges involved in appropriate communication of messages about resilient repair to policyholders. There is a need to consider the best timing and at all times to employ tact and sensitivity. The concept of “drip-feeding” as and when people need it and are receptive to it was a strategy that was perceived as appropriate by some professionals.

Furthermore, the case study interviews highlighted that it is important for the professionals to listen to the policyholder, address their priorities and concerns and respect their points of view. Policyholders differ in their attitudes to resilience and some will instigate the dialogue on resilience directly while others may express goals related to reduced loss and damage. Some policyholders may be focussed entirely on getting back in to their home or business in the shortest possible time and exactly as it was before.

The ‘drip-feeding’ approach does, however, imply an increase in the number of communications about resilience throughout the recovery process. However, the Quick Scoping Review found that multiple messages can be confusing if they are not consistent, hence, communications between professionals and the insurance company must offer coherent advice and guidance to the policyholder.

Given the need to start discussions as early as possible, it is important that the first professionals on the scene are able to make judgements and feed back to others or access information about any resilience discussions already ongoing.

Suggestions to improve communication include the provision of shared plans and workflow documents. This was seen as basic good practice by the Facilitated Group Discussions. While some interviewees and Facilitated Group Discussion participants suggested shared plans are already commonplace, others gave examples where this was not the case and also indicated that the plans were not in place early enough. Alternative suggestions such as meetings between professionals were seen as desirable but impractical in the early response after a major flood. The use of technology to improve management of communications was also seen as a partial solution. Facilitated Group Discussion participants felt that this might help some policyholders, but be unsuitable for others. To some extent this is already happening between professionals, insurers and contractors.

4.5 Allow for Emotions

The case studies and the Quick Scoping Review confirm that experiencing flooding is traumatic, and that the recovery period causes further stress and anxiety for flooded households and businesses. Decision making in these circumstances is challenging and

individuals may have powerful emotional responses to any suggestions of change. They may feel threatened by being asked to consider resilience.

It is important to consider the perspective of professionals who are required to deal on a day to day basis with individuals (in households and businesses) who are highly emotional and may react very strongly to situations. In this atmosphere, professionals may feel overwhelmed. Great sensitivity is needed and professionals will need to make judgements on how best to introduce conversations about resilience. According to the case studies some professionals hesitated to press the case for resilience, for fear of raising negative emotions that might further distress the customer and thereby destroy trust. Emotions holding back professionals also included a concern about professional integrity in promoting adaptations that policyholders do not trust and that they feel are unproven. They can also be uncomfortable being an advocate against the policyholders' wishes. Conversely, others felt professional pride that they were acting in the best interest of policyholders and frustration when they were not able to deliver, due to insurers' limitations of cover.

Suggestions for improvement from the Facilitated Group Discussions were to make time within a claim to allow for emotional adjustment and for professionals to display empathy for the emotions of the policyholders. This could be supported by targeted training of professionals using materials that demonstrate the customer perspective.

4.6 Provide Funding Mechanisms

The Quick Scoping Review and the '360-style' case studies revealed that, in many cases, some resilient measures can be implemented at no extra cost (Lamond *et al.*, 2017). However where extra funding is required, the research suggests that simple and accessible sources of funding are preferred. In most cases insurers will not pay for betterment. There now appears to be a growing awareness of the benefits of resilient repair in the industry as a whole, which has led to some insurers relaxing the policy of 'no betterment'.

From the case study interviews cash settlements were reported as advantageous because experienced contractors could implement recoverable measures without lengthy negotiations and interactions with insurers. Funds could be used more flexibly and policyholders would be able to add to the resources available without administrative difficulties. Businesses were seen as more likely to be willing to invest their own money.

Grant funding is sometimes available but this is intermittent, and only at governmental discretion thus far. Instead, policyholders may take out loans or use charitable donations. Enhanced packages are available for higher net worth customers that improve customer outcomes and can include resilience.

It was suggested that insurers could use their premium setting to allow for resilient reinstatement either as an add-on (at extra cost) or as a standard feature (at no extra cost) that differentiated them from the market. Furthermore, the feature could be made more

transparent by inclusion on price comparison websites. Participants in the Facilitated Group Discussions were mixed in their assessment of these options. They felt that most customers would not be willing to pay the extra, either as top up or more expensive basic policy. However, there was support for the concept of policies that could include recoverability for a minority of customers. Marketing of such products should include the broker community.

4.7 Increase Knowledge and Awareness

The Quick Scoping Review and case studies indicated that the knowledge of companies and individuals involved in reinstatement has a great impact on the likelihood of measures being installed. The case studies suggested that this can sometimes be handled by local specialised contractors in areas of frequent flooding. Conversely, the Quick Scoping Review suggested that the insurance managed route was more likely to bring in expertise from experienced damage management companies.

It was suggested that more training should be provided to insurers and organisations within the supply chain but the Quick Scoping Review highlighted the barrier entailed is the investment required (both in time and money) to embed expertise into a company. This will be more justifiable if there is a clear impetus towards standardisation of resilient reinstatement and demand from the insurers to implement resilience.

The Quick Scoping Review also brought suggestions that multiple agencies, such as government and the ABI, should provide detailed and credible information on resilience.

4.8 Limitations of the study

Like all research studies, this project suffers from some limitations. One of these is very common in research involving businesses and professionals: i.e. the limited number and range of people recruited for the interviews and stakeholder groups.

In the Quick Scoping Review, although representatives from all target groups were interviewed these were not representative enough to ensure full coverage of all different models of reinstatement. This limitation was offset through the systematic identification of previous research studies that address the research questions. There was, however, limited coverage of some sub-questions, hence the findings may not be equally applicable to all modes of delivery.

In the second phase of the research, the sample was limited by the choice of some people to withhold permission to interview professionals involved in reinstating their properties. Some professionals also declined to be interviewed (of those approached for the case-studies, about one in ten professionals agreed). It is possible that there is a bias in the sample to those more favourable to the notion of resilient repair. Certainly the two builders that took part were both keen proponents of resilient repair. There was a low response to invitations for loss adjuster interviews that may partially be due to the reported (by other

participants) frequent changes in the loss adjuster allocated to any particular case. Suspicion of the motives behind the approach for an interview may also be a factor, as owners of flooded properties frequently reported being in dispute with professionals. The reluctance of professionals to participate limited the building of case-studies gathering the perspectives and experiences of all or most of the participating actors.

Collecting data from flooded businesses was also a severe challenge. Many of those approached for interviews reported that they had only been inconvenienced by flooding and had not experienced substantial damage, while others had not been involved in the reinstatement because they had left it to the property owners. There was more success with the use of 'snowballing' recruitment techniques, gaining access to local networks and then approaching businesses recommended by the initial contact and, then, by each successive interviewee. This method may, however, have excluded those businesses not networked with those active in the area of flood risk management.

The recommendations made in this report were prompted by analysis of the data collected, but the methodology used did not allow for deep probing into the likely effectiveness of these solutions. The Quick Scoping Review method is not designed to evaluate the strength of evidence underlying suggestions, or to judge the appropriateness of suggestions. The 'ground-truthing' afforded by the Facilitated Group Discussions helped to ensure that a subset of the most directly actionable suggestions were considered by representatives of the industry and helped to add important refinements; however, it would have taken a more protracted and in-depth consultation and analysis process to evaluate the full list of suggestions.

The contribution of the stakeholder 'ground-truthing' Facilitated Group Discussions was an essential and significant aspect of this project. The discussions were, however, relatively short considering their ambitious aims. There were limits to the participation that may have resulted in gaps in the knowledge of those attending including expertise in small business insurance and damage management.

5. Conclusions and suggestions for action

The conclusions below are largely aimed at a reinstatement process that is managed by the insurer or their nominees on behalf of the policyholder – as implied by the term “standard recovery process”. Some claims, however, are managed by policyholders or their own nominees by means of cash settlements and conclusions with regard to the use of cash settlements are included in 5.1.

5.1 Ways to make the standard recovery process more inclusive of resilient measures during the recovery process following a major flooding incident.

The standard recovery process is fraught with challenges. This is especially the case after a major incident due to the shortage of specific expertise and the need to manage a high volume of claims. In that context the inclusion of resilient measures would be facilitated by clear understanding within the professional supply chain regarding the expectations (or not) for implementation of resilience. In particular there are currently differences in views among professionals regarding:

- whether neutral cost resilience that has no impact on appearance is automatically to be implemented;
- whether neutral cost options that affect appearance are to be offered, and on what basis;
- what options exist for including extra measures that would normally be classed as “betterment”;
- under what circumstances professionals should evaluate such extra measures on behalf of the policyholder;
- what are the lines of decision-making in case of negotiation in regards to implementation of measures.

Although insurance terms and conditions and the contractual frameworks under which professionals usually operate during flood reinstatement could, in principle, define the requirements above, they do not always explicitly cover these questions despite intentions of insurers to encourage resilient repair. Although, in theory, policyholders can change the contractual details, they are constrained in doing so by restrictions to the total claim value that are specified by the policy terms and conditions. All other things being equal, more resilient measures are likely to be implemented if there are: a clear presumption in these documents towards implementation of neutral cost resilience measures; a default

evaluation of other options, and a clear route to inclusion of “betterment” when funds are available from other sources.

To increase the presumption in favour of resilience measures, standardisation across the industry could be encouraged through external influence: government regulation, for example, in combination with industry consensus and understanding of what constitutes “betterment” in the context of flood claims, together with adoption of identified best practice. There are also general reinstatement standards (BS12999) and guidance (PCA Code of Practice) that could be revised in order to include a greater emphasis on resilient repair.

It will also be important for any standards or guidance to recognise that the implementation of measures that are recognised as highly resilient sometimes implies the removal of other, perhaps less or not so obviously, resilient materials that already exist in a property and could be recovered with care. There is a balance to be struck between the retention of these existing resilient features and the implementation of new resilient measures.

In some cases, given the lack of clarity about the requirements of insurers, the payment of a cash settlement can increase the likelihood of resilient repair because the authority to decide on resilience then rests solely with the policyholder. For those who wish to pursue resilient reinstatement, cash settlements can be an effective means to reduce administrative challenges provided the policyholder is able to effectively manage the project (directly, or through an appointee).

Evidence from this study suggests that, despite the lack of clarity, some resilient repair is being implemented by experienced professionals and encouraged by some insurers. Therefore where policyholders are not already predisposed to consider resilient reinstatement, cash settlement can, if non-specialists are engaged, reduce the likelihood of adoption of appropriate measures.

To bring more funding into resilient repair there are options to fund ‘betterment’ which would facilitate higher-cost measures, where appropriate. These options could include: optional add-on premiums; loans and grants that would be automatically triggered by a major event; or policyholder savings or business reserve.

If the revisions were made to encourage resilient repair as part of the standard recovery process then there would be a need to upskill professionals in both technical and soft skills to meet the new expectations.

Streamlining the delivery of resilient repair could make resilience during recovery more acceptable. Currently, professionals, policyholders and tenants of flooded business premises perceive uncertainty in the impact of choosing resilience and see it as a potential disruptor to the processing of a claim and the reinstatement. This research identified potential delays associated with negotiation with insurers/loss adjusters, confirmation of funding routes, choosing and sourcing of specialised materials and trades, and longer

construction processes involving cementitious material. Simplified decision processes and identification of established routes to source specialised materials and trades can address many of these potential delays.

It is important to stress that the process of resilient reinstatement is set within a general reinstatement process that is challenging to deliver during large scale events. This causes stress and confusion not only to policyholders, but also to professionals in the supply chain. This research did not aim to address all the problems inherent in flood reinstatement, but has identified that these problems are sometimes a contributing factor to the low uptake of resilience on the part of the policyholder. The research, therefore, concludes that simplifications and streamlining in reinstatement generally will enhance the uptake of resilience. Improvements necessary to increase the implementation of resilient measures will also contribute to the general improvement of reinstatement practice.

5.2 Ways to improve the delivery of resilient repair to ensure it is more easily understood and more consistently accessible to householders and small/micro-business across England.

Acceptance of resilient repair starts with awareness, and, as suggested in 5.1, increase in uptake for some resilient measures can be fostered through normalisation and reductions in the need for detailed discussions. In other cases, however, this research suggests that policyholders need to be able to make choices about resilience and require, therefore, a deeper understanding. There needs to be an atmosphere of trust in which conversations about resilient reinstatement can be held so that acceptance and understanding can be developed. This research suggests that policyholders may relate better to those companies and individuals that are in contact most frequently, listen to policyholders and are responsive to their situation and deliver tangible, practical assistance.

This research found that there is a need to increase the amount of communication around resilience. The delivery of this communication need not be confined to the reinstatement process. For example, it could be part of the insurance discussion from before the start of cover and from other agencies from the point of discussions about occupation or property transfer.

The context of the communication, in the aftermath of a flood event, is critically important. Insurers and professionals need to recognise the potential for trauma and stress to limit the ability of policyholders to make decisions and absorb information. Professionals should be sensitive to the individual and their circumstances – including financial and emotional attachments, and individual attributes – all of which can influence policyholder capacities to consider resilience at different stages in the flood recovery cycle. During reinstatement the concept of resilient reinstatement can be introduced early and revisited at key points during the delivery, as needed. Messages from those directly involved in the reinstatement process may need to be reinforced by other individuals and agencies that are in positions

of independence and therefore may be more trusted to act solely in the policyholder's interest (e.g. local authorities, brokers, government).

Improvement in the quality of such communications is also required. Communication around resilience often needs to involve complex technical, and financial information at a time of heightened emotions and from different actors if informed decisions are to be taken. However, more consistency between the advice and information given by different professionals and other stakeholders will avoid confusion and build understanding and trust on the part of the policyholder. Professionals need to agree on the presentation of strengths and weaknesses of different options (even if this requires some debate between the professionals) and to avoid contradictory advice while still allowing different agreed options to be considered. Allowing time for policyholders to absorb and decide on information on the different options is important. Once informed of options the policyholder or their nominated representative (e.g. broker) will benefit from having a single similarly informed point of contact during negotiation. Some policyholders may also welcome the opportunity to consult with independent sources of advice.

Clarity in explanation of the options is also important. Where possible options that are specific and actionable with clear consequences makes the choice of resilient reinstatement more accessible to policyholders. There is currently a lack of the evidence and guidance that would enable professionals to articulate the impacts of resilient reinstatement. In the absence of evidence or guidance professionals and policyholders will sometimes choose the more tried and tested. More evidence that demonstrates the impact of resilient reinstatement on claims cost and duration is required.

5.3 Ways in which government can influence the approaches taken by professionals during recovery, to encourage the delivery of more resilient repair

Interviewees stressed that government and associated agencies (such as the Environment Agency) and charities (such as the National Flood Forum) have a key role in raising general awareness and increasing demand for resilient reinstatement. Government could facilitate the development of industry consensus through provision of evidence around the impacts of resilient reinstatement and encouragement of the inclusion of resilient reinstatement in new standards and guidelines. This would have a direct influence on the approaches taken by professionals.

As noted above, the expectations of insurers (as represented by their terms and conditions and contractual frameworks) are a driving influence on the standard recovery process. They determine the operating conditions for the professionals and they evolve in response to many different influences, including competitive pressures, consumer demand, regulatory guidance and imperatives, government incentives and policy, industry agreed best practice, as well as positional decisions by individual insurers.

Government can influence the approaches of insurers and therefore their professional supply chain via the imposition of regulation, and the provision of grants and incentives. The regulatory option would mean insurers (and their supply chains) would be obliged to implement changes regarding the reinstatement or general refurbishment of existing buildings located in areas at risk.

Government could encourage self-regulation, agreed standards of repair or reciprocal agreements within the insurance industry through facilitation, always bearing in mind the concerns about competition law and the existence and mandate of Flood Re.

Government could also offer grants and incentive. This option has already been implemented, to some extent, through the provision of grant funding during recovery over the last five years. Grants provide funding to policyholders and are a short-term incentive to policyholders to put their own resources alongside government grants. The Government Flood Recovery Framework includes the possibility that PFR grants will be made available if there was to be a repeat of the scale of flooding experienced in 2016. Additionally, government could consider a small grant scheme for resilient repair to assist people at flood risk to adapt their properties when non flood repair opportunities arise.

There is also evidence that through grant funding and exemplar projects some attitudinal and practical changes have already begun to emerge amongst insurers and professionals. The results of this research indicate that a simple and reliable grant scheme for resilient reinstatement would incentivise the industry to increase focus on resilience, although the drawbacks identified in the process of administering the grant would need to be addressed in future schemes. However, in the longer term, the provision of grants could discourage policyholders from taking responsibility for resilience themselves.

5.4 Suggestions for insurers wishing to encourage resilient repair

Insurers can encourage cost neutral resilient changes by being clear in their terms and conditions that this is the expected normal practice. Such a policy could also include consideration of flood resilient repair during all reinstatement work, including that not related to flooding. Policy terms and conditions as well as framework and delivery contracts can include such an expectation. Terms could give a clear mandate to the reinstatement industry to authorise resilient no-cost alternatives without having to first seek the approval of the insurance company. This would send a strong signal to the reinstatement industry and give them confidence that investing in resilience skills and knowledge will be an advantage in gaining and keeping business; this would accelerate normalisation.

Insurers may need to provide detailed information about the expected options to be considered by the industry for some types of measures (e.g. building fabric). They might also need to promote less specific strategies for other measures (e.g. decorative features) that ensure that customers are offered a no cost resilient option whenever one is appropriate.

Insurers could seek ways to recognise any existing resilience in policyholders' properties, allowing them to set lower premiums in the expectation that resilience will result in lower claims. This could encourage more adaptation by providing the incentive of lower premiums. This could be through support of any Flood Re initiatives but also for property not eligible for Flood Re or not ceded to Flood Re.

A greater number of insurers could provide innovation in flood insurance products to allow for betterment during reinstatement. This could include add-on policy options or wholesale increases in premium that allow for betterment. A new industry standard/ statement of principles could be discussed that makes some types of betterment for the purposes of flood resilience an expectation. These types of betterment would need to be agreed within the industry. Publicity for these new products would depend on customer types but could include standard marketing, comparison websites, brokers or company agents.

Insurers can work with others to grow the evidence base on the performance of resilient buildings through sharing case studies and data.

Where community awareness-raising initiatives are taking place during the recovery period it would be good for insurers to provide their support. This could be done in a range of ways: from giving advice through to sponsoring events. Insurers could work on greater co-ordination of claims handling during large-scale events so that the available expertise can be used effectively and good decisions made at the outset. This could include insurers contracting with local businesses for reinstatement work to access locally specific expertise on local architecture, soil and water conditions and social contexts who can more easily secure the trust of local people and, therefore, more effectively convey messages about resilience.

Insurers could consider their policies relating to cash settlements for claims in the light of the potential to impact on resilient reinstatement. It is not possible to generalise in respect of whether cash settlements increase uptake; although cash settlements empower some individuals, they over-burden others. For insurers wanting to influence uptake directly it is most important to recognise that managed reinstatement in the hands of a future upskilled, empowered and informed reinstatement industry could result in high levels of resilient reinstatement. However insurers that consider resilient reinstatement as betterment and not within their mandate to pursue, the offer of a cash settlement for policyholders expressing the desire for resilient reinstatement could present an alternative.

5.5 Suggestions for the insurance supply chain / reinstatement professionals

All parts of the supply chain need to be informed about resilience in order for the implementation of resilient reinstatement to be effective. Training of surveyors, loss adjusters, contractors and suppliers is required. Ancillary trades and utility suppliers also need to be appropriately skilled.

It is also important to improve communication within the supply chain to avoid mixed messages and ensure plans are carried out properly. This could be through shared work documents, CDM documents, written plans or claims management records. Alternatively it could be through shared decision making, with professionals holding consultation meetings to decide on the reinstatement approach. Enhanced claims management technology could also be used.

The industry could support the provision of more evidence of the performance of resilience through case studies and data sharing. Development of rating systems and warranted or kitemarked products/procedures would help to build trust.

Where appropriate a whole community approach can be encouraged where local property support networks can be rapidly developed to support the recovery process, e.g. builders' merchants listing resilient products, local general contractors being guided by more experienced specialists.

Contractors and suppliers can work to ensure there is a resilient option available at most price points to facilitate no cost changes that improve resilience. The supply time for such products should be no longer than standard products.

References

For full bibliography please see Quick Scoping Review report.

- Bhattacharya-Mis, N. & Lamond, J. 2014. *An investigation of patterns of response and recovery among flood affected businesses in the UK: Case study in Sheffield and Wakefield *Flood Recovery Innovation and Response*. Poznan, Poland: WIT Press.
- British Insurance Brokers' Association 2018. Manifesto 2018 - engaging. London: BIBA.
- Crichton, D. 2006. Climate Change and Its Effects on Small Businesses in the UK. London: AXA Insurance UK.
- Fernández-Bilbao, A. & Twigger-Ross, C. 2009. Improving response, recovery and Resilience: Improving Institutional and Social Responses to Flooding Leeds: Environment Agency.
- HM Govt, Kidd, Tagg & *et al* 2010. Guidance and standards for drying flood damaged buildings - Signposting current guidance - BD 2760. *In: DEPARTMENT FOR COMMUNITIES AND LOCAL GOVERNMENT* (ed.).
- Harries, T. 2008. Public Perceptions and Adaptations to Flood Risk. *In: D.G.PROVERBS* (ed.) *Flood Repair Network Workshop no 4, 08/05/08*. Embassy House, Birmingham UK.
- Harries, T. 2008 Feeling secure or being secure? Why it can seem better not to protect yourself against a natural hazard. *Health, Risk & Society*, 10(5), pp. 479-490. ISSN (print) 1369-8575
- Harries, T. 2010. Household Flood Protection Grants - The householder perspective. *Defra and Environment Agency Flood and Coastal Risk Management Conference 2010. 29th June 2010*. Telford International Conference Centre, Telford UK.
- Joseph, R. D. 2014. *Development of a comprehensive systematic quantification of the costs and benefits (CB) of property level flood risk adaptation measures in England*. PhD, University of the West of England.
- Lamond, J., McEwen, L., Rose, C., Wragg, A., Joseph, R., Twigger-Ross, C., Papadopoulou, L., White, O., Dhonau, M. & Proverbs, D. 2017. Supporting the uptake of low cost resilience for properties at risk of flooding: Final report (FD2682). London: Defra.
- Lamond, J., Rose, C. B., Joseph, R. & Proverbs, D. 2016. Supporting the uptake of low cost resilience: summary of technical findings (FD2682). London: Defra.
- Pitt, M. 2008. Learning lessons from the 2007 floods: an independent review by Sir Michael Pitt: final report (also known as the Pitt Review). Cabinet Office.
- Royal Haskoning 2012. Assessing the economic case for property level measures in England. *Committee on Climate Change, Peterborough*.
- Samwinga, V. 2009. *Homeowner satisfaction and service quality in the repair of UK flood-damaged domestic property*. PhD Unpublished PhD, University of Wolverhampton.
- Soetanto, R., Proverbs, D., Lamond, J. & Samwinga, V. 2008. Residential properties in England and Wales: an evaluation of repair strategies towards attaining flood resilience. *In: BOSCHER, L. (ed.) Hazards and the built environment: attaining built-in resilience* London: Taylor and Francis.
- Wedawatta, G. & Ingirige, B. 2012. Resilience and adaptation of small and medium-sized enterprises to flood risk. *Disaster Prevention and Management*, 21, 474-488.
- Whittle, R., Medd, W., Deeming, H., Kashafi, E., Mort, M., Twigger-Ross, C., Walker, G. & Watson, N. 2010. After the Rain – Learning the Lessons from Flood Recovery in Hull - Final Project Report for 'Flood, Vulnerability and Urban Resilience: a Real-

Time Study of Local Recovery Following the Floods of June 2007 in Hull'.
Lancaster, UK: Lancaster University.

Woodhead, R. 2012. The art of reinstatement. *In*: LAMOND, J., BOOTH, C., HAMMOND, F., PROVERBS, D. (ed.) *Flood Hazards: Impacts and Responses for the Built Environment* Boca Raton, FL, USA.: CRC, Taylor & Francis group.