

Long-term impacts of flooding following the winter 2015/16 flooding in North East Scotland: Comprehensive Report



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Dedication: This report is dedicated to those who participated in the research, sharing their experiences of the winter 2015/16 flooding.

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1 Background of this project

Many areas of Great Britain were badly affected by flooding in the winter of 2015/2016. Over a fourteen week period commencing in early November 2015 a “persistent and exceptionally mild cyclonic episode” brought “severe, extensive and protracted flooding which impacted most damagingly on northern Britain, Northern Ireland and parts of Wales” (Marsh *et al.*, 2016, p1). The flooding had considerable impacts on private homes, business premises, transport infrastructure and agricultural activities. The Association of British Insurers (cited in Marsh *et al.*, 2016) estimated that the costs of storm damage to homes and businesses during the winter of 2015/16 exceeded £1.3 billion.

In Scotland, in early December 2015, severe flooding affected the south of the country with Hawick and Dumfries both badly affected. Late December saw further periods of heavy rainfall that brought more flooding to the South of Scotland, badly affecting Peebles and Newton Stewart. Severe flooding also affected the North-East of Scotland in late December 2015 and early January 2016. Some flooding was experienced in Aberdeen city, but most flooding and associated disruption was experienced across Aberdeenshire, in small towns, villages and the open countryside.

The flooding in Scotland in December 2015 and January 2016, some of which was directly associated with Storms Desmond and Frank, was some of the worst in living memory. Previous research (e.g. Werritty *et al.*, 2007) has demonstrated that the impacts of flooding on people's lives can be damaging and long-term. The severity of the winter 2015/16 flooding prompted CREW to commission research that would seek to understand these impacts better and to consider what types of support and advice people and communities need at different stages of a long-term recovery from a flood event. Commissioned as a three-year project on behalf of the Scottish Government, CREW wished to fund research that would take a longer-term perspective on the impacts of flooding than had been explored in previous research.

1.1 Purpose of the research

The purpose of the *Assessing the Long-term Impacts of Flooding* project to better understand the impacts of flooding upon people and communities and to consider what types of support and advice are needed at different stages of a long-term recovery. The research was conducted over a three-year period and sought to advance our understanding of these long-term impacts, contribute to better flood risk management and make suggestions as to how personal and community resilience may be supported and enhanced.

This research offers novel contributions in that:

- a) It offers longer-term perspectives on the post-flooding journey than have been captured in earlier research;
- b) The longitudinal design, which has involved repeated encounters with the same individuals over the duration of the research, has not been

attempted over such a long time period in flooding impacts research;

- c) Comparing experiences of individuals who live in an area which has experienced repeated flooding with those of individuals who live in areas with little previous experience of flooding offers new insights, as does comparing experiences of individuals living in a remote rural community with those who live in an accessible rural area, close to a major urban centre; and
- d) Participants and the researchers co-produced advice to others in the form of ‘peer to peer’ suggestions of what private citizens who live in a flood risk area should do to build personal resilience to flooding and ‘peer to stakeholder’ recommendations designed to enhance community resilience and the response of agencies who play a role in responding to and dealing with the aftermath of flooding.

To provide context for the chapters that follow, a brief literature review is now presented in which key themes considered in the impacts of flooding and associated literatures are considered.

1.2 Impacts of flooding

Emergency situations are known to cause social and economic disruption and affect physical and mental health. Cumulatively these impacts can be detrimental to the wellbeing of individuals/ households and the wider community. Impacts may be identified during an emergency situation, in the immediate aftermath and in the longer-term. Werritty *et al.* (2007, p1) note that “the impacts of floods have long been recognised as complex and multi-faceted”. Fatalities from flooding in Scotland are rare, but considerable economic impacts arising from, for example, damage to residential and commercial property and transport infrastructure disruption and damage are well documented. Over the past decade or so there has been a growing recognition of the social impacts of flooding but the long-term impacts of flooding remain poorly understood. There is thus a need to better understand the impacts of flooding on individuals and communities to inform the efforts of those responsible for flood risk management and statutory and volunteer-led resilience planning.

Kazmierczak *et al.* (2015) reported that over 4% of Scottish residential properties (c 108,000), distributed amongst around a half of all data zones in Scotland, are exposed to river, coastal or surface water flooding. The number of exposed properties is likely to increase in the future due to climate change bringing higher winter rainfall, more intense summer storms and rising sea levels. In this context better understanding the impacts of flooding in the medium to longer-term is increasingly important.

A number of themes relating to the impacts of flooding on individuals and communities have been identified in the academic literature, in government and consultants reports and in the media. Prominent amongst these are resilience, property level protection, insurance, and health and wellbeing and these are discussed below.

1.2.1 Resilience

The origins of the term 'resilience' lie in the ecological literature where resilience refers to the ability of an ecosystem to react to external and internal shocks, how it can return to a state of equilibrium after changes and how resistant it is to disturbance and shocks (Holling, 1973). 'Resilience' has more recently been adopted as a concept used in the social sciences and in disaster management however "the widespread adoption of resilience among disciplines has led to ambiguity surrounding a definitive application of the concept" (McClymont *et al.*, 2019, p3). In the context of this research project two of the three broad conceptualisations of resilience presented by Martin-Breen and Anderies (2011), are relevant: (1) *Engineering resilience*, the ability of a system to recover, or 'bounce-back' to an previous state following a disturbance; and (2) *Complex adaptive systems resilience* which refers to the ability of a system to adapt and transform in response to a shock. The former is exemplified by disaster planning and management including, for example, the resilience planning and management undertaken by UK and devolved national governments. The latter is illustrated by socio-economic resilience, most often associated with individuals and communities.

For the UK Government, the aim of resilience planning is to increase the capacity of government and other statutory agencies to prepare for, respond to and recover from civil emergencies, including flooding. Flood risk management strategies and local plans produced under The Flood Risk Management (Scotland) Act 2009, updated 2019, includes provisions for avoiding and reducing flood risk and recovery from flooding, the third provision being most relevant to this research. Actions before, during and immediately after a flood by the emergency services, local and national government, agencies such as the Scottish Environment Protection Agency (SEPA) and the Scottish Flood Forum (SFF) are coordinated to manage the effects of flooding such as evacuations, restoration and repair work and to build community and property resilience to reduce the impacts of any future flooding. Findings from this research will contribute to enhancing flood-related resilience planning and management by providing evidence of the strengths and weaknesses of flood risk management strategies as they were experienced by individuals living in areas flooded in winter 2015/16.

Social-ecological resilience has emerged as a concept (Adger, 2000) which refers to the ability of a community to withstand environmental shocks such as flooding. A community displays resilience if it can successfully adapt to the shock. More recent literature has developed the concept of 'social resilience' as one in which empowerment and development processes at both the level of the individual and the community are added to an interrogation of how external shocks are responded to (see, for example, Skerratt and Steiner, 2013). Although conceptualised in various ways (Ntontis *et al.*, 2019), 'community resilience' is commonly referred to in disaster-related literature to denote the ways in which individuals and communities recover and move on from extreme events, including flooding. Multi-sector responses to extreme events, commonly led by national and local governments and statutory agencies, are common across the world. In some national contexts

the community directly affected by an extreme event is formally recognised as having an important role to play in the recovery stage. In community involvement is strongly encouraged and even incentivised. For example, in the US, a Community Rating System (CRS) was developed to create incentives for communities to address flood risks and become more resilient to future floods. Participating communities receive a CRS score and discounted premiums on federally required flood insurance in accordance with this score (Sadiq & Noonan, 2015). Recent research on community resilience has identified strengths and weaknesses of existing community resilience structures in flooded communities and has made recommendations regarding how the operations of existing and new community resilience groups can be improved and enhanced (Ntontis *et al.* 2019; Gerrard, 2018; Drennan 2016; Singh-Peterson *et al.*, 2016). The resilience of different types of individuals and specific sub-groups within a community following flooding have been identified (e.g. Mort *et al.*, 2016). The literature also interrogates the role of social capital (McEwen *et al.*, 2018) and social responsibility (Soetanto *et al.*, 2016) in flooded communities and how these attributes align with community resilience.

A number of studies have addressed the impact and the process of recovery on individuals following flooding. Werritty *et al.* (2007) explored the social impacts of flooding. They conducted a large-scale household survey of households across Scotland who lived in flooded and flood risk areas and undertook focus group discussions with people who lived in areas that had experienced flooding between 1993 and 2005. They identified a number of challenges commonly faced in the aftermath of flooding, including tangible impacts (material losses) and intangible impacts (non-material and/or emotional losses). The importance of intangible impacts has also been identified in other studies exploring individual recovery in the aftermath of flooding. Issues such as changed feelings about home (Whittle *et al.*, 2014; Carroll *et al.*, 2009), 'flood memory', i.e. remembering and forgetting particular aspects of the flood experience (Garde-Hansen *et al.*, 2016), financial and emotional repercussions including fear of a subsequent flood (Ng *et al.*, 2015) and the everyday emotional 'work' required to recover (Medd *et al.*, 2015). The 'Resilience Paradox', a term coined by Ogunbode, *et al.* (2019) describes a tendency for individuals who have previously been flooded to reflect on the event as one that is unlikely to reoccur as a means of coping and 'moving forward'. This view overlooks or side-lines consideration of how the individual or their household could take mitigating action that would make them better able to deal with future flood-risk. A lack of preparatory action undermines what it is for an individual to be resilient, thus the paradoxical outcome. Decision making in areas such as obtaining adequate flood insurance cover, installing property level flood resistance and resilience measures can be compromised if an individual adopts a resilience paradox mindset.

In this research the socio-ecological resilience of individuals and households is interrogated by (a) exploring what preparatory actions residents and businesses in the case study areas had taken before the winter 2015/16 flooding and (b) inviting participants to reflect on what their experiences that winter had promoted them to do that would make their property more flood resilient in the

event of future flooding.

1.2.2 Property level protection

Property level protection measures are designed to help prevent flood water entering a property (flood resistance measures) and to minimise water damage within a property (flood resilience measures). Flood resistance measures include, for example, flood gates, angel vents and flood doors. Flood resilience measures include installing concrete flooring instead of wooden floorboards, placing electrical sockets mid-way up a wall instead of near floor level and keeping valuables, where possible, on the upper floor of a property. In the UK responsibility for protecting the physical fabric of a property lies with the property owners (occupier or landlord), occupants (home-owner or tenant) are responsible for personal belongings such as clothing, furniture and white goods. Accordingly, the owners and tenants of domestic and commercial property are encouraged to invest in measures which could help to prevent damage to their property from flood water (Beddoes & Booth, 2011). The Environment Agency (2019) state that property flood resilience (PFR) is cost effective for many homes and could reduce the risk of flood-related damage by about 16% and that “damages by up to a quarter could be reduced if PFR was adopted by all residential properties at risk” (p 129). It is not realistic to expect all residential property to adopt suitable measures but the potential of PFR to manage flood risk is clearly illustrated.

Despite the availability of Government grants to those resident in England to help make the installation of property flood resistance and resilience measures more affordable (e.g. the Repair and Renew Grant in 2014 or the Communities and Business Recovery Scheme for households and businesses flooded in winter 2015/16), general uptake of measures has been relatively low (e.g. Beddoes *et al.*, 2018). Recent research addresses the complexities associated with decisions over uptake of such measures (Lamond *et al.*, 2018). Based on findings from Lamond & Proverbs (2009), reasons for poor uptake of these measures have been found to relate to “*information, financial, emotional and timing barriers that impacted variously on the necessary awareness and perception of risk, ownership of the risk, knowledge of solutions, resources to implement solutions and belief that the measures would work*” (DEFRA, 2017, pg 24).

In this research household level decisions regarding the installation of flood resistance and resilience measures and behaviour change which would enhance resilience within the home are explored. Decision making and behaviour change in this domain were found to be closely linked to self-perceptions of flood risk, the Resilience Paradox (see above) and home and business insurance (see below).

1.2.3 Insurance

The mechanisms for making available appropriate insurance cover and compensation for flooding, for private citizens and businesses, varies with different regimes operational across Europe and North America (Faure *et al.*, 2019; Grigg, 2019). However, given anticipated increases in extreme weather events including flooding (Kron *et al.*, 2019), the means by which home owners and businesses can protect themselves against flood related losses by taking out insurance cover is of importance.

Penning-Rowsell (2019, p34) notes that the availability of flood insurance across the UK is “almost unique internationally”. Here, buildings and contents insurance cover may be purchased by households as a means of managing flood risk as well as mitigating against unforeseen events such as theft or other damage to property. The widespread flooding across the UK during the winter of 2015/16 led to around 11,500 households being flooded (Citizen’s Advice Scotland, 2016) with the cost of the damage being in excess of £1.3 bn (Association of British Insurers, 2016). Insurance companies are private sector businesses; they seek to make a profit by offering insurance cover. Since the 1960s various agreements between the UK insurance industry and government have been in place whereby the insurance industry “seeks to reduce its liabilities” and government “seeks to maximise coverage of flood insurance by making it affordable and widely available to those at risk” (Penning-Rowsell, 2019, p34). The current agreement is the Flood Re scheme. Launched in 2016 Flood Re aims to offer affordable insurance to individuals at high risk of flooding, including those who have been previously flooded, by reimbursing pay-out costs to the insurance company (Flood Re, 2019).

Policies that explicitly include flood cover are widely available, but the affordability of such policies, especially for those on low incomes, is a concern (Citizen’s Advice Scotland, 2016). The experiences of those who had made flood-related contents and/or buildings insurance claims when seeking to renew policies or obtain cover from a different insurer are poorly understood. Given the importance of insurance as a means by which household flood resilience can be strengthened, this is an area worthy of further investigation. The interplay between perceived risk of flooding (or re-flooding) and attitudes towards insurance cover has been addressed in the literature (Royal & Walls, 2019; Lamond *et al.*, 2007), as has implementing risk reduction methods for/in the home (Roder *et al.*, 2019; Richert *et al.*, 2019).

Previous research has highlighted a number of obstacles to securing appropriate insurance cover faced by those who had previously been flooded. In some cases, households could not or chose not to take out cover. Some were unable to obtain insurance because providers were risk-averse and would refuse to provide a quote to cover a previously flooded property. In other cases, insurance cover was offered, but premiums were high and considered unaffordable (Priest *et al.*, 2005). Personal challenges associated with obtaining flood insurance by those who had been flooded in Scotland in the 1990s and early 2000s were considered by Werritty *et al.* (2007). Of note here was the finding that tenants in the social housing sector were less likely to have contents insurance than owner occupiers or those renting in the private sector. The affordability of premiums and whether tenants could be encouraged to join ‘pay with rent’ contents cover schemes were identified as possible explanatory factors. The affordability of insurance was a focus of research conducted by Citizen’s Advice Scotland after the winter 2015/16 flooding. They reported that “*for many consumers in Scotland getting access to insurance or being able to afford cover for their home has not been an option available to them due to cost or availability, and many are left unprotected from the increasing risk of being flooded*” (Citizen’s Advice Scotland, 2016, p 4). Of those surveyed for the research, 1 in 4 who had been

flooded more than once reported that they had to make economies elsewhere to be able to afford their insurance premiums and the findings also hinted that those living in flood risk areas who attempted to secure more affordable insurance from another provider had difficulties switching or were unable to secure cheaper cover. In the aftermath of the winter 2015/16 flooding some households in Aberdeenshire were shocked to be told by their insurance company that the policy they thought provided flood cover did not. Policies were deemed invalid by the insurance provider because, it was claimed, incorrect information had been provided by the policy holder about distance from water bodies when cover was taken out. Some well publicised cases (e.g. Press and Journal, 30th March 2016; BBC News, 22nd March 2016) led to insurers being pressurised into reviewing specific cases and offering what the press described as 'goodwill' payments. These experiences highlight problems associated with the type and detail of information, which some insurance providers expect clients to be able to provide and difficulties which could lead to further cases of policies being deemed void in the future.

This research provides a further opportunity to better understand how those living in flood risk areas perceive implementing risk reduction measures in their home and behaviour informed by personal perceptions of risk and prior experience of flooding. The affordability of flood insurance and difficulties faced by those who had been flooded in winter 2015/16 when seeking to renew a policy or take out a policy with another provider in the three-years following the flooding are examined to provide further evidence of challenges faced by households who try to protect themselves against flood related losses.

1.2.4 Communicating flood risk to the public

The communication of flood risk to the public is an important component of formal flood risk management. The better prepared the public are for possible flooding the better they can respond if the worst happens. Communications may be formal or informal, involving statutory agencies, emergency services, broadcast and print media, social media and friends and family networks, especially at the local level. For example, research conducted in Australia has shown that the most common means by which first alerts to flash and slow flooding are communicated to the public include 'other people', television, online news and weather forecasts, other online sources, and radio (Ryan, 2018). Formal warnings rely on the use of sensors and other tools to monitor water levels. Data are then regularly fed into monitoring and modelling software which then allow alerts about anticipated or actual flooding to be issued. Such formal warnings are communicated by warning systems operated by national or other levels of government which are broadcast through news and other media. Across the UK, some communities have employed the use of sirens to alert members of the community to imminent flooding: for example, 29 communities in England were recorded to use sirens as flood-warnings in 2017 (Whatdotheyknow.com, 2017). In the past decade online dissemination of flood risk through formal and informal channels has become commonplace, allowing real-time information to reach large numbers of people.

The Flood Risk Management (Scotland) Act 2009 provides guidance to SEPA (*Scottish Environment Protection*

Agency, Scotland's national flood forecasting, flood warning and strategic flood risk management authority) and other responsible authorities (e.g. local Government, National Park Authorities) as to how they should fulfil their duties. Guidance accompanying the act published in 2019 states these duties are to "act in the way best calculated to manage flood risk in a sustainable way; and consider the social, environmental and economic impact of exercising flood risk management function" (Scottish Government, 2019, p2). *Communicating flood risk and engaging with the public* are identified as elements of the delivery of integrated Flood Risk Management. SEPA produce flood maps for all areas of Scotland in which a visual representation of where flood waters would go under different flood conditions are easy to interpret by members of the public. It is therefore possible for any private citizen or business to find out whether their property is located in an area at risk of river, coastal or surface water flooding. SEPA are also responsible for collecting and collating real-time data whose analysis can lead to the following: flood alerts (Flooding is possible. Be prepared.) being issued at the regional level and/or flood warnings (Flooding is expected. Immediate action required.) or severe flood warnings (Severe flooding expected, Danger to life.), issued in areas where SEPA monitors river and coastal flooding at a local level. Members of the public may sign up to SEPA's free Floodline service which issues alerts and warnings, a service of particular use to those who live in areas known to be at risk of flooding.

In this research how individuals find out about flood risk before, during and after a flood event will be explored with both formal and informal sources of information considered. Those who live in an area where there have been previous flood events could reasonably be expected to be better prepared for flooding, more knowledgeable about local flood risk and be signed up to receive formal flood alerts and warnings than those who live where flooding is a rare occurrence. The research will examine this assumption. It will also track how individuals' preparedness for flooding, evidenced for example by being signed up to Floodline, changes over time. Note that this research commenced before the final report of a project evaluating Floodline, commissioned by SEPA, was published (Geddes *et al.*, 2017).

1.2.5 Health and wellbeing

Previous research has addressed the impact of flooding on individuals' physical and psychosocial health. Studies of those affected by flooding at varying points in time following a flood event have indicated that stress, depression, post-traumatic stress disorder and anxiety can be induced or exacerbated by flooding (Jermacane *et al.*, 2018; Tunstall *et al.* 2006; Tapsell *et al.*, 2002). Certain circumstances have been explicitly associated with poor health outcomes among flood victims. For example, physical displacement following flooding is associated with poorer mental health outcomes than would be experienced by those who did not have to leave their home (Munro *et al.*, 2017; Lamond *et al.* 2015). Demographic characteristics such as being male, younger, divorced or widowed are also associated with poorer post-flooding mental health outcomes (Seyedin *et al.*, 2017). Walker-Springett *et al.* (2017) posit that wellbeing following a major flood event is influenced by multiple factors and processes, namely four social dimensions: the

passing of time; social capital and relational networks; perceptions of agency and self-efficacy; and capacities for sense-making and coping with changed futures.

It has recently been suggested that the perceived absence/presence of support at varying points in time following a flood can affect an individual's recovery (Butler *et al.*, 2018). A multi-sector approach to support the wellbeing of those who have been flooded, achieved through formal and informal interactions with, for example, family, friends, and health care providers is recommended to cater for the varying needs of individuals (Stanke *et al.*, 2012), which aligns with recommendations from other authors encouraging the provision of social support through formal mental health services following a flood (Seyedin *et al.*, 2017).

It is largely to be expected that the health and wellbeing of an individual could be compromised in the immediate aftermath of a flood event, with existing conditions exacerbated or new symptoms developing as the shock of what has happened is absorbed. The importance of sustained support in the long-term for flood-affected individuals was emphasised by Zhong *et al.* (2018) but there is limited evidence about what the health and wellbeing related impacts that persist in the years following a flood, or which may emerge at unspecified points during an individual's post-flooding journey are. There is also limited evidence about what formal and informal support is desired by those living in flooded communities, those who themselves were flooded and those who were not, but were otherwise affected by events in their community, or at what points post-flooding support should be offered. This research seeks to address these evidence gaps.

1.3 Longitudinal approaches in disaster-related research

Longitudinal research draws its advantages from being able to capture sentiments and experiences at distinct time points from the same group of individuals, which can then be compared to capture variability among individuals or the collective, over time. In disaster-related research, longitudinal quantitative methods have been used to, for example, evaluate flood policy (Brody *et al.*, 2009) and in addressing long-term health impacts of flooding (Jermacane *et al.*, 2018; Tunstall *et al.*, 2006). Longitudinal qualitative approaches have been adopted in studies that focus on the aftermath of flooding at the individual level, with the benefits being that in-depth data can be elicited. For example, following the 2016 flood in Louisiana (USA), participants took part in a disaster-adapted version of the Religious Attachment Interview at four weeks and six months following the flood (Davis *et al.*, 2019). In Walker-Springett *et al.*'s (2017) study of the aftermath of the Somerset (England) flooding in 2013-14, semi-structured interviews were used to evaluate wellbeing at two points in time after the flood waters had receded (at the six-eight month point and twelve – fourteen months after). Medd *et al.* (2015) conducted a longitudinal study in the aftermath of severe flooding in Kingston-Upon-Hull (England) in June 2007. They followed the flood recovery journey of individuals over an eighteen-month period. Data collection methods included were collected from participants' diaries, socialising with participants at quarterly intervals and attending a formal event at the end of the data collection period. Focus

groups were conducted in research undertaken by Tapsell and Tunstall (2008) seven months, eighteen months and four and a half years after flooding in England to explore health impacts of flooding.

Qualitative longitudinal research offers analytical flexibility: in broad terms, iterative or summative approaches can be adopted in the analysis phase (Hermanowicz, 2016). Iterative analysis involves focusing on the characteristics of participants at distinct time-points. In contrast, summative analysis explores the overall profile and circumstances of participants, gleaned only when all stages of data collection have been completed. Both approaches endow the researcher with considerable scope to revisit emergent themes and probe their relevance over time. Qualitative longitudinal research thus has distinct advantages over cross-sectional research. It addresses a critique of cross-sectional flood impacts research voiced by Hudson *et al.* (2019) because the dynamics of changing attitudes, perceptions and motivations can be uncovered. Further, the flexibility offered by longitudinal research (e.g. interview topic guides can be modified as the research progresses to ensure emerging issues are captured) and the way in which it allows a nuanced understanding of change as the post-flooding period progresses (e.g. participants' recollections of events may emphasise different things as time progresses) can offer useful insights when attempting to understand a time of extreme change and challenge to individuals/ households and their communities (Medd *et al.*, 2015).

This research has adopted a longitudinal approach, discussed in detail in the following chapter, and is novel in that it has employed semi-structured interviews with the same participants over a three-year period, the longest time identified in the flooding literature. It is therefore able to offer unique insights into the long-term impacts of flooding on individuals and communities.

1.4 Structure of the report

This chapter has introduced the purpose of the research, reviewed key themes in the flood impacts literature and reflected on the utility of a longitudinal approach in disaster research. Chapter 2 describes the methodological approach utilised in the study. The two case study areas are introduced, the longitudinal approach adopted in the research is described and the data collection activities in Project Years 1, 2 and 3 are documented. These activities comprised a Household and a Business survey and three phases of semi-structured interviews. Findings from Project Year 1 are presented in Chapter 3. Here the discussion focused on the period immediately before, during and in the year and a half that followed the winter 2015/16 flooding. Chapter 4 presents findings from Project Years 2 and 3 and is structured around seven themes which emerged from the analysis of interviews conducted in each year of the project. Interspersed throughout the chapter are anonymised vignettes that illustrate the diverse experiences of individual participants. Chapter 5 presents advice to others living in flood risk areas as identified by those who participated in the study. Some of the advice is explicitly targeted towards private citizens, other observations are directed towards statutory agencies and voluntary organisations who play a role in flood risk management, resilience planning and who can offer advice and support to those who have experienced flooding.

2 Methodology

This chapter describes the methodological approach that was taken in this longitudinal study. Research was conducted in two case study areas, a rationale for their selection is presented below. Reflections on the longitudinal approach adopted to study the long-term impacts of flooding follow. The study adopted a mixed methods approach in Project Year 1, utilising an extensive household survey, a survey of businesses and semi-structured interviews. This was followed, in Project Years 2 and 3, by further rounds of semi-structured interviews. The design of both surveys and the interview topic guides, sampling, administration and response rates, and the analytical approach adopted for each phase of the research is described below.

2.1 Case study area selection

Many areas of Great Britain were badly affected by flooding in the winter of 2015/16. Flooding in the wake of Storms Desmond and Frank in Scotland was the worst in living memory. Impacts of Storm Frank in north-east Scotland were particularly severe. In late December 2015 and early January 2016 some flooding was experienced in Aberdeen city, but most of the flooding and associated disruption was experienced across Aberdeenshire, in small towns, villages and the open countryside. Flooding was widespread in many North-East river catchments, including along the Rivers Dee and Don; the worst affected areas were in and around Ballater on Deeside and on the stretch of the River Don lying between Kemnay and the Aberdeen city limits.

The funders of the research directed the research team to select two case study areas for the study, one where the winter 2015/16 flooding had been a very unusual event, one where flooding occurred regularly. It was agreed with the project's Steering Group that Aberdeenshire contained communities that met these criteria and that this part of Scotland should be the focus of the research. Severe flooding, affecting domestic properties, businesses and infrastructure on Deeside is very unusual. Flooding of the magnitude experienced in late December 2015 had not been experienced on Deeside since the *Muckle Spate* of 1829. During the *Muckle Spate* the bridge over the River Dee at Ballater was washed away. The worst flooding on Deeside affected the upper Deeside town of Ballater and much of the surrounding area: the Ballater area was selected as the case study area to illustrate an area where flooding was unusual. The Ballater case study area lies within *Ballater (Potentially Vulnerable Area 06/22)* of the North East Local Plan District – Local Flood Risk Management Plan.

Flooding on the lower reaches of the River Don is a regular occurrence, especially on low lying agricultural land. However, in winter 2015/16 settlements and associated infrastructure in the Garioch area centred around Inverurie were also flooded. Following discussions with the project Steering Group the neighbouring settlements of Port Elphinstone and Kintore, which were flooded in early January 2016, were selected as the second case study area to illustrate an area where the winter 2015/16 flooding was the most recent flood episode and one of the most severe in living memory. The Garioch case study areas fall within *Inverurie and Kintore (Potentially*

Vulnerable Area 06/13) of the North East Local Plan District – Local Flood Risk Management Plan.



https://commons.wikimedia.org/wiki/Category:Maps_by_Nilfanion

Figure 1 Map of North-East Scotland showing case study areas

2.1.1 The Ballater case study area

This case study area comprises the area covered by Ballater and Crathie Community Council and falls within Aberdeenshire Council Ward 15 Upper Deeside and Donside (see Appendix 1). Classified as a very remote rural area under the Scottish Government's urban-rural classification, this case study area is home to approximately 1,850 people, the majority of whom live in Ballater (National Records of Scotland estimated the 2016 Ballater population to be 1,460). The area lies 40 miles (and an hour's drive) west of Aberdeen, the closest large urban area.

Ballater and the surrounding area was flooded on the morning of Wednesday 30th December 2015. Emergency services were alerted to the likelihood of flooding early that morning and flood waters rose very quickly. Heavy rain falling on already saturated ground and snow melt from further up the catchment had raised water levels on the River Dee and it burst its banks at the Ballater Golf Club. Water quickly flowed into the town and by mid-morning homes were being evacuated. With the notable exception of the 1829 Muckle Spate there have been few historic flood events at Ballater. The Ballater Flood Protection Study (2019) notes that there was flooding in the area in 1929 and 1937 and that in August 2014 Ballater's caravan park was flooded. Despite a flood warning issued by SEPA, the December 2015 flooding was not widely anticipated within the community and the scale of the damage that could be caused by severe flooding was unexpected. More than 100 residents had to be evacuated from their homes on Anderson Road, Deebank Road and Albert Road. Over 300 residential and commercial properties were flooded (RPS Consulting Services, 2019), a local press report estimated that 307 homes and 60 businesses in Ballater were hit (Press and Journal, 30th December 2016). Properties and extensive tracts of land were also flooded in the surrounding area. A section of the A93 between Ballater and Crathie was washed away, cutting off access between Braemar and Ballater.



Figure 2 Upper Deeside and the centre of Ballater on 30th December 2019 (Photo credit: left and centre, Steve Addy, right Participant BF4)

2.1.2 The Garioch case study area

The Garioch Case Study Area lies to the south of Inverurie, in the Aberdeen commuter belt. It comprises two adjacent communities, Port Elphinstone and Kintore, both of which are classified as accessible rural areas under the Scottish Government's urban-rural classification. Both communities fall within the parish of Port Elphinstone and Kintore. The centre of Aberdeen is approximately 15 miles away (a 30 minute drive).

Community 1 comprises the area delineated as the Port Elphinstone Primary School catchment area. This lies within the Inverurie and Port Elphinstone Community Council area and falls within Aberdeenshire Council Ward 11 Inverurie and District. A handful of properties directly adjacent to Port Elphinstone, on the east bank of the River Don and close to the confluence of the Rivers Urie and Don, are in the Keithhall Primary School catchment area. These properties, lying to the west of the C class road running parallel to the River Don between Port Elphinstone and Kintore, were included within Community 1 to ensure that some isolated dwellings and agricultural properties were included in the case study area. The population of Port Elphinstone is approximately 2,000. Community 2 is Kintore and comprises the area within the Kintore Primary School catchment area that lies to the east of the A96 which bypasses Kintore¹. The Kintore study area is within the boundaries of Kintore and District Community Council area and falls within Aberdeenshire Council Ward 12 East Garioch. Kintore's population was estimated to be 4,790 in 2016 (National Records of Scotland, 2018).

This case study area has been flooded on many occasions. The earliest recorded serious flooding on the lower reaches of the River Don was in 1768 and similar floods, destroying agricultural crops, were reported in 1828, 1838, 1872, 1903, 1905, 1928, 1948 and 1951. More recently there was flooding in 1995, 2002, 2003, 2004 and 2009 (Aberdeenshire Council, 2016). During the 2002 event there had been flooding in Port Elphinstone. Kintore had been flooded in 2002, 2003, 2006, and 2009 as a result of high water levels in the River Don causing the Tuach Burn to back up. In early January 2016 flood warnings had been issued by SEPA on 4th, 5th and 6th January covering the River Don in and around Inverurie. At 5:22pm on the 7th January a *severe flood warning* was issued for Inverurie and Kintore: it was stated that "extensive flooding is expected and that river levels will significantly exceed previous floods in 2002 and 2009". During the evening of 7th January and overnight into the

8th January water levels rose, reportedly to their highest levels in 45 years (c.f. BBC, 8th January 2016). In Port Elphinstone the fire brigade and the coast guard helped to evacuate residents from Canal Road, Canal Crescent and Riverside Park where "houses were inundated by several feet of water" (Aberdeenshire Council, 2016, p181); in total residents from 38 homes were evacuated (BBC, 8th January 2016). Reports of the number of properties and businesses that were flooded in early January 2016 vary. Aberdeenshire Council (2016) reported that 56 properties were damaged by flooding in Kintore, the local press reported that in Inverurie and Port Elphinstone and Kintore 130 homes and 16 businesses were flooded (Press and Journal, December 30th, 2016). The Aberdeen to Inverness railway service, which runs through Kintore, was disrupted and a flooded electricity sub-station resulted in power cuts in both Port Elphinstone and Kintore.

2.1.3 Flooding and geographical context

The two case study areas are illustrative of different types of small communities. The Garioch case study includes two distinct communities, both of which have been changed in recent decades as Aberdeen has grown as a population and employment centre. The resident populations of Port Elphinstone and Kintore comprise a mix of long-term residents and incomers, many of the latter attracted by new housing developments and the ease of commuting into Aberdeen for work. Proximity to large urban centres can mean that those who live in accessible rural communities have weak socio-economic ties with their immediate locality. Participation in recreational and social activities is often at a distance to home, those who live in communities such as Kintore commonly align with *communities of interest* that operate beyond where they live rather than *communities of place*. A lack of local social and civic activity may make it difficult for accessible rural communities to respond in the event of an emergency such as a serious flood event. In contrast, the Ballater case study area is located outwith the Aberdeen commuter zone. The village of Ballater is a focal point for the local area, it is where shops and public services are located and there are many local groups and societies comprising communities of interest whose members are drawn from a community of place. Incomers to Ballater and the surrounding area have ample opportunities to become embedded within the community through, for example, day to day activities such as shopping or dog walking, by attending local events or by getting involved in special interest groups, all of which can be enacted within the locality. An alignment of interest and place commonly seen in remote rural areas facilitates the development of strong social and community capital that can be drawn upon in the event of an emergency.

2.2 Longitudinal approaches in impacts of flooding research

Most qualitative research is cross-sectional, focusing on trying to understand the experiences of individuals, households, families or communities, for example, in a specific time and place. However, in many areas of life, experiences change over time and on longitudinal qualitative research design can be adopted to explicitly take account of time in a research project. The lived

¹ A second primary school for Kintore opened in January 2017. However, at the time case study areas were being delineated for the study, a catchment area map for the new school had not been published on Aberdeenshire Council's website. Community 2 in the Garioch study area was therefore delineated according to the pre-January 2017 catchment area map.

experience of change may be interrogated through repeated engagements with participants. Individual or collective experiences at distinct time points can thus be compared. Findings from longitudinal qualitative research may help researchers to develop an understanding of the processes, causes and consequences of change (Calman *et al.*, 2013). This research project combines elements of two of the four models of longitudinal qualitative research identified by Holland *et al.* (2007, p37). In Project Year 1 a *mixed methods approach* was used “where qualitative longitudinal elements are attached to a quantitative study” (*ibid.*). In all three years of the project a *planned prospective model* was applied whereby the approach “can be divided into studies where the unit of analysis is the individual, and those where the unit of analysis is something other than the individual, for example the family, community, setting or organisation” (*ibid.*).

Many of the advantages of longitudinal qualitative research are those associated with cross-sectional qualitative research and include, for example, the ability to: elicit in depth and detailed participant’s perspectives on the topics under consideration; address how and why questions, identify processes and the importance of context. When a longitudinal approach is introduced it is also possible to identify changes over time, including both how people change as individuals and how people respond to changes (Corden and Millar, 2007). Themes discussed in a previous encounter with participants can be revisited and data collection instruments such as interview topic guides can be tailored to suit individual participants. In this research Project Year 1 interviews allowed issues identified in the literature and from a preliminary analysis of findings from the household survey to be discussed with participants. The Project Years 2 and 3 interviews provided an opportunity for *emic* concepts, those not anticipated by the researchers but raised by some participants in earlier interviews, to be included in revised interview topic guides as *etic* concepts (i.e. pre-determined themes of interest to the study) and discussed with all participants, not just those who had raised the concept previously, to explore the wider perceived importance of such issues.

If the same researcher(s) is/are involved in data collection throughout a longitudinal study researcher-participants relationships can develop which in the case of personal, sensitive or potentially distressing topics (such as the long-term impacts of one’s home being flooded) can make a participant more comfortable talking about their experiences. In this research, three members of the research team conducted interviews. Whilst not ideal, researcher retention and/or consistency is a common data collection-related challenge faced by teams undertaking longitudinal research. Staffing logistics with the project meant that it was not possible for every participant to be interviewed by the same researcher at each stage of the research but wherever possible consistency was sought.

In this research project semi-structured interviews were designed to elicit detailed, autobiographical accounts from those who were flooded or who lived in the case study areas and were affected by the wider disruption brought by the winter 2015/2016 flooding. Interviewing participants three times, annually over a three-year period, was an explicit attempt to allow participants’ experiences of the prelude to, immediate aftermath and longer-

term impacts of the recent flooding to be elicited. This long-term focus and the opportunity it affords to assess change at the level of individuals, households and the wider community is novel within the context of flooding research: no previous studies have repeatedly engaged with individuals in flooded communities using semi-structured interviews as the method of interaction over as long a time period as this project has done.

Longitudinal research projects are associated with some challenges that rarely affect cross-sectional research (*c.f.* Turner, no date). Participant attrition is normal, but attempts can be made to mitigate against the loss of excessive numbers of participants as a project proceeds. In this research explicit attempts to mitigate attrition were made. For example, it was made very clear to participants at the start of the project that they were agreeing in principle to participate in the research over a three-year period and that the researchers would keep in touch with participants between interviews. Project Year 2 and 3 interviews commenced with the interviewer providing an overview of key findings from the previous year and describing how findings had been reported to key stakeholders and where the findings had prompted any policy interventions or other changes. This feedback helped to assure participants their involvement in the research was useful and valued and that what they had to say was relevant. Feedback from participants indicated that this approach was appreciated and helped to sustain interest and willingness to participate in the project even for those who found it difficult to engage with what remained a distressing life event as the project reached its conclusion.

The approach taken in this research was to analyse each tranche of data (Project Year 1 household survey, Project Year 1 interviews, Project Year 2 interviews etc.) as it was collected, an iterative approach. Findings were presented to the Project Steering Group and, in years 1 and 2, summary reports were prepared and published by CREW. Summative analysis was undertaken once all data had been collected and this analytical approach predominates in the sections of this report that consider findings from Project Years 2 and 3 (see Chapter 4).

2.3 Research design

This research project was conducted over a three-year period and included five distinct data collection phases. In Project Year 1 a household survey and a business survey were conducted in both study areas. Both were designed to elicit attitudes and opinions from those directly affected by the flooding and those who were not flooded themselves but who were affected by the disruption the flooding brought to their local area. Following completion of the survey-based data collection in Project Year 1, semi-structured interviews were conducted with residents and business owners/ managers in both case study areas. Again, those directly affected by the flooding and those who were not flooded themselves but who were affected by the disruption the flooding brought to their local area took part. In Project Years 2 and 3 further rounds of interviews were conducted with householders and business owners/ managers in Ballater and Garioch. The mixed methods approach adopted in Project Year 1 allowed a large number of people to participate in the research, diverse experiences, attitudes and opinions to be recorded and for impacts of flooding to be discussed

in a detailed manner. The qualitative approach adopted in Years 2 and 3 exploited advantages of semi-structured interviews as a data collection method that provided an opportunity for sensitive, personal issues to be explored as households and businesses proceeded through their own post-flooding journey. This allowed for an in-depth appreciation of the practical, financial and emotional challenges faced by those who were flooded. Each phase of data collection is considered in turn below.

A longitudinal perspective was embedded in the research design. Specifically, the study was designed so that specific individuals would participate repeatedly in the research over a three-year period, offering reflections about the impacts of the winter 2015/16 flooding that covered up to forty-two months after the flood waters had dissipated. This study has therefore tracked the post-flooding journey of participants over a longer period of time, post-flooding, than previous long-term studies have done. Many of those who completed a household or business survey were also interviewed in subsequent phases of the research. The interview recruitment process was designed so that the total number of interviewees would steadily decrease between Project Years 1 to 3 but in a manner that ensured that (a) a reasonable number participated in all interview phases (so that diverse post-flooding journeys could be captured), and (b) to mitigate against the expected attrition from the initial pool of participants.

In advance of any data collection being undertaken ethical approval for the research was awarded by the James Hutton Institute's Research Ethics Committee. Draft documentation to support each data phase was sent to members of the project Steering Group and their feedback informed the development of final data collection tools.

2.3.1 Project Year 1: Household Survey

A household survey was designed to elicit attitudes and opinions from those directly affected by flooding and those who were not flooded themselves but who were affected by the disruption the flooding brought to their community. Two separate versions of the survey were prepared, one for each case study area. Questions were included about the following topics:

- Previous flood experience;
- Awareness of and preparedness for the winter 2015/16 flooding;
- Household experiences of the winter 2015/16 flooding;
- Impacts of the recent flooding in the immediate aftermath;
- Information about any formal and informal help given or received following the flooding;
- Evaluation of information that could inform planning for future flood events.

A number of questions in the household survey replicated or were based on questions used in previous research to allow a comparison with findings reported elsewhere.

For example, some questions aligned with those used by Werritty *et al.* in their 2007 study *Exploring the Social Impacts of Food Risk and Flooding in Scotland*. Others, primarily those about household insurance, were based on questions used in the Citizen's Advice Scotland's 2016 report *Bailed Out. Issues affecting flooded consumers and ability to access affordable insurance*. An innovative element of the survey was the use of questions asking respondents to consider various issues in terms of how things were before, during and after the winter 2015/16 flooding. In so doing a longitudinal perspective was incorporated into the household survey, findings from which were discussed in more detail during the interview phases of the research. Previous research such as that conducted by Werritty *et al.* was undertaken before the use of social media or widespread reference to various forms of online news and information was common. The household survey thus invited respondents to reflect on the sources of information they found most useful as the winter 2015/16 flooding unfolded. Questions included the use of online content, the aim being to identify the potential role of online content in responses to future flood events.

Four hundred copies of the household survey were distributed per case study area. Both communities within the Garioch case study area were equally represented in the sampling frame. Most addresses were identified from the Open Electoral Register but, as this does not include all households, additional efforts were taken to ensure surveys were distributed in locations where it was known properties had been flooded². In Ballater, 20% of all surveys were hand delivered to properties in streets known to have been flooded but at addresses not listed in the Open Electoral Register. In Garioch, the Royal Mail address finder tool was used to obtain details of properties lying between Port Elphinstone and Kintore in the area identified in SEPA's Flood Map as being at high or medium risk of flooding. This allowed the inclusion of a 'rural' dimension to the Garioch sample, comparable to that within the Ballater sample. In both case study areas households in streets known to have been flooded in winter 2015/16 were oversampled in an effort to secure as high a number of responses as possible from households that had been flooded.

Surveys in the Ballater case study area were administered in early April 2017. The cover letter accompanying the survey requested that completed surveys be returned in the Freepost envelope provided within three weeks. A reminder letter was mailed, two weeks after the survey was distributed, to households known not to have responded. Surveys were mailed to Garioch addresses at the end of June 2017. Responses rates were 33.5% in Ballater and 29.8% in Garioch.

An online version of the household survey was launched to coincide with postal versions being mailed in both case study areas. The opportunity to complete a survey online was widely advertised locally (e.g. posters were displayed in local shops and other public places, articles were featured in the local press, details were shared on the project website and social media page etc.). It is unknown if those who completed the online version of the household survey had also received a hard copy.

² In both Ballater, Port Elphinstone and Kintore the local media listed streets that had been flooded, details which were confirmed by a member of the Steering Group.

A total of 277 useable household surveys were received. Similar numbers were received from both case study areas. Details of the response to the household survey are presented in Table 1. The homes of half of the respondents to the household survey (n = 131) were flooded in winter 2015/16. Reflecting the fact that many more homes in the Ballater area had been flooded than were affected in Garioch it is not surprising that the homes of two thirds of respondents from Ballater (n = 89, 65.9% of all Ballater responses) had been flooded. The number of flooded respondents in Garioch was lower (n = 42, 34.1% of all Garioch responses).

Table 1 Responses to the household survey

	Completed surveys	Completed in hard copy	Completed online
Ballater	144	134	10
Garioch	133	119	14
Total	277	253	24

Responses from completed household surveys were coded and entered into an SPSS dataset. The data from surveys completed online was received in spreadsheet format and added to the data set containing responses from the surveys completed in hard copy. All sets of responses held in the data set were anonymous. The attributes of individual variables were ascertained by running simple descriptive statistics. To facilitate further analysis new, derived variables were created. Relationships between selected variables were examined, primarily through the use of non-parametric statistical tests.

2.3.2 Project Year 1: Business Survey

In rural Scotland, and particularly in remote rural areas, small businesses are a very important part of the local economy and it was known that many businesses had been directly affected by the winter 2015/16 flooding. A business survey was designed to elicit attitudes and opinions from business owners and managers, both from those directly affected by flooding and those who were affected by the disruption the flooding brought to the community their business operated in. Two separate versions of the survey were prepared, one for each case study area. Questions were included about the following topics:

- Effects of the winter 2015/16 flooding on businesses;
- Actions taken to protect premises before and during the flooding;
- Challenges businesses had to overcome following the flooding.

Three complimentary approaches were used to administer the business survey:

1. In recognition of the importance of small, home based businesses in remote rural Scotland (approximately one fifth of those who are economically active in remote rural Scotland are self-employed, many of whom run a business from their home) each copy of the Household Survey that was administered in Ballater had a Business Survey included in the documentation householders received. This approach captured

businesses whose details are unlikely to appear in directories such as Yell.com. Sixteen business surveys were completed and returned alongside a Household Survey. This low response rate led to a decision not to repeat this approach when the Garioch household survey was mailed;

2. Second, Yell.com, Near.com and social media posts and print media articles about the winter 2015/16 flooding were used to compile a list of businesses operating in the Ballater and Garioch case study areas – 152 businesses were identified in Ballater, 185 in Garioch (of which 47 were in Port Elphinstone and 138 in Kintore). These businesses were then classified according to the fourteen business categories used by the Scottish Government in the *Rural Scotland Key Facts* section on the Economy (Scottish Government, 2015). A sample of 50 businesses in each case study area was then derived to proportionally represent: (a) businesses according to the relative importance of each business category in each case study area; (b) the streets in each case study area known to have been flooded in winter 2015/16; (c) businesses located in the landward areas of both case study areas in an attempt to capture land based businesses affected by the flooding. The Garioch sample was split so that equal numbers came from Port Elphinstone and from Kintore;
3. The opportunity to complete a survey online was widely advertised locally (e.g. posters were displayed in local shops and other public places, articles were featured in the local press, details were shared on the project's website and social media page etc.).

In total, 32 usable completed business surveys were returned. The responses achieved from each approach are set out in Table 2.

Table 2 Business survey responses

	Completed and returned with a household survey	Completed and returned from business only mailing	Completed online
Ballater	16	10	2
Garioch	n.a.	6	0
Total	16	16	2

Responses from completed business surveys were coded and entered into a SPSS dataset. The data from surveys completed online was received in spreadsheet format and added to the data set containing responses from the surveys completed in hard copy. All sets of responses held in the data set were anonymous. The attributes of individual variables were ascertained by running simple descriptive statistics. The small number of completed surveys meant that the use of inferential statistics in the analysis was inappropriate. A descriptive overview of findings is presented in Chapter 3.

2.3.3 Project Year 1: Interviews

The Project Year 1 interview phase was the first of three phases of semi-structured interviews to be conducted. Framed by an interview topic guide, semi-structured

interviews provide a structured yet flexible approach to engaging with research participants. They are a method well suited to eliciting information about sensitive, personal experiences in a manner that is tailored to the specific circumstances of individual participants. The interview process allows researchers to develop an enriched understanding of a topic of interest because the method provides opportunities to ask open ended questions, the interviewer may probe for further details and follow-up questions may be used to clarify comments or, when tailored to previous responses given by the participant, to unpick issues of relevance but not set out on an interview topic guide (c.f. Harvey-Jordan and Long, 2001).

The interviews were designed to elicit information that would complement and elaborate upon issues reported in the household and business surveys and to provide autobiographical accounts of short and longer-term impacts of the winter 2015/16 flooding. Development of the interview topic guide was informed by a rapid literature review and input from members of the project Steering Group. A call for volunteers to participate in pilot interviews was issued in press and broadcast media features announcing the launch of the research and the opportunity was disseminated utilising research team members' personal contacts. This call led to four pilot interviews being conducted with individuals who did not live in either case study area but who had direct, personal experience of flooding in the recent past. Feedback from the pilot interviews informed a review and refinement of the interview topic guide. They also reinforced amongst the research team how traumatic an experience such as flooding can be and how important conducting subsequent interviews in a sensitive manner would be. The final interview topic guide covered three broad themes:

- Attributes of the interviewee's household;
- The interviewee's experience of the winter 2015/16 flooding, including those immediately before, on the day of the flooding, the immediate aftermath and in the months that followed; and
- Reflections about the impacts of the flooding on the individual interviewee, their household and the wider community.

Participants were recruited using six methods, described below. Four fifths of interviewees were recruited via methods 1 and 2:

1. The household and business survey invited those who would be willing to participate in follow up research to provide their contact details;
2. A *snowballing* approach, where interviewees or other key informants (e.g. local community council members, local clergy) from the case study communities suggested potential participants and obtained consent for their contact details to be given to the research team;
3. Following up expressions of interest to participate in the research, which were received from members of the public who had contacted the research team after becoming aware of the research via various forms of publicity in national and local print and broadcast media;

4. Displaying recruitment posters in many public places, e.g. shops, cafés and community notice boards, in both case study areas and following up enquiries received from members of the public who had read those materials;
5. Issuing a call for participants at a community event about the winter 2015/16 flooding in Ballater;
6. Reviewing news reports available online (e.g. BBC News and Press and Journal articles) and scrutiny of public social media posts about the winter 2015/16 flooding in Ballater and Garioch to identify potential participants from those individuals who were featured in reports as having been affected by the flooding.

Combined, these recruitment methods led to seventy-seven interviews, 40 in Ballater and 37 in Garioch, being conducted in Project Year 1. It was very difficult to identify potential interviewees in Garioch largely because far fewer Port Elphinstone and Kintore residents had been directly affected by the winter 2015/16 flooding than had been affected in Ballater: the potential pool of participants was thus very unequal in the two case study areas. Some interviews involved more than one adult; in total the views of 94 people were captured. Interviews in Ballater were conducted between May and July 2017. Two blocks of interviews were conducted in Garioch, in July 2017 and during September and October 2017. When selecting potential interviewees care was taken to purposively select individuals who would be illustrative of the socio-economic attributes of the case study areas' population (e.g. age, gender, household composition, house tenure and economic status). Interviewees were also selected to include those who were directly affected by the flooding, including people who had been displaced from their homes because their property was badly flooded, and individuals who lived in the case study areas and were affected by the wider disruption the flooding brought about. The latter group included those who had played a prominent role in their community during and after the flooding. Attributes of interviewees who participated in Years 1, 2 and 3 of the project are summarised in Appendices 1, 2 and 3

The interview procedure was as follows. Two researchers conducted the interviews. Both had conducted pilot interviews and worked together to ensure that they would approach their interviews in a consistent manner. Interviewees were provided with a participant information sheet in advance of their interview and were asked to read and sign a consent form before their interview started. Most Project Year 1 interviews were between one and one and a half hours duration. The majority were conducted in the homes of interviews, some were held at another location requested by the interviewee and a handful were conducted over the telephone.

All but one interview was recorded and transcribed in full by trusted private transcription services and subsequently checked by a member of the project team. Each interviewee was allocated a unique identification number to preserve the anonymity of participants. Transcripts were uploaded into the qualitative analysis software programme QSR NVivo. The text of each interview transcript was coded using a thematic framework designed iteratively by all members of the research team. Eighteen thematic

codes were used, but not all applied to content in each interview. Each theme was then analysed separately, informing the development of the findings presented in chapters that follow.

2.3.4 Project Year 2: interviews

A second round of semi-structured interviews with participants from both case study areas was conducted in Project Year 2. The interview process began by sending everyone who had been interviewed in Project Year 1 a postcard in March 2018 as a means of reminding them about the project and alerting them to the fact that a second round of interviews would soon be commencing, and that they might be contacted by the research team. The Year 1 summary report was brought to participants' attention in the hope it would help them feel that their involvement in the project was worthwhile. Simultaneously, the research team developed an updated interview topic guide, one intended to build on the topics discussed with participants the year before. A draft of the interview topic guide was submitted to the project Steering Group for review. The comments received were incorporated into the final version, as was the flexibility of the interviewer to follow up on salient points with individual Project Year 1 interviewees whenever relevant. The Project Year 2 interview topic guide was framed around eight inter-related themes:

1. Changes to participant and/or household's circumstances since Project Year 1;
2. Feelings about 'home';
3. Insurance and refurbishment;
4. Household finances;
5. Health and wellbeing;
6. Community and resilience;
7. Voluntary and statutory agencies roles and responsibilities post winter 2015/16 flooding;
8. Reflections on participating in the research.

Any Year 1 participants who no longer wished to participate in the research were requested to get in touch. The research team identified a few individuals who had been interviewed in Project Year 1 who it was felt would be unable to make a further useful contribution to the study (e.g. individuals whose homes had not been flooded in winter 2015/16 and who had offered little in terms of reflections about the wider impacts of the flooding in their community). These individuals were removed from the list of potential Project Year 2 participants, as was a Project Year 1 interviewee who had passed away a few months after they were interviewed. Those remaining in the study were contacted in an order designed to ensure that socio-economic diversity amongst participants was retained.

At the outset of the research the intention had been to interview 40 participants in each case study area in Project Year 1 and for that number to fall to 32 in Year 2 and 25 in Year 3. In Year 2, 28 interviews were conducted in Ballater; 25 in Garioch. Recruitment in Garioch proved particularly problematic in Project Year 2, replicating the experience of the previous year. This was due to two factors: the relatively small number of households in Garioch that had been flooded in winter 2015/16 which made recruiting participants whose homes had been

flooded, those of most interest to the study, difficult; and the input from a few interviewees in Garioch was considered unlikely to vary greatly from that given in Year 1, particularly among those who were not directly affected by the flooding or who were not involved in community groups, thus they were not invited to participate in the Year 2 interviews. Approval from the Steering Group was given to cease attempts to recruit new participants once 52 interviews had been conducted (forty interviews were conducted with a single person, twelve with two individuals). In total 64 individuals were interviewed, fifty-eight had been interviewed the previous year, six joined the study for the second round of interviews. The new participants were a couple of people who had not been available for interview the year before but who had expressed an interest in participating at a later date, a couple of prominent community members the research team had become aware of and two teenagers who joined a parent during their household's Project Year 2 interview, adding a very useful youth perspective to the findings.

Formal invitations to be interviewed were accompanied by a participant information sheet to assist the potential participants to make an informed decision about their participation in the research. Before each interview commenced participants had an opportunity to read through and then sign a consent form. For those interviews conducted by telephone an audio-recording of verbal responses to each question on the consent form was secured. The average length of Project Year 2 interviews was an hour, most interviews were conducted in the participants home, eight took place at a location of the interviewees choosing and three were conducted over the telephone.

Project Year 2 interviews were conducted by three members of the research team and, wherever possible, interviews were conducted by the same person who had conducted the Project Year 1 interview with participants. Interviews commenced with the interviewer providing an overview of key findings from the previous year and describing how findings had been reported to, and received by, key stakeholders. This feedback helped to assure participants their involvement in the research was useful and valued and that what they had to say was relevant which it was hoped would, in turn, enhance their continued interest in the project and willingness to remain a participant.

Project Year 2 interviews were recorded and transcribed in full by trusted private transcription services and subsequently checked by a member of the project team. Each interview was allocated a unique identification number that for those interviewed in an earlier year matched the one used previously to preserve the anonymity of participants. Transcripts were uploaded into the qualitative analysis software programme QSR NVivo. The text of each interview transcript was coded using the thematic framework developed in Project Year 1, to which new themes were added once the first tranche of new transcripts had been read. To ensure inter-rater reliability members of the research team independently coded two transcripts then reviewed, discussed and, if necessary, revised their coding. A coding framework containing twenty-one themes was used. Once all the transcripts had been coded, each theme was then analysed separately, informing the development of the findings presented in

chapters that follow.

2.3.5 Project Year 3: interviews and the co-production of recommendations and advice to others living in flood risk areas

A third and final round of semi-structured interviews was conducted in Project Year 3. All those who had been interviewed in Project Year 2 were sent a postcard (see Appendix 4) from the research team in March 2019 which provided a link to the Year 2 report and which advised recipients that it would be likely that they would be contacted soon if selected to take part in a third and final interview. The interview topic guide developed for use in Project Year 3 was based on the eight themes used to structure interviews the year before and it retained flexibility for the interviewer to follow up on salient points from previous interviews whenever relevant. Interviewees were also invited to comment on an 'Advice for others living in flood risk areas' document that had been compiled based upon recommendations to others offered during Project Year 2 interviews. Participants were asked to reflect on twenty-three statements grouped around seven themes and to identify which items comprised their top five recommendations to others who could find themselves in the situation they were in during December 2015 or January 2016. The recommendations would also be useful for statutory agencies and other stakeholders involved in resilience planning and response. Copies of the recommendations were provided in advance of interviews to allow participants time for reflection before they discussed their assessment of the specific advice that could be offered to others. This co-produced approach to generate practical peer to peer recommendations is novel in flood impacts research.

The longitudinal design of the research, whereby individuals would participate in successive phases of the research to allow long-term impacts of the winter 2015/16 flooding to be identified, meant that almost all those invited to be interviewed in Project Year 3 were individuals who had taken part in earlier phases of interviews. A handful of individuals who had been interviewed in Project Year 2 were not invited to a third interview because it was thought they would be unlikely to contribute further information of value to the study if they participated again. A couple of individuals from Ballater who were interviewed in Project Year 2 had since moved away from the area and were not contacted again. The remaining Project Year 2 participants in the Ballater case study area were all contacted and invited to take part in a final interview, as were two individuals who had been interviewed in Project Year 1 but were unavailable to be interviewed the following year. Four individuals did not reply to initial or follow-up requests to be interviewed again – their reasons for not wishing to participate in the final phase of the research is unknown. In Garioch, almost all of those who had taken part in the study during Project Year 2 were invited to participate in the final round of interviews. Two did not participate, one because they were no longer involved in local resilience planning efforts, the other due to a difficult personal situation. Of the remaining pool of 19 potential interviewees (individuals and couples), 12 agreed to take part in the final interviews, 7 did not respond to initial or follow-up invitations to take part. In total, 31 interviews were conducted in Project Year 3, 19 in Ballater and 12 in Garioch which, combined, involved thirty-five participants.

All but 4 interviews were with individuals or couples who had been flooded in winter 2015/16. The interviews were conducted between April and July 2019.

Formal invitations to be interviewed were accompanied by a participant information sheet to assist the potential participants to make an informed decision about their participation in the research. Before each interview commenced participants had an opportunity to read through and then sign a consent form or provide verbal consent if the interview was carried out over the telephone. The average length of Project Year 3 interviews was an hour, most interviews were conducted in the participants home, four took place at a location of the interviewees choosing and two were conducted over the telephone.

Project Year 3 interviews were conducted by two members of the research team who, where possible, interviewed individuals/couples they had interviewed before. Interviews commenced with the interviewer providing an overview of key findings from the previous year and describing how findings had been reported to, and received by, key stakeholders. This feedback helped to assure participants that their involvement in the research was useful and valued and that what they had to say was relevant.

Project Year 3 interviews were recorded and transcribed in full by trusted private transcription services and subsequently checked by a member of the project team. Each interview was allocated a unique identification number that, for those interviewed in an earlier year, matched the one used previously to preserve the anonymity of participants. Transcripts were uploaded into the qualitative analysis software programme QSR NVivo. The text of each interview transcript was coded using the thematic framework developed in Project Year 1, to which new themes were added once the first tranche of new transcripts had been read. To ensure inter-rater reliability members of the research team independently coded two transcripts then reviewed, discussed and, if necessary, revised their coding. A coding framework containing twenty-one themes was used. Once all the transcripts had been coded each theme was then analysed separately, informing the development of the findings presented in chapters that follow.

Participants were invited to complete a table listing recommendations to others, twenty-three statements grouped around seven themes, by indicating if they strongly disagreed, disagreed, agreed, strongly agreed or had a neutral option about each statement. Responses were entered into an Excel spreadsheet to facilitate a descriptive analysis of the data.

3 Findings from Project Year 1

During Project Year 1, three distinct phases of data collection were undertaken. Adopting a mixed methods approach, an extensive household survey and a survey of local businesses were conducted in both case study areas. Semi-structured interviews with residents and local business owners/ managers followed; interviews were conducted with both those who were and were not directly affected by the winter 2015/16 flooding. This chapter provides an overview of the impacts of the winter 2015/16 flooding from twin perspectives. Firstly, at the aggregate level, experiences of the Ballater and Garioch community as a whole were captured in the household and business surveys. Similarities and differences between the two case study areas were identified. Secondly, the experiences of specific individuals were elicited in detail during semi-structured interviews. The household survey was explicitly designed to include some questions replicated from previous studies of flooding in Scotland which allows the experiences of households in Ballater and Garioch to be compared with those of previous victims of flooding. Survey respondents and interviewees were invited to provide information referring to three specific time periods, before, during and after the flooding. This allowed a picture of how events unfolded during the winter 2015/16 to be established and provided a foundation for the explicitly longitudinal research to follow in Project Years 2 and 3.

This chapter starts with providing some contextual information about household survey respondents, their households and their homes and, drawing upon narratives relayed during interviews, describes how the flood events in both case study communities unfolded. Next, impacts of the winter 2015/16 flooding on respondents and their household and the local business communities are considered, with immediate and longer-term impacts identified. Specific impacts include (i) use of temporary accommodation, (ii) household and business finances, (iii) assistance before, during and after the flooding, (iv) insurance cover, claims and re-insuring and (v) the tangible and intangible impacts of the flooding. Thirdly, how households living in the case study communities were aware of and prepared for flooding is described. This section considers (i) sources of information found most useful before, during and after the flooding, (ii) perceptions of flood risk, awareness of flood risk maps and Floodline, and (iii) the adoption of flood resistance and resilience measures before, during and after the winter 2015/16 flooding. Individual and community resilience is the focus of the fourth section, followed in the final section by an overview of health and wellbeing impacts of the flooding. Findings reported in this chapter are supplemented, where appropriate, with data presented in Appendices.

3.1 Attributes of participants

Approximately 300 properties were flooded in Ballater in late December 2015. In Garioch the number of properties flooded in early January 2016 was much lower. It was thus unsurprising that although half (51%) of all the respondents to the household survey had been flooded the proportion differed markedly between the two case

study areas. The homes of two thirds of Ballater and one third of Garioch respondents had been flooded. Further, of the Garioch respondents almost 60% reported that 'no property was flooded', compared to 20% of Ballater respondents. Those flooded in Ballater included ten second home owners.

Aligning with the tenure profile of both case study areas, three quarters of respondents were owner occupiers. Social rented sector tenants were both more numerous and more likely to have been flooded in Ballater than in Garioch. Flooded properties in Ballater and Garioch were of a variety of types (e.g. detached, two or more storeys etc.), ages and construction types. There were no statistically significant differences between flooded households and non-flooded households or between all respondents from each case study areas with respect to house, age of respondent, tenure status, length of time lived in current house or house construction.

Older adults were over-represented in household survey respondents from both case study areas; almost half of the respondents were aged 65 and older. Half of the respondents were retired, 46% were in employment (with self-employment most common in Ballater), and the income profiles of respondents were similar and broadly in line with that reported for Aberdeenshire as a whole.

Forty-nine of the seventy-five interviewees in Project Year 1 had completed a household survey. They were selected purposively to illustrate different age groups, employment status, gender, tenure status, local business ownership etc. Interviewees identified by the recruitment methods described in Chapter 2 also illustrated a diverse range of attributes.

3.2 The winter 2015/16 flood events in Ballater and Garioch

"My husband just froze completely, we were trying to get out and he just stood in the water and said, 'I can't go any further', and I had to be really ruthless and say, 'You've just got to, you've got to keep walking.' The man at the end ... said, 'Don't hurry or you'll trip but keep moving, keep moving, climb in the tail end of my truck and we'll get out', and we were the last people to get over the bridge before the fire brigade closed it." (Female, Garioch, home flooded, Project Year 1 interview)

"[When I came home] the whole place was wet. ... Things were moved around by the water within the ground floor. You wouldn't have believed. The sofa, it [the water] had lifted everything and just dropped it... And eh, I wasn't even thinking about the mess at that stage. I just think about, first of all, getting hold of [my son] to tell him what was happening. And then finding somewhere for the night." (Female, Ballater, home flooded, Project Year 1 interview)

3.2.1 Ballater, December 2015

Although flood warnings covering upper Deeside had been issued, residents of Ballater and the surrounding area had not expected flooding of the severity that hit on the 30th December 2015. Very heavy, persistent rainfall coupled with snow melt rapidly increased river levels and

by 6 a.m. that morning the Fire Service were expecting Ballater to flood. Most interviewees mentioned that they became aware of the flooding between 9 am – 10 am, once it was light outside. The Fire Service started to evacuate properties at 11 am. Static caravans sited at the community-owned Ballater caravan park were lifted up and floated away down the River Dee, bridges were destroyed, rocks, sediment and other debris was deposited on agricultural land along the length of the river and a section of the main road between Ballater and Crathie was washed away. Hundreds of homes were flooded in and around Ballater and shops, cafés and hotels in the centre of the village were inundated by several feet of water.

Many respondents to the Household Survey from Ballater provided written comments on their returned survey form that described how they had become aware that flooding was likely. The most common means by which local people became aware of the unfolding events were because they had seen river waters rise (for example, *rivers on the high ground were bursting their banks and the moorland areas flooded*), received a knock on their door by the emergency services or an official (for example, *police knocked on my door the morning of the flood to evacuate the area*) or because they had been alerted by a neighbour. Informal means of notifying residents of imminent flooding were very common, with many alerts coming from friends and family (for example, *call from my son to say his place of work [name of shop] was being evacuated and that I should check our property, early morning call from brother, member of Braemar mountain rescue team, warning of flood and when flooded relatives arrived at my door for safety*) and from observations of water levels rising (for example, *when I went to walk the dog, saw all these people being taken from their homes and the water flooding up the bottom of my street 4 -5 feet deep and I saw the water coming down the street*). Some Household Survey respondents had been away from home and were either not alerted to what was happening or were contacted by neighbours of other family members but could not take any action to protect their property at the time.

Interviewees recounted that locals were taken by surprise at how quickly flood waters rose and by how much of the village was under water. The flood waters were deep and fast flowing: at one point the emergency services had to abandon use of evacuation boats because the current of the flood waters was so strong. We were told about local residents getting stuck in vehicles and being caught off-guard by the force of the very cold flood waters. It was considered miraculous that no one was swept away by the flood waters. The rapid rate at which flood waters rose meant that many of those who were interviewed did not have time to take any mitigating action. Some locals remained in their homes, some chose to leave their property and others left when instructed to do so by the emergency services. Some interviewees who left their homes went to the homes of local friends and relatives and others went to the village hall, where a formal registration system was put into action. Some people spent the night at the local army Barracks. A member of the local clergy hosted some evacuees from the local care home / sheltered housing complex. Others left the village before roads become impassable and stayed with friends or family who lived outside Ballater.

Rising flood waters were accompanied by power cuts and a loss of mobile phone signals. Interviewees whose homes were not flooded talked about feeling cold and worried about the loss of power. The loss of telecommunications meant at times it was impossible to get in touch with other household members, family and friends. It was impossible to inform others if you were safe or in need of assistance. Power cuts also made it difficult to receive information via, for example, TV news and radio broadcasts.



Figure 3 During and in the immediate aftermath of the flooding in Ballater, December 2015 (Photo credit: participant BF4. This individual was unable to escape via upstairs windows and was trapped in their home as flood water rose).

3.2.2 Garioch, January 2016

Flooding on the lower reaches of the River Don is common, with low-lying agricultural land often left under water following heavy rain. For some interviewees the early January 2016 flooding was not unexpected. The extent of the flooding was, however, considered to be unprecedented (water levels on the River Don reached their highest levels in 45 years on the 7-8th January 2016, see BBC, 8th January 2016). Persistent heavy rain had fallen across Garioch for several days before a number of Aberdeenshire communities and some areas of Aberdeen City were flooded on the 7th – 8th January. More than half of the Garioch respondents to the Household Survey reported that they had been alerted to the risk of flooding because they had been watching river water rise to a level they thought meant a flood was likely. In comparison to Ballater, residents in Garioch were much more likely to have been alerted to the risk of flooding by more than one means, including radio and TV news, weather forecasts, warnings and alerts from SEPA's Floodline and from social media posts.

Severe flood warnings had been issued by SEPA in preceding days which meant that some local residents in Kintore and Port Elphinstone were prepared for flooding and had taken mitigating action such as moving cars to higher ground and obtaining sand-bags. Interviewees told us that water levels started to rise significantly from 7 p.m. on the 7th January 2016 and that evacuations took place between 11 p.m. and 3 a.m. Interviewees regaled many accounts of people being in water up to waist deep, in the dark, and some people needed to be rescued by the "fire" boat. Local people from both communities in the Garioch case study area assisted in rescue efforts. We were told an account of community members rescuing a couple from their home that had been inundated by flood waters after the property was deemed too risky to enter by the emergency services.

There was anger in some quarters that the couple had not been helped by the authorities, but other accounts of the same event noted that the couple concerned had been advised to evacuate earlier but had chosen not to. Some interviewees reported that although they themselves did not need to be evacuated, they felt alarmed that their neighbours had been evacuated without them having been alerted to the dangerously high water levels near their homes. Interviewees suggested that there was a lack of a coordinated approach to get those evacuated from their homes to a central place. Some went to Kintore Village Hall or Inverurie Academy, others went to neighbours' houses and to local hotels, some of which had issued public announcements offering emergency accommodation. Power supplies were disrupted overnight but were reinstated by mid-morning on the 8th January.



Figure 4 Aftermath of the flooding in Port Elphinstone, January 2016 (Photo credit: Participant GF5)

3.2.3 Dealing with the immediate aftermath of the flooding

In Ballater some people were able to go back to their homes late on the 30th December 2015, in Garioch people could return home on the morning of the 7th January 2016. Some interviewees' insurance companies advised them not to enter their home after the flood waters subsided without a loss adjuster. Some interviewees did not go back to their home for days after the flood peaked. Many interviewees talked of their shock at the extent of damage in their home, especially with regard to damage to furniture and personal belongings rather than damage to the building itself. Terrible smells and contamination were described. Different loss adjusters/ insurance companies gave different advice about whether belongings should all be disposed of or if householders should attempt to salvage what they could. Ruined belongings lining the streets where properties had been flooded proved distressing for many local residents, especially in cases where it took weeks for household items to be removed.

Interviewees who had not been flooded themselves recounted ways in which they had attempted to help those in their community who had been flooded. Help included providing accommodation, food and emotional support and guidance about what action could be taken once flood waters had subsided.

3.3 Impacts of the winter 2015/16 flooding in Ballater and Garioch

Impacts of the winter 2015/16 flooding were wide-

-ranging for residents and local business. The scope and intensity of impacts were elicited from respondents to the household and business surveys and Project Year 1 interviews provided an opportunity to explore selected issues in detail.

3.3.1 Use of temporary accommodation

Many survey respondents whose homes were flooded made use of temporary accommodation in the weeks and months that followed the winter 2015/16 flooding. Proportionally more Garioch respondents used temporary accommodation than Ballater respondents. Werritty *et al.* (2007) reported that 45.6% of respondents to their survey were out of their homes for six months or more following flooding in the 1990s and early 2000s. This is a lower proportion than reported in this research; two thirds of respondents whose home were flooded were unable to return home until more than six months had elapsed. Indeed a third were out of their homes for more than nine months. The length of time it took to return home likely reflects a combination of factors: the severity of flooding; the time taken to sort out arrangements for renovating property with insurers; and the shortage of builders and other trades to carry out remedial works, a problem most acute in Ballater.

More than half of those displaced from their homes stayed in more than one temporary place. No Garioch respondent stayed in more than three temporary places but 10 Ballater respondents did, one of whom stayed in twelve places. Unsurprisingly, those displaced for more than six months were the most likely to have stayed in more than one temporary place. The type of temporary accommodation most commonly used was staying with friends or neighbours (used by 44.6% of all respondents) or renting privately (used by 36.1%). While some interviewees were assisted by the council and/or their insurance company to find temporary accommodation, others talked about how they felt unsupported in their attempts to find somewhere to stay. Flooded council tenants were assisted by their landlord, the local authority, but for others temporary accommodation was identified by searching online listings, word of mouth or contacts they had in the community making suggestions. Many respondents eventually managed to find temporary accommodation near their home but frequent reference to having to use temporary accommodation a considerable distance from home was made by Ballater interviewees. Those living at a distance from home found keeping on top of home renovations difficult.

Staying with friends or family was appreciated by those who had this option, especially in the immediate aftermath of the flooding. However, as time progressed, moving into other temporary accommodation was viewed positively. For example, an interviewee who had initially stayed with a family member said " ...you still like your own space, and you felt like you were in the way .. We weren't, I know we weren't. I mean she didn't make us feel like we were in the way, but it's just, em, .. you know, you like your own space" (Female, Garioch, home flooded, Project Year 1 interview).

A few household survey respondents and some interviewees reported difficulties in finding temporary accommodation that suited their circumstances. For example, there were difficulties finding somewhere that

would accept pets or smokers, accommodation suitable for someone with a disability was challenging to identify, a property that would not make a commute longer or securing somewhere that had the same facilities a household was used to having in their own home, such as a washing machine. In Ballater another difficulty was the lack of mobile phone connectivity in the area. This made it difficult for interviewees living in temporary accommodation to keep in touch with their insurance company and others involved in the renovation of their homes. Having to live with minimal belongings, sometimes for many months, proved challenging for some, as did the unexpected costs. For almost 40% of respondents living in temporary accommodation increased their living costs. For example, those in temporary rented accommodation had to pay utility bills for both their home and rental property.

3.3.2 Time off work

In Ballater and Garioch a fifth of the survey respondents who were employees took time off work following the winter 2015/16 flooding (of the 16 self-employed respondents only one took time off). Unsurprisingly those whose homes were flooded were the most likely to take time off work and for most in this situation their employers provided paid compassionate leave or allowed employees to take paid annual leave or use flexi-time at short notice. However, a third of all economically active respondents (24 individuals) had taken unpaid leave. Ballater respondents were twice as likely to have been awarded paid compassionate leave than their Garioch counterparts. Garioch respondents were more likely than those from Ballater to have taken unpaid leave. These findings could reflect a less compassionate approach taken towards Garioch employees by their employers, perhaps because patterns of working are such that many Garioch employees work beyond their home community and are employed or line managed by people who had not been directly affected by the flooding and who were unaware of the effects it had had on people who lived in Port Elphinstone and Kintore. In Ballater, where the flooding affected the entire community local employers appear to have taken a more compassionate view towards their staff.

3.3.3 Emergency grant funding

Being flooded can have a significant impact on household finances in the short and longer-term. Following the winter 2015/16 flooding, emergency grant funding administered by the local authority following funds being released by central government under the Bellwin Scheme was available to households that had been flooded. Ninety-one respondents to the household survey (45% of all respondents) applied for and received an emergency grant. Those interviewed reported some other sources of financial assistance, including grants from *Foundation Scotland* and grants disbursed from community funds such as the *Ballater Relief Fund*. Local business and community groups also donated goods and in-kind assistance.

“Everybody got a thousand pounds from the Council. And that helped as well, we had a months’ rent to pay ourselves, the very last month, they were just finishing more or less the day it was supposed to be back in and I says, ‘No, we’re nae rushing about.’ And then the insurance says they wouldn’t be paying it and I says, ‘I’ll pay it myself.’”
(Male, Garioch, home flooded, Project Year 1 interview)

Respondents who received emergency grants were asked to list how they spent their grant. Their responses, summarised in Table 3 below, listed large-ticket items alongside mundane, everyday items of expenditure, all of which was for unanticipated costs. The most frequently referred to expenditure was the replacement of household items such as white goods, clothing, furniture and flooring and the travel costs associated with having to identify and purchase replacement items. Living in temporary accommodation incurred unanticipated costs for some respondents. For example, some respondents faced costs of travelling between their flooded home and temporary accommodation and food bills rose because of more eating out more often than normal or a reliance on ready meals and take-aways. During Project Year 1 interviews the experiences of private sector tenants suggest that there was uncertainty regarding whether emergency grant funding was available to landlords, to tenants, or to both. Some clarification about eligibility would be useful. In the longer-term, as evidenced in Project Years 1, 2 and 3 interviews, financial impacts of the winter 2015/16 flooding were perceived to include the value of owner-occupied properties falling, an impact felt most acutely by those whose homes had been flooded.

Table 3 Household survey respondent descriptions of how the Scottish Government funded Emergency Grant was spent

Theme	Number of responses
Replacement of household items	63
Repairs and refurbishment	23
Additional living costs	19
Costs associated with living in temporary accommodation	14
Flood defence/ resilience measures	13
Replacing uninsured items	6
Transport when without a car/ replacing vehicle	2
Increased insurance costs	1
Not grouped	4

3.3.4 Assistance before, during and after flooding

Werritty *et al.* (2007) asked participants in their study to report from whom they received assistance during the flood event they had experienced. In this study respondents were asked to specify from whom assistance was received (1) immediately before, (2) during and immediately after and (3) in the weeks that followed the winter 2015/16 flooding in order to gain a more nuanced, longitudinal picture of what sources of assistance were most important and whether or not these varied at different points in time.

The most common sources of assistance during a flood event identified in Werritty *et al.*'s study was friends/ neighbours in the locality closely followed by family members outside the respondent's household. Other important sources of assistance were friends outside the locality, the local council and the Fire Service. In this research, as shown in Table 4, friends or neighbours in the locality, family members outside the respondents' household and friends outside the locality were also

important sources of assistance. In comparison to Werritty *et al.*'s findings, assistance from the local council and the Fire Service was not rated nearly as highly in this study. Assistance from Aberdeenshire Council was only reported by 2.8% of respondents before, by 11.9% during and immediately after and by 10.6% in the weeks that followed the winter 2015/16 flooding. Assistance from the local authority before the flooding was more common in Garioch than Ballater. The likelihood of flooding in Garioch was known further in advance than it had been in Ballater, allowing the local authority to be better prepared. For example, sandbags had been stockpiled in Port Elphinstone and Kintore and were distributed in advance of the flooding. During and immediately after the flooding 39.3% of respondents reported that they had not received any assistance. Almost a half (48.8%) of the respondents reported that they had not received any assistance in the weeks that followed the flooding.

Table 4 Most common sources of assistance, all household survey respondents

Immediately before the flooding	During and immediately after the flooding	In the weeks that followed the flooding
Friends or neighbours in the locality (13.3%)	Friends or neighbours in the locality (57.8%)	Insurance company (29.4%)
Family members outside your household (7.4%)	Friends who live outside the locality (19.3%)	Friends or neighbours in the locality (22.6%)
	Community Groups (18.3%)	Family members outside your household (19.9%)
	Insurance company (15.6%)	Scottish Flood Forum (14.7%)

Unsurprisingly, households who were flooded reported having received more assistance both during and immediately after and in the weeks following the winter 2015/16 flooding than was received by the respondents to the Household Survey as a whole (see Table 5). The most frequently cited sources are common to all respondents, in both Ballater and Garioch, but for those whose homes were flooded there is greater emphasis (a) on *local* assistance during and immediately after the flooding (unsurprising given that *in situ* assistance would have been likely) and (b) in the weeks that followed the flooding, assistance came from a wider range of individuals and organisations and from a mix of *informal sources* such as friends and family and from more *formal* organisations such as insurance companies and the Scottish Flood Forum. The importance of insurance companies as a source of assistance in the weeks that followed the flooding is worth noting.

Also of note is that a higher proportion of flooded Ballater than flooded Garioch respondents reported that no assistance had been provided immediately before the flooding. This could reflect the increased preparedness of formal and informal sources of assistance in Garioch,

an area where flooding has been experienced many times before and where widespread flooding had been anticipated in advance of the event in early January 2016. Previous experience of or awareness of local flooding could have made family, friends and neighbours more likely to offer help in anticipation of flooding affecting people they knew who lived in a property at risk of flooding. These findings may also be due to the speed at which the flooding in Ballater occurred and the time of day when it became apparent that serious flooding was to come, both of which gave little time for people to take action. The capacity of the staff of statutory agencies and other organisations to offer assistance immediately before the flooding in Ballater may have been more limited than it would have been at another time of year, with many staff on leave during the Festive season. Circumstances on the ground also made it challenging for additional personnel and equipment to get into Ballater as the flood waters rose.

Table 5 Most common sources of assistance, respondents whose homes were flooded

Immediately before the flooding	During and immediately after the flooding	In the weeks that followed the flooding
Friends or neighbours in the locality (14.5%)	Friends or neighbours in the locality (48.8%)	Insurance company (46.8%)
Family members outside your household (10.5%)	Family members outside your household (37.6%)	Friends or neighbours in the locality (33.6%)
	Community Groups (26.4%)	Friends who live outside the locality (33.3%)
	Insurance company (25.6%)	Family members outside your household (29.8%)
	Friends who live outside the locality (26.4%)	Scottish Flood Forum (21.4%)
		Community Groups (20%)

3.3.5 Sources of information before, during and after the flooding

The Household Survey provided an opportunity to find out about the various sources of information that people living in Ballater and Garioch had used before, during and in the immediate aftermath (up to one month after) of the winter 2015/16 flooding. The usefulness of sixteen sources of information were queried. The findings highlight that information from a variety of sources, delivered in various ways (e.g. broadcast and print media, social media, in person) are all potentially important (see Appendix 5). Interestingly, respondents from Garioch found all of the sources of information they were asked to consider more useful than respondents from Ballater. This could reflect (a) a lack of news coverage and advance warnings before and during the Ballater flooding because

it happened so quickly and at a time when mainstream media were operating a reduced news broadcasting schedule due to the Festive break and (b) the fact that, in Garioch, the flooding occurred after the Festive break, had been anticipated for a few days, the likelihood of serious flooding had been well publicised in the local press in particular, and in an area prone to flooding residents might have been likely to keep an eye on news updates to ensure they were informed about the latest potential flooding developments. The only sources of information that Ballater respondents found more useful than Garioch respondents were *an official knocking at the door* during the flooding and *contact with insurer* during the flooding. The most trusted sources of information were officials who knocked on the door and information disseminated by Police Scotland and by SEPA.

In comparison with earlier flood events that occurred before the widespread adoption of smart phones, the use of social media and the proliferation of online news applications, the digital realm as a source of information before, during and after a flood event was identified as being very important in findings from the Household Survey. Before and during the flooding Garioch respondents were more likely than Ballater respondents to use online sources of information. Those who used online sources in Ballater made the most use of online Met Office or other weather forecasts, Facebook, SEPA's website and online news from a TV broadcaster. In Garioch more than half of respondents used Facebook, especially the Aberdeenshire Facebook group 'Fubar',

a forum for posting items about local news and events. Garioch respondents also made extensive use of Met Office or other online weather forecasts and online news from a TV broadcaster. Imminent flooding in Garioch was widely trailed in the local press and more than a quarter of Garioch respondents had obtained information from online local news providers, notably from the local evening paper, the Evening Express. The only difference in the use of online sources of information between respondents whose homes were and were not flooded was that the former were the most likely to make use of information on SEPA's website after the winter 2015/16 flooding.

Respondents were asked to indicate which of the sixteen sources of information listed in the Household Survey were of most use to them by identifying the three most important sources before, during and after the flooding (see Table). Neighbours were a more important source of information at all stages for Ballater respondents. This could reflect a more close-knit community in Ballater in comparison to either Port Elphinstone or Kintore and the fact that a much higher proportion of the Ballater population were directly affected by the flooding than was the case in Garioch.

Table 6 Which three sources of information were most useful to respondents and their household before, during and in the immediate aftermath of the winter 2015/16 flooding?

	Before	During	Up to one month after
Ballater	Weather forecasts (for 29.2% of respondents)	Neighbours (for 37.5% of respondents)	TV news (for 34.8% of respondents)
	TV news (for 25% of respondents)	Social media posts (for 20.8% of respondents)	Social media posts (for 24% of respondents)
	Neighbours (for 16.7% of respondents)	TV news (for 21.7% of respondents).	Neighbours (for 20.8%) of respondents
Garioch	Social media postings (for 24.2% of respondents)	Social media posts (for 43.3% of respondents)	Social media posts (for 30% of respondents),
	Radio news and announcements and watching river levels (both for 29% of respondents)	Radio news and announcements and TV news (both for 23.3% of respondents).	TV news (for 20% of respondents)

Disruption associated with not having power and/or access to fixed or mobile telecommunications had an impact on the ability of those living in the two case study areas to access information about what was happening during and immediately after the winter 2015/16 flooding. During the flooding 45% of the Household Survey respondents were without a home telephone connection, 47% did not have functioning home broadband and two thirds had no electricity at their home. Coupled with the fact that 27% had no functioning mobile Internet signal and 22% had lost the ability to use mobile phone or text messaging services, the disruption to utilities would have made it very difficult for many respondents to obtain information, such as TV news or updates issued online by the emergency services and

SEPA, as the flood events unfolded. Many respondents would also have been unable to send and/or receive updates, offers of help and general messages voicing concerns and offering support from friends and family. With utilities being out of operation it would also have been difficult to get in touch with emergency services and, post-flooding, with insurance companies. Disruption to utilities continued for up to a month after the flooding for a sizable minority of respondents: 30% had no home telephone, 26% were without electricity in their home, and 28% did not have functioning home broadband. In Ballater 17% of respondents had no mobile internet signal for up to one month after the flood and thus did not have this telecommunications option available as an alternative to a home phone line. As society becomes

increasingly habituated to online modes of formal and informal interaction, it is important for those responsible for planning for and managing emergency situations to remember that internet-based modes of communication must be complimented by other, offline modes to ensure that important information is disseminated as widely as possible.

3.3.6 Insurance cover, claims and re-insuring

The vast majority of respondents to the household survey had insurance cover before the winter 2015/16 flooding which, for those who were flooded, meant that the financial impacts of home renovations, living in temporary accommodation and having to replace household goods and personal items were minimised. When the Household Survey was conducted, approximately 18 months after the winter 2015/16 flooding, the vast majority of respondents held the same type of insurance cover for their homes as they had before the flood event.

The value of claims submitted by Ballater and Garioch residents following the winter 2015/16 flooding were variable. Just over a quarter were claims for less than £20,000 but, amongst those whose homes were flooded, 37.2% made claims in excess of £60,000. Respondents to Citizen's Advice Scotland 2016 study, *Bailed Out*, were asked to report the value of their most recent flood related insurance claim; 28% of respondents reported that it had been for more than £60,000. In Ballater and Garioch almost twice as many, 47% of respondents, had claimed for more than £60,000, a finding that provides an indication of how serious the winter 2015/16 flooding had been in North East Scotland.

At the time the Household Survey was carried out, awareness of Flood Re, the Government backed scheme that aims to help households who live in a flood risk area find affordable home insurance, was low, and broadly in line with that reported in *Bailed Out*. Awareness of Flood Re was highest amongst those households who had been

flooded in winter 2015/16 but more than half of the Household Survey respondents whose homes had been flooded were unaware of Flood Re. These findings suggest that better promotion of this scheme in areas that have been flooded is necessary.

As noted above, only a small minority of respondents to the Household Survey did not have home insurance when they completed their responses. Of the 16 who did not have insurance, four reported that they had been refused cover and reported that insurance policies were too expensive for them. The affordability of home insurance has been raised as an issue in the flooding literature (see Chapter 1); the Household Survey therefore invited respondents to indicate how affordable they found their home insurance premiums and the findings are reported in Table 7. Most respondents found their home insurance payments affordable. Only three reported that payments were in the 'unaffordable' or 'I have found it difficult at times to make payments due to lack of funds' response categories but over a quarter (27.4%) reported that their payments were 'manageable, I can afford the costs but have had to save elsewhere'. These are lower proportions than reported in the *Bailed Out* report where 41% of respondents reported that they were 'managing' and 6% reported that insurance payments were 'unaffordable'. The difference between the *Bailed Out* findings and this study could reflect the comparative affluence of Aberdeenshire compared to other parts of Scotland. However, although a minority, a not inconsiderable proportion of households in this study were making economies elsewhere in the household budget to hold insurance and protect themselves from the impacts of future flooding and their difficulties should not be overlooked. An increase in insurance premiums charged by insurers as a result of the winter 2015/16 flooding was reported in Years 2 and 3 of the research (see Chapter 4), suggesting that studies investigating insurance-related impacts of flooding should take into account the experiences of householders renewing policies two or three years after a flood event.

Table 7 How affordable do respondents find home insurance payments?

		Affordable I have no problems making payments	Manageable I can afford the cost but have had to save elsewhere	Unaffordable I have found it difficult at times to make payments	I do not have home insurance	Don't know
Ballater	All respondents	76 (60.3%)	40 (31.6%)	1 (0.8%)	5 (4%)	2 (1.6%)
	Respondent whose home was flooded	44 (54.3%)	30 (37%)	0 (0%)	5 (6.2%)	2 (2.5%)
Garioch	All respondents	83 (72.2%)	26 (22.6%)	1 (0.9%)	2.6%	1 (0.7%)
	Respondent whose home was flooded	23 (56.1%)	36.6%	1 (2.4%)	1 (2.4%)	1 (2.4%)
All	All respondents	159 (66%)	66 (27.4%)	2 (0.8%)	8 (3.3%)	4 (1.7%)
	Respondent whose home was flooded	67 (54.9%)	45 (36.9%)	1 (0.8%)	6 (4.9%)	3 (2.5%)

Project Year 1 interviews allowed issues associated with insurance and refurbishment to be explored in detail. Accounts of interviewees' experiences of dealing with insurance claims were varied in both case study areas: some had good experiences, others had poor experiences.

"[The local tradesman] was just brilliant, I would give him anything, for being that...he was not just in charge of the building work, and he actually said that at one point, he said, 'I hope you believe that we are here, not just to rebuild your house, but to give you back your home.'" (Female, Garioch, home flooded, Project Year 1 interview)

"We've heard so many horror stories. Somebody that had their kitchen cabinets...have fallen off the wall about three or four times, just because they haven't been put on properly. One of our neighbours, who moved back into their house only about two months ago, were only in their house for three days and a fuse went, so he went to change it and, I dunno, he got a shock and he burnt his hand and he got his own electrician to come in and look, and they took the light-switches off downstairs and there was still mud in them. Now this insurance company had done the work and signed it off as finished, and they hadn't changed any of the electrics in the house." (Couple, Ballater, home flooded, Project Year 1 interview)

Dealing with a post-flood insurance claim was a new experience for most interviewees, and the time and effort required had not been anticipated. Negative experiences for some arose from being under-insured or because their cover was invalidated in the aftermath of the flooding because they were too close to a water body than stated on their insurance policy. There were many accounts of discrepancies and misunderstandings about who should be clearing out a home including, for example, should belongings be taken out of a house before or after a loss adjuster had visited? Interviewees in this research included both home owners who agreed a financial settlement with their insurance company and then project managed home renovations themselves and those whose insurance companies managed the entire renovation process. Having previous experience of project-managing a home or another large-scale renovation led some to agree on a settlement with their insurance company and project manage the renovation themselves. This engendered them with more control over choosing tradespeople of their choice. For some people, the settlement amount was a negotiation, where assistance from others such as the Scottish Flood Forum was beneficial. Interviewees often had to deal with multiple organisations and individuals as their insurance claims progressed. For example, they had direct interactions with insurance company/ies, a loss adjuster, a company clearing out their property, and contractors from various trades renovating their home. The renovations period was often described as being a "full time job" as householders were constantly having to chase people up. Interviewees often described contact with people who were insensitive or difficult to get hold of which made an already stressful situation worse. Interviewees who narrated positive experiences of dealing with insurance companies and home renovations valued being kept updated about developments at their property. They felt that good lines of communication with the various organisations and individuals they were interacting

with helped all concerned to work well together. It was perceived that local tradespeople and builders, electricians, plumbers etc. working directly for homeowners who were project managing their own renovations completed work to a higher standard than did tradespeople brought in from elsewhere by insurance companies and their contractors. There were more accounts of negative experiences than of positive experiences. A lack of communication between different companies involved in the refurbishment process made dealing with renovations stressful. Many interviewees noted that they had to push hard to get any progress with their renovation work. In Ballater many of the tradespeople contracted to undertake renovations by insurance companies were based in the Central Belt of Scotland and we were told of instances where work was only undertaken in properties for a few hours a day because tradespeople were commuting. This resulted in work taking much longer to complete than it would have done if tradespeople were on site for the full working day. Living in temporary accommodation at a distance from home made it difficult for some to be on site regularly and to keep abreast of renovation work. Interviewees mentioned going to the press, consulting the consumer organisation Which? and going to the Ombudsman in their attempts to seek redress for poor quality work. Others noted their experiences of dangerous repairs being made to their home, specifically work involving electrics and boilers/ heating systems. Cash-flow proved problematic for the local companies undertaking renovations in cases where insurance companies did not settle invoices promptly.

3.3.7 Tangible and intangible impacts of the winter 2015/16 flooding

The household survey replicated a suite of questions used by Werritty *et al.* (2007) that asked respondents to identify what impact twenty issues associated with flooding had had on them, as an individual. The 20 issues are grouped into 3 types of flood impacts, namely (i) tangible, (ii) intangible–immediate and (iii) intangible–lasting. Tangible impacts relate to material losses such as loss in house value or damage to buildings contents/ vehicles resulting in measurable financial loss. Intangible impacts relate to non-material and/or emotional losses. Responses to this suite of questions were analysed following the protocol for assessing *overall impact* and *intensity of impact* adopted by Werritty *et al.* in which *overall impacts* include 'not applicable' values in the scoring and *intensity of impacts* scores are based on scores reported by respondents for whom each impact was applicable.

As reported in Table 8 the highest scoring overall impacts amongst all respondents were value of property reducing, discomfort or inconvenience while getting house back to normal, stress of the flood event itself, time and effort getting house back to normal and worry about future flooding. Put into a wider context, all these impacts are classified as 'mild' following Werritty *et al.*'s scoring methodology. However, a different impression of flood impacts is gleaned from examining the intensity of flooding data, scores based on responses from those who were directly affected by each individual issue. These scores are interpreted as 1 = mild impact, 2 = serious impact, 3 = severe impact in Werritty *et al.*'s scoring methodology. Here the impact of two issues is 'serious', namely having to leave home and possessions,

an immediate intangible impact, and loss of irreplaceable or sentimental items, a lasting intangible impact. Other impacts scoring near the boundary of 'mild' and 'serious' impacts were the tangible impact of value of property reducing and damage to car or van, the intangible immediate impacts of discomfort or inconvenience while getting house back to normal, dealing with builders, decorators etc. and stress of the flood event itself and the intangible lasting impact of time and effort required to get house back to normal. All of the high scoring intangible-immediate and intangible-lasting flood impacts were issues raised by numerous interviewees, especially during Projects Years 1 and 2.

Table 9 reports intensity of flood impacts, distinguishing between responses from each case study area and by whether or not a respondent's home was flooded. Overall, the intensity scores of flood impacts reported by respondents to the household survey scored higher than those reported by respondents to Werritty *et al.*'s study for tangible impacts and intangible-lasting impacts. Because these data contain so many missing values it is inappropriate to use statistical tests of difference to explore patterns in the responses. A descriptive overview must suffice. Unsurprisingly, tangible and intangible impacts of flooding were most severe for those whose homes had been flooded, in both case study areas. However, of note is that tangible losses for those in Ballater whose homes were not flooded were notably higher than for the equivalent group in Garioch, likely a reflection of how the winter 2015/16 flood had a community-wide impact in Ballater. Tangible financial losses potentially affected everyone in the area with, for example, disruption to the transport network making it difficult for people to get to work and trade lost from both local residents and tourism.

Table 8 Overall flood impacts and intensity of impact: all participants

Impact	Overall impact on sampled population		Intensity of impact on those affected	
	Mean	N (total sample excluding missing responses)	Mean	N (total sample excluding missing values and 'not applicable' responses)
1. Tangible food impacts				
Financial losses	0.83	199	1.71	97
Value of property reducing	1.02	198	1.91	105
Disruption to electricity supply	0.85	193	1.74	95
Damage to car or van	0.40	186	1.83	41
Used holiday entitlement/ annual leave	0.23	181	1.61	26
Average score: tangible flood impacts	0.67		1.76	
2. Intangible - immediate flood impacts				
Discomfort or inconvenience while getting house back to normal	1.05	203	1.87	114
Stress of the flood event itself	1.23	204	1.80	139
Having to leave home and possessions	0.48	196	2.14	91
Dealing with insurers and loss adjusters	0.38	202	1.87	95
Having to live in temporary accommodation	0.23	202	1.78	82
Dealing with builders, decorators etc.	0.29	200	1.88	84
Being stranded in or out of home	0.31	193	1.87	85
Average score: intangible immediate flood impacts	0.57		1.89	
3. Intangible - lasting flood impacts				
Time and effort required to get house back to normal	1.13	202	1.93	118
Worry about future flooding	1.14	203	1.58	146
Loss of irreplaceable or sentimental items	0.86	195	2.06	82
Strains between family members	0.36	181	1.59	41
Loss of a feeling of community spirit	0.22	183	1.52	27
Deterioration in mental health	0.44	187	1.41	60
Deterioration in physical health	0.50	189	1.48	64
Loss of or distress to pets	0.31	179	1.56	36
Average score: intangible lasting flood impacts	0.62		1.64	

Overall impact on sampled population = mean score excluding missing values (n = number of respondents minus missing values by each variable). Intensity of impact on those affected - mean score excluding missing values and 'not applicable' responses

Table 9 Intensity of impacts of flooding by case study area and by home was/was not flooded

			Ballater: home was flooded	Ballater: home was not flooded	Garioch: home was flooded	Garioch: home was not flooded	All responses
Intensity of tangible impacts of flooding	Financial losses	n = 92	1.65	2.20	1.76	1.57	1.80
	Value of property reducing	n = 96	1.95	1.67	2.07	1.81	1.87
	Disruption to electricity supply	n = 90	1.95	1.55	1.91	1.29	1.67
	Damage to car or van	n = 39	2.00	0.00	1.57	0.00	1.63
	Used holiday entitlement/ annual leave	n = 26	1.78	2.25	1.50	1.00	1.63
	AVERAGE		1.87	1.53	1.76	1.13	1.72
Intensity of intangible - immediate impacts	Discomfort or inconvenience while getting house back to normal	n = 110	1.87	1.00	1.91	2.00	1.69
	Stress of the flood event itself	n = 131	1.93	1.44	2.05	1.36	1.70
	Having to leave home and possessions	n = 89	2.10	1.00	2.34	1.75	1.80
	Dealing with insurers and loss adjusters	n = 92	1.77	1.80	2.00	2.00	1.89
	Having to live in temporary accommodation	n = 81	1.85	0.00	1.72	1.50	1.27
	Dealing with builders, decorators etc.	n = 82	1.94	1.80	1.85	1.50	1.77
	Being stranded in or out of home	n = 83	1.89	1.40	2.04	1.40	1.68
	AVERAGE		1.91	1.21	1.99	1.64	1.69
Intensity of intangible - lasting impacts	Time and effort required to get house back to normal	n = 113	1.96	1.50	1.97	1.67	1.77
	Worry about future flooding	n = 139	1.56	1.44	1.71	1.59	1.58
	Loss of irreplaceable or sentimental items	n = 77	2.04	3.00	2.13	2.00	2.29
	Strains between family members	n = 40	1.71	1.20	1.55	1.50	1.49
	Loss of a feeling of community spirit	n = 26	1.70	1.39	1.54	1.76	1.71
	Deterioration in mental health	n = 57	1.39	1.43	1.47	1.50	1.48
	Deterioration in physical health	n = 62	1.54	1.40	1.47	1.50	1.48
	Loss of or distress to pets	n = 36	1.76	1.00	1.40	1.50	1.42
	Average		1.71	1.55	1.65	1.63	1.65

All responses excluding missing values and not applicable responses. 1 = mild impact, 2 = serious impact, 3 = severe impact

3.3.8 Impacts of the winter 2015/16 flooding on businesses

The winter 2015/16 flooding in North East Scotland affected many businesses. Impacts of the flooding were captured in a survey sent to a sample of businesses in both case study areas and were also captured in semi-structured interviews held with business owners and managers.

Thirty-two useable completed Business Surveys were received, twenty-eight from Ballater and six from Garioch. The low number of responses from Garioch was disappointing but unsurprising as there it was primarily residential areas that were flooded in January 2016 and disruption in the area that could have made it difficult for business owners to get to their premises or employees to get to and from work was limited in extent and short-term in duration. In contrast, the impacts of the flooding on businesses operating in and around Ballater were more widespread and more severe. The larger numbers of responses from Ballater likely reflects this. As widely reported in the local press (e.g. Press & Journal, January 6th 2016), numerous shops and other commercial premises in the centre of Ballater were inundated by flood waters, agricultural land and forestry were under water and subsequently littered with debris that had to be cleared up and the damage to the main road network disrupted transportation for many weeks after water levels had subsided.

3.3.8.1 Garioch

Only one of the respondents to the Garioch Business Survey reported that their business had been directly affected by the flooding, in this case land owned by the business had been flooded and was unusable for a few weeks. None of the respondents reported that the winter 2015/16 floods had had a detrimental impact on their 2016 business turnover. Before the flooding only one of the six Garioch businesses felt that their business premises could be adversely affected by flooding; after the flood event this number rose to three. Two of the Garioch businesses, one in Port Elphinstone and one in Kintore, took action to protect their business premises when they become aware that serious flooding was expected in the area. One used sand-bags provided by the council and moved stock or equipment upstairs, the other moved livestock to higher ground. In the immediate aftermath of the flooding one Garioch business reported some disruption to utilities, another reported reduced customer footfall. No long-term disruption was experienced and none of the Garioch businesses applied for Emergency Grant Funding or Additional Business Compensation.

3.3.8.2 Ballater

Impacts of the winter 2015/16 flooding on Ballater business were much more widespread than in Garioch. The commercial premises of ten respondents to the Ballater Business Survey were flooded. Others reported that a storage facility was flooded (n = 5), land they owned or rented was flooded (n = 5) and three business run from home were located in a residential property that was flooded.

There was evidence from the Ballater Business Survey of action being taken to protect premises before and during the winter 2015/16 flooding. For example, before the flooding sandbags were deployed, stock or equipment

was moved upstairs, livestock were moved, and business vehicles were moved to higher ground. Two businesses reported they had not been able to take action in advance, stating that there was *"no time for action"* and *"too late, it was all ruined in the flood"* before action could be taken. During the flooding there was further deployment of sandbags, stock was moved upstairs or out of business premises, and more vehicles were moved out of reach of the flood waters. In a few cases staff vacated business premises.

Half of the responding businesses did not experience any disruption to their ability to trade following the winter 2015/16 flooding but fourteen did. Of these, six could not trade for more than 3 months and one was still not trading when the survey was conducted, seventeen months after the flooding. For those businesses that were not directly affected by the flooding, indirect impacts included a pronounced downturn in local trade and a loss of tourist trade (tourism comprises the largest sector of the local economy). Some tourist-aligned businesses reported that they had yet to re-establish trade to pre-flood levels almost a year and a half after the flooding.

Business Survey respondents were invited to report what they thought the most significant challenges their business had to overcome following the flooding were. Six broad themes describe the responses, most of which included issues associated with direct costs of the business, namely: loss of trade/ custom (for 13 businesses); impacts of dealing with insurance companies and tradespeople during post-flooding refurbishments etc. (for 9 businesses); having to re-establish the business (for 6 businesses); renovations and refurbishment (for 4 businesses); drop in income, difficulties in paying staff salaries and cash flow problems (for 3 businesses) and clean-up operations (for 2 businesses).

Only five of the twenty eight responding businesses from Ballater reported that the winter 2015/16 floods did not have a detrimental impact on their 2016 business turnover. Losses were incurred because business premises, storage facilities and land had been flooded, the pronounced drop-off in tourism following the flooding reduced foot-fall and trade and with many local residents being displaced from their homes day-to-day commercial transactions were also reduced. A third of the Ballater businesses reported a 30% downturn in their annual turnover in the year following the flooding. Based on the estimates of annual turnover and an indication of their losses in the year following the flooding provided by 18 Ballater respondents it is estimated that, combined, financial losses for those business fall in the range of £780,000 - £1, 190,000. For micro and small locally owned and operated business such losses are considerable, and some interviewees made reference to the fact that some local businesses had not reopened after the flooding.

Eleven businesses had applied for and received Emergency Grant Funding and seven had applied for and received Additional Business Compensation. This financial assistance was used for similar purposes including, for example, refurbishment of commercial premises, clearing and cleaning premises post-flooding, staff wages when the business was not trading, purchasing and/or running dehumidifiers etc. to dry out property, and the installation of flood resistance and resilience measures. Three

businesses received financial assistance from other sources, including *Foundation Scotland* and from other local businesses and residents.

Only two Ballater Business Survey respondents did not think that their business premises were at risk from future flooding. More than half thought that it was 'very likely' or 'likely' that there would be another flood in the Ballater area within ten years. Some business owners installed measures to make their business premises more resilient to future flooding (see Vignette One in Chapter 4). Other business owners had developed emergency response plans that could be deployed in the event of a future flood scenario. For example, the manager of Ballater caravan park told us about an emergency planning measure they had developed after the winter 2015/16 flooding.

"If we get a (flood) warning the people are told, 'Get your touring van off the site please and go and park up in the village and then we'll let you know when it's safe to come back'." (Male, Ballater, business flooded, Project Year 1 interview). In Garioch we separately interviewed a commercial landlord and their tenant. The tenant, who had been renting business premises for five years before the January 2016 flooding, had since given up their business. The business property lease had come to an end shortly after the flooding and, largely because future flooding could not be ruled out and this created uncertainty for both parties, the lease was not renewed. The landlord told us: "' I said, 'you've got to look realistic thing at, eh... we could spend a lot of money, you could spend a lot a money, get everything going, and we could be flooded again.' [...] the bottom line is, em... she said that she was going to, aye, stop. Aye, to me. And also, she said to her customers that she was giving up the lease, type a thing, because obviously there was nae guarantees. And as I said, that's the situation we're in. There's nae guarantees." (Male, Garioch, business flooded, Project Year 1 interview).

3.4 Being aware of and preparing for flooding

With the Garioch area having been flooded on a number of previous occasions it was unsurprising that Household Survey respondents from this case study area were the most likely to have personal, direct experience of flooding in the area where they were living at the time of the winter 2015/16 flooding (23 respondents in Garioch, 8 in Ballater). This included experience of the widespread disruption brought by flood events and, in a minority of cases, experience of a garden, garage or outbuilding having been flooded. Two respondents whose homes were flooded in winter 2015/16 had experienced flooding to the same property previously, a third respondent had been flooded before, but when living in a different property.

Garioch respondents reported higher awareness of the potential risk of flooding in their area than Ballater respondents did. Responses to three questions included in the Household Survey are illustrative here; differences between Ballater and Garioch were statistically significant. Respondents from Ballater were much less likely than Garioch respondents to answer 'yes' to the question *I thought my street or the area adjacent to my home was at*

risk of flooding before winter 2015/16; respondents from Ballater were much more likely than Garioch respondents to answer 'yes' to the question *I did not think there was flood risk in the area where I live before winter 2015/16*; and fewer Garioch than Ballater respondents *had never thought about flood risk* in their respective case study area.

3.4.1 Perceptions of flood risk (local knowledge, flood risk maps, Floodline)

"We would be naive to say that we never ever thought there could be a flood; we live beside a river, however in the 20 odd years that we've lived here, it's never happened. And as far as we're aware we're not on the flood plain so the risk was deemed to be...it was there, but it was relatively low." (Male, Garioch, home flooded, Project Year 1 interview)

At the time the Household Surveys were completed, most respondents (84%) were aware of SEPA's flood risk maps. However, approximately a fifth of Ballater respondents were not aware of these maps and a quarter did not know if their home was within or close to an area designated as being at risk of flooding on SEPA's flood risk maps. Those in Ballater who were flooded in winter 2015/16 were slightly more knowledgeable about the SEPA flood risk maps 18 months after the flooding than those in the community whose homes had not been flooded. In contrast, a lower proportion of respondents in Garioch were unaware of SEPA's flood risk maps. The difference between Garioch and Ballater respondents whose homes were flooded and who were not aware of SEPA's flood risk maps was marked, 5% compared to 21% respectively. This suggests that Garioch respondents are more aware of local flood risk and because of that, they are more aware of the flood risk information the public can refer to. They may also have had to provide information about the status of their home *vis-a-vis* flood risk when taking out home insurance which would have required them to know about SEPA's flood risk maps.

Awareness of Floodline had increased in the period following the winter 2015/16 flooding and completion of the Household Survey in both case study areas. Awareness had increased the most in Ballater, especially amongst those whose homes had been flooded, and this awareness had been accompanied by a sharp increase in Floodline registrations. Many more Garioch respondents whose homes were flooded in January 2016 had registered to receive a local flood warning from Floodline than was the case in Ballater (46% compared with 13% respectively). Since the flooding, registrations to receive Floodline warnings by Garioch participants had increased by a third, and in Ballater they had doubled. Registrations for Aberdeenshire wide flood alerts had also increased, most noticeably in Ballater.

Some interviewees in Project Year 1 told us that their use of Floodline had increased anxiety about future flooding. They found it stressful to receive Aberdeenshire warnings. On the other hand, many of those interviewed in Ballater thought that the frequency of Floodline notifications they received led to complacency because regional alerts had not been followed by localised warnings or another flood.

3.4.2 Adoption of flood resistance and resilience measures

A range of flood resistance and resilience measures are available to property owners in areas at risk of flooding. Flood resistance measures are designed to stop or minimise the amount of water that enters a property and include, for example, non-return valves on drains, flood doors and flood gates, removable flood guards for doors and windows and sandbags. Flood resilience measures describe things property owners can do to minimise damage if water enters their property, such as avoiding keeping sentimental, or irreplaceable items or expensive furniture in downstairs rooms, installing concrete floors or moving power sockets above the height flood waters could rise to in a ground floor room.

Half of the respondents to the Household Survey reported that they had not taken any flood resistance measures before the winter 2015/16 flooding. Respondents from Garioch whose homes had flooded were much more likely than Ballater respondents to have taken at least one flood resistance measure before the flooding, likely a reflection of greater awareness of and/or previous experience of flooding in part of the Garioch case study area. In Garioch, twice as many householders whose homes were flooded had received sandbags from the council than had done so in Ballater. This reflects the fact that the Garioch flooding had been anticipated and the authorities had been able to ensure sandbags and other equipment were available, in advance. It also reflects the difficulties faced in Ballater because sandbags were stored on the south side of the river at a location that quickly became inaccessible. After the winter 2015/16 flooding more Ballater than Garioch respondents purchased removable flood guards for doors and/or windows suggesting that the shock of unexpected, severe flooding in Ballater created a sense of urgency amongst some local residents to try and protect their homes from future flooding.

The unexpected nature of the flooding in Ballater, and the fact that flood waters rose very quickly, meant that Ballater respondents to the Household Survey were much less likely to have taken any flood resilience measures before and during the flooding than were respondents from Garioch. The higher likelihood of Garioch respondents having taken action immediately before and during the flooding suggests that they were more prepared, they or a neighbour had experienced flooding before and knew what action could usefully be taken (e.g. moving belongings upstairs).



Figure 5 Property level flood resilience measures in place, Ballater April 2019 (Photo credit, Lorna Philip)

3.4.3 Had experiencing a serious flood changed flood preparedness behaviour?

Increased awareness of and registrations to Floodline and more widespread awareness of resources such as SEPA's flood risk maps following the winter 2015/16 flooding suggest that residents in Ballater, Port Elphinstone and Kintore have been promoted to make greater use of publicly available tools which can help them be better prepared in the event of a future flood. Responses given by those who responded to the Household Survey provided evidence that some residents in both case study areas had adopted flood resistance and resilience measures following their winter 2015/16 experiences. For example, one Ballater respondent reported that they now *keep important paperwork up high* and *I no longer put things other than furniture on the floor, keep precious things safe* and another, who had not been flooded in winter 2015/16, had floored their loft to make it possible to move possessions out of the reach of any future flood waters. In Garioch action taken by flooded households included an electric mains box being positioned higher up, and the installation of *self-closing vents and watertight front door after flooding and raised ground floor level*. Interviewees in Project Year 1 told us about their preparations for future flooding which included having emergency contact telephone numbers to hand, putting out sandbags if they received a flood warning and keeping important personal possessions upstairs. Barriers to making a home more flood resilient were reported by a few interviewees. For example, concerns were voiced that living in a conservation area or a listed building meant that modifications to the home such as installing a flood door were prohibited (one respondent reported *No PVC anything*). The costs of some flood resistance measures were thought to be prohibitively high for some home owners and there was uncertainty about what the best measures to install in the home would be. Those who rented their homes noted that they were unable to take measures in their property that would alter the fabric of the building and were thus unable to consider installing measures such as replacing existing doors and windows with more flood resilient fixtures or moving interior and exterior power sockets.

3.5 Community resilience

In both Ballater and in Garioch the local communities pulled together during the flooding; multiple examples of 'community spirit' were cited in Project Year 1 interviews. Many local residents were quick to provide assistance to others during the winter 2015/16 flood events, helping to evacuate neighbours from their homes, offering emergency accommodation to friends and family members displaced from their homes, and helping with the post-flood clean up. Spontaneous community activity took place alongside efforts led by statutory organisations, including the emergency services and local voluntary organisations. Many interviewees expressed opinions that suggested there was a lack of clarity regarding who was responsible for what, before and during the flooding.

In Garioch, flooding in early January 2016 was not confined to the Port Elphinstone and Kintore communities that are the focus of this research. The emergency services were responding to flooding across the lower reaches of the River Don (e.g. in Kemnay, parts of Inverurie and in multiple locations in Aberdeen) and elsewhere

in Aberdeenshire (e.g. in Ellon). There was a perception expressed by Garioch interviewees that emergency crews were stretched beyond capacity. Project Year 1 interviewees reflected on how voluntary groups and members of the local community have reviewed the approach they took during the flooding and on how they could respond more effectively in the event of future flooding. Some Garioch interviewees also spoke at length about flood prevention actions they were advocating for which they thought would offer protection to their community in the event of future flooding. They had become involved in these activities, often working in partnership with neighbours and other local residents, as a direct result of their winter 2015/16 experiences.

In Ballater, despite the late December 2015 flooding being largely unanticipated locally, there was a very strong community response to the flooding which saw local people, members of voluntary organisations and community groups and statutory agencies working together and supporting each other. Ballater is typical of many remote rural communities in that it has many groups and communities of interest who play a prominent role in community life. There is strong social and community capital that can be drawn upon in the event of an emergency. This community capacity was capitalised upon to establish a resilience group in the aftermath of the winter 2015/16 flooding and a resilience plan had been produced as a collaborative, multi-agency activity by the time Project Year 1 interviews were conducted. Considerable efforts have been made since the winter 2015/16 flooding to produce and disseminate resilience planning information to households in Ballater and Garioch. This will be discussed further in Chapter 4.

3.6 Health and wellbeing impacts of the winter 2015/16 flooding

It is well documented in the literature that the experience of being flooded or living in an area that has been badly affected by flooding can affect health and wellbeing in the short and longer-term. In Project Year 1 two specific means were used to elicit information about the health and wellbeing impacts of the winter 2015/16 flooding. Firstly, the Warwick Edinburgh Mental Wellbeing Score (WEMWBS) was deployed in the Household Survey, with respondents invited to complete the suite of questions based on how they felt in January 2016, immediately after the flooding and how they felt at the time they completed the survey. Secondly, the interview topic guide for the Project Year 1 interviews included prompts to encourage interviewees to reflect on how the flooding had affected their physical and mental health and their overall wellbeing and quality of life.

3.6.1 Mental wellbeing following the winter 2015/16 flooding

The Warwick-Edinburgh Mental Wellbeing Score is a fourteen item measure of mental well-being focusing entirely on positive aspects of mental health. It is a short, psychometrically robust scale described by Tennant *et al.* (2007) as offering promise as a tool for monitoring mental well-being at a population level. It was designed to use in the UK context and is based on an understanding of mental wellbeing as a state comprising a mixture of *feeling good* and *functioning well*. *Feeling good* encompasses subjective experiences

of happiness and life satisfaction (affect and the hedonic perspective respectively) and *functioning well* refers to positive psychological functioning, good relationships with others and self-realisation (the eudaimonic perspective). Subsequent Rasch model analysis produced a unidimensional seven item scale which “provides an interval scale estimate of mental wellbeing, with higher scores within an item reflecting greater overall mental wellbeing” (Taggart *et al.*, 2016, p23-34). The seven item scale – (a shortened measure called the Short Warwick Edinburgh Mental Wellbeing Score, hereafter referred to as SWEMWBS – includes items representing both psychological and eudaimonic wellbeing and hedonic wellbeing but the former category is emphasised. SWEMWBS thus “relates more to functioning than to feeling” (Taggart *et al.*, 2016, p24). This research is the first time the SWEMWBS has been used in a disaster research context. We believe it can usefully be deployed in this context because it allows researchers to identify how individuals react to the shock of an event such as a serious flood event and, when repeated after the event, how those affected have recovered can be identified.

The Household Survey invited respondents to complete the SWEMWBS twice, first to *describe how you remember you were feeling in January 2016, immediately after the winter flooding* (which generated 188 usable responses) and, secondly, to *best describe your experience of each topic over the two weeks preceding completion of the survey* (which generated 198 usable responses). Individual items adopt a likert-scale style set of response options, scored from 1 to 5 which are summed and the total SWEMWBS value is then computed by transforming the scores according to a raw score to metric score conversion table (as described in Table 11 in Taggart *et al.*, 2016). Suites of responses with any missing values cannot be scored and are thus excluded from the analyses.

Validation of the SWEMWBS (see Table 8 in Taggart *et al.*, 2016) reported a general population mean score of 23.6. Low wellbeing scores are in the range 7-19.3; medium wellbeing falls between 20 – 27 and high wellbeing scores are 28.1- 35 (see Fat *et al.*, 2017). The attributes of the populations of Ballater and Garioch, and of the respondents to the Household Survey, are different to that of the UK population as a whole principally because their populations are older and because levels of affluence within the communities are above the national average. Respondents to the Household Survey conducted in Ballater and Garioch thus over represent older adults known to score higher in wellbeing scales than younger age groups and under represent low socio-economic status individuals, known to score lower than those in higher socio-economic groups. No standard method of recalibrating the SWEMWBS to reflect deviation from large population norms has, however, been identified. Responses to the SWEMWBS questions in the Household Survey are presented in Appendices 6 to 11.

For all respondents, scores on the SWEMWBS improved between the weeks immediately following the winter 2015/16 flooding (2016) and when they completed the household survey (2017). This is apparent when mean scores are reviewed and when scores grouped into the ‘low’, ‘medium’ and ‘high’ wellbeing categories described above are considered. If scores for those whose homes were flooded and those whose homes were not flooded

are considered separately a clear difference in mental wellbeing is evidenced. In both 2016 and 2017 those whose homes were not flooded had higher mental wellbeing than those whose homes had been flooded (the differences between the two groups in 2016 and 2017 were statistically significant). There was an increase in reported wellbeing over time for both groups but, a year and a half after the flooding, the scores of those whose homes had been flooded lagged behind those whose homes had not been flooded. These findings suggest that once the initial shock of the flood had passed, most individuals were able to function better regardless of whether their homes had or had not been flooded but there remained a negative impact on wellbeing for those whose homes had been flooded.

Further analysis of the SWEMWBS scores examined differences between those who were flooded and those who were not by case study area (see Appendices 10 and 11 for details). The 2016 scores, how respondents were feeling in the immediate aftermath of the winter 2015/16 flooding, showed statistically significant differences between those in Ballater whose homes were flooded and those in Garioch whose homes were not flooded. The 2016 mean wellbeing scores of both Ballater residents whose homes had and had not been flooded were below the SWEMWBS validated mean score. However, the difference between the two Ballater groups was not statistically significant. This is probably because direct and indirect impacts of the December 2015 flooding were felt across the entire Ballater community. Scores for a year and a half after the flooding, the 2017 scores, showed a more complex pattern. The wellbeing scores of both those in Ballater whose homes were and were not flooded had improved, although the mean score for those whose homes had been flooded was still slightly lower than the SWEMWBS validated mean of 23.6. The difference between the scores for the flooded and not flooded groups had increased; this difference was large enough to be statistically significant. Those whose homes had not been flooded had achieved a higher level of wellbeing a year and a half on from the flooding, illustrating the more persistent impact on wellbeing for those who had been flooded. The Garioch picture is quite different. In 2016, the mean scores of those whose homes were flooded were well below the SWEMWBS validated mean whilst the mean scores of those whose home had not been flooded were just above the validated mean. The difference between the home was/ was not flooded groups was large enough to be statistically significant. By 2017 the mean wellbeing scores of both groups had increased and, for both groups their mean scores were higher than the SWEMWBS validated mean. A small difference in mean score was reported between the was/ was not flooded groups but this was not statistically significant.

Overall the analysis of SWEMWBS data suggest that:

- Garioch respondents whose homes were flooded have 'bounced back' to a greater extent than those from Ballater whose homes were flooded;
- The immediate impact of the winter 2015/16 flooding on the wellbeing of non-flooded Garioch respondents was not as pronounced as the impact on non-flooded Ballater respondents;

- Those whose homes were not flooded in both Ballater and Garioch had, by mid-2017, mean wellbeing scores notably higher than the SWEMWBS validated mean;
- The 'bounce back' for Ballater residents whose homes were not flooded is much more pronounced than for the Ballater residents who were flooded.

3.6.2 Interviewees reflections on health and wellbeing

"Ballater isn't back to normal, it's not going to be back to normal for a couple of years, in actual fact I would say the whole community is suffering from post-traumatic stress, to be quite frank. As soon as it rains you can feel the tension levels rising and you talk to people who have gone back to their homes and they say they wake up and it's raining on the ceiling – you can hear the rain on the roof and 'I can't get back to sleep, just in case.'" (Female community figure, Ballater, home not flooded, Project Year 1 interview)

"I can't think of anything that personally I would want that I haven't managed to find for myself but I have to be aware that not everybody is capable of finding things for themselves and ... I don't remember who it was but there was a point sometime fairly soon after the flood where somebody assured us – I'm sorry, I really don't know who it was, but somebody assured us that they were aware there would be long-term effects and we weren't to feel just because the crisis was past that they wouldn't still maintain contact and whoever it was has never maintained contact so that's not terribly helpful because I can't remember who it was but that's quite disappointing because I feel whoever it was should have, at least, sent an email and said, 'I know it's six months since I've promised to be in touch but if you do want to get back to us, this is how to', and whoever it was, hasn't. Which is worse, to me, than not saying they would." (Female, Garioch, home flooded, Project Year 1 interview)

Project Year 1 interviewees who had been flooded talked about going back to their flooded houses and finding them to be full of water which was contaminated with oil, mud and silt. The spouse of one interviewee caught the stomach bug helicobacter from the dirty water (diagnosed by their GP). Some interviewees who had already been in poor health before the winter 2015/16 flooding felt that the flooding had made their health even worse, or had made it difficult to manage specific conditions. A few examples were given of flood victims getting physically ill following the flooding and then taking longer than would be expected to recover, for example we were told about bronchitis that would not clear and a repeat episode of shingles. Other interviewees talked about new health problems such as uncontrollable blood pressure and weight loss attributed to stress. Some interviewees said that they were drinking or smoking more heavily, one who had given up smoking for some time had started again. There were a few interviewees who stated that they were exhausted, were not sleeping, or could not get back to sleep when they awoke, conditions they attributed directly

to effects of the flooding. There were also interviewees who described physical conditions that had occurred since the flooding but who did not associate those with the flooding. There were accounts from interviewees in both case study areas of a number of older people they knew who had died since the flooding. In most cases it was thought that although these elders had apparently coped well before the flooding there was a clear inference made that being flooded had hastened their death. This issue is returned to in Chapter 4.

Some interviewees stated that in the months following the flooding they were depressed and had sought help from their doctor. Many interviewees stated that they had higher levels of anxiety after the flooding, feelings that were still felt a year and a half after the event. Heavy rainfall, seeing high river levels and receiving a flood warning or alert were identified as triggers for anxiety. Some interviewees described in some detail flood-related sources of stress which included the stress of having to deal with insurance claims, renovations and finally getting back into their own home, having had to live in different temporary accommodation whilst their homes were renovated and the stress caused by the financial burden of additional and/or unanticipated costs associated with the flooding which were not covered in full by insurance. At the time of the flooding some interviewees were going through stressful life events such as redundancy and the additional stress associated with the flooding compounded the impact of non-flood related challenges in their lives. Some parents who were interviewed felt that children were more worried than the adults; frequent references were made by interviewees to cases of children of varying ages being depressed or emotionally shaken-up as a result of the flooding. It is important to note that both flooded and non-flooded interviewees felt that their mental health had been adversely affected by the flooding.

Help dealing with health-related issues and individual wellbeing more generally came from various quarters, including medical professionals and by speaking to friends, family and to other members of the community who had been affected by the flooding. Members of the clergy serving both case study areas played prominent supporting roles. Scottish Flood Forum staff supported individuals in Ballater and in Garioch. What was apparent from the comments and observations made by Project Year 1 interviewees was formal and informal help was offered and valued, and that people in flooded communities need emotional as well as practical support for a considerable period of time after a major flood event.

3.7 Chapter conclusions

Findings from Project Year 1 illustrated differences between the experiences of and responses to winter 2015/16 flooding in both case study areas. Garioch residents were more prepared for the winter 2015/16 flooding than were those who lived in Ballater. Garioch respondents were much more likely than those in Ballater to have been signed up to Floodline before the winter 2015/16 flooding. They were also more likely to be users of social media and other online sources of information through which updates about the flooding were posted. Garioch householders were the most likely to have installed property level protection measures and to enact resilience measures, such as moving belongings before flood waters rose. In part this is likely to reflect the fact

that in Garioch there was more time to take action and because previous experiences of flooding in the area meant that some local residents knew what types of action they could take to protect themselves and their property

Regardless of the fact that Garioch residents were more prepared for flooding than those in Ballater, the extent and severity of the flooding in both case study areas was unanticipated. Residents in Ballater and Garioch faced similar problems before and during the flooding with regards to ascertaining who (i.e. which statutory agency) was responsible for specific emergency response actions. There was a perceived lack of assistance from statutory and/or voluntary services before, during and immediately after the flooding in Ballater, and during and immediately after the flooding in Garioch. In both case study areas some householders needed help to evacuate their homes and some did so under dangerous conditions. A considerable number of households required temporary accommodation. In Ballater power cuts and disrupted access to fixed/mobile telecommunications affected local residents for much longer than it had in Garioch, with resulting difficulties for many Ballater residents as they dealt with the aftermath of the flooding.

After the winter 2015/16 flooding, residents in both case study areas whose homes had been flooded found the months during which their homes were being renovated particularly stressful. Substantial insurance claims were made in both areas, highlighting the extent of the flood damage. A year and a half on from the flooding the cost of household insurance had increased in both areas, with some residents having to make savings elsewhere in household budgets to ensure their could retain appropriate insurance cover.

Unsurprisingly, flood impacts scored as 'serious' were worse for those whose homes were flooded in both case study areas. The impact of the flooding on the health and wellbeing of those living in the Ballater community was more widespread than it had been in Garioch. In Ballater, those whose homes were and were not flooded felt the effects of the flooding whereas in Garioch the impact was predominantly felt by those whose homes had been flooded. In Ballater and Garioch the winter 2015/16 flooding prompted local residents to seek clarification regarding who was responsible for local flood protection measures and the maintenance of water courses. The experience of being flooded provided the impetus for new resilience groups to form or for existing groups to be reinvigorated.

Overall, the Project Year 1 findings identified some differences between Garioch and Ballater, the former having previous experience of flooding, the latter having little prior experience. However, the differences were not as marked as expected.

4 Findings from Project Years 2 and 3

This Chapter draws upon the findings of interviews conducted in Project Years 2 and 3. It is structured around seven themes which emerged from the analysis of the interviews, all of which were topics that were important to those in both the Ballater and Garioch case study areas. In so doing some of the long-term impacts of flooding are elucidated. The themes are: property level resistance measures and individual and household resilience; insurance; voluntary and statutory agencies and service providers; individual and community resilience; health and wellbeing; being at home after the flooding; and local housing markets. Each thematic sub-section of this chapter includes illustrative quotations to describe the personal experiences of interviewees and the ways in which interviewees' experiences and attitudes changed over time are discussed. Interspersed throughout the chapter are anonymised vignettes based on the longitudinal experiences of individual participants. These illustrate different post-flooding journeys and illustrate contrasting experiences of the long-term nature of recovering from the experience of a serious flood event.

4.1 Property level resistance measures and individual and household resilience

Reflections about property level protection measures were prominent during the interviews conducted in all three years of the project. Participants who had not invested in such measures before the winter 2015/16 flooding were most likely to have done so up to two years after the event, with examples of the types of measures householders had installed described in interviews conducted in Project Years 1 and 2. Interest in purchasing or installing property level protection products remained a topic of discussion in Project Year 3 where the attentions of interviewees had turned to reflecting on their uncertainty about what they could or should invest in to protect their home or business premises. In Project Year 3 unanticipated issues to do with the maintenance of property level protection, such as flood doors, were also discussed. Household and personal behavioural changes were discussed by interviewees at all stages of the project. Reasons underpinning behaviour change were probed. We now turn to consider decision making and unanticipated challenges associated with the installation of property level resistance measures and to reflect on how individuals and households had enacted changes or chosen not to make changes that could make them more resilient and prepared for future flooding.

4.1.1 Property level resistance measures: Decisions/unanticipated challenges

At different stages of the project, participants told us about their investments in property level resistance measures and described why they had chosen to take such measures. Prior to the winter 2015/16 flooding those living in the Garioch case study area had been the most likely to have installed property level resistance measures. Those in Ballater were more likely to have installed measures after the flooding. This was unsurprising given the different flooding histories of the two case study areas.

In Project Year 1, a common topic of discussion was about interviewees intending to, and indeed wanting to, install measures that would help to flood-proof their homes. There was considerable uncertainty about what measures would be the most effective for specific properties. Some interviewees were awaiting advice but were certain they would invest in measures once they knew what would be most appropriate for their home. For others uncertainty about what measures they could take was responded to by postponing decision making. A Ballater interviewee told us in their Project Year 3 interview that she did not feel confident researching flood resistance options for her home on her own, she wanted impartial advice to help her choose appropriate solutions but did not know who to ask. She told us that she was disappointed that assistance promised by Scottish Flood Forum on separate occasions had not been forthcoming. In Project Year 1 she said *"Because I was quite happy to spend money and I want - I still want to. But anyway, [name of Charitable Organisation personnel] didn't get back to me again. An then I think there was anything in the hall and [person's name] was at it. And I went again, for the third time, and [person's name] said to me 'of yes, you're on my list'. An I still haven't heard from [person's name]. You know, so ... And I don't want to be pushy..."* (Female, Ballater, home flooded, Project Year 1 interview). The topic was revisited in Project Year 3 when we were told that this female participant had taken matters into her own hand and done some research about suitable options for her home: *"in the end, I just had to kind of research it on the Internet myself but I didn't feel that comfortable, you know, I didn't feel confident about it"* (Female, Ballater, home flooded, Project Year 3 interview).

By the time Project Year 2 interviews had been conducted in both case study areas about a third of the participants interviewed that year, including home and business owners, had purchased property level flood resistance products and/or taken resilience measures. Others were aware of some options suitable for their property, but for varied reasons had not taken steps to install any measures. In Project Year 3 those interviewed were again asked about property related flood resistance measures. We were told about measures that some participants had installed between the Year 2 and 3 interviews, whilst other interviewees told us about why they had eventually decided not to install measures at their home. One interviewee, for example, told us that despite having good intentions to install flood protection measures a lack of time and their busy family life had held up the installation of air vents they had obtained around the time of their Project Year 1 interview. They said *"So our neighbour next door gave us two [air vent covers], she bought too many so we got two of them and we're going to buy more. But we haven't had time, which is really bad, but we are going to. A bit busy!"* (Female, Ballater, home flooded, Project Year 2 interview). Project Year 3 interviews provided evidence that researching options and the installation of property level flood resistance measures is an ongoing activity in Garioch. For example, shortly before their Year 3 interview one Garioch participant had purchased air vent covers, via Aberdeenshire Council which meant they could take advantage of a cost saving, for their home and for a rental property they owned. They were, however, having some difficulties finding tradespeople to install them.

Other participants reflected on why they had decided not to install any property level resistance measures. For some the cost of measures such as flood doors were a deterrent. Costs were described as being beyond what the household could afford. One Garioch participant referred to “phenomenal prices” being quoted for flood gates, another recalled she had been quoted £2,000 for flood gates to be installed on a front and side gate to her property, an amount she considered “absolutely ridiculous” (Female, Garioch, home flooded, Project Year 3 interview). Costs were also raised as an issue in Project Year 3 by a Ballater participant who had purchased flood doors for their home in the months following the winter 2015/16 flooding. At the time of installation, they were under the impression that their two sets of flood doors, which had cost a total of c£6,500, were guaranteed for 10 years. They were shocked to be told, only three years after installation, that door seals should be replaced, at a cost of £800; this maintenance was not covered by the 10-year guarantee and if the work was not done the guarantee would be invalidated. Less costly ‘DIY’ solutions to expensive flood resistance measures were described by a couple of Garioch participants in their Project Year 3 interviews. One had raised the depth of the lip at their front gate to a height they considered sufficient to prevent water ingress if a flood of the magnitude of January 2016 were to occur again. They were also designing their own flood gate, one that could be installed without damaging the mid- 19th Century wall around their home. The other interviewee was proactive in ensuring that the height of a bund that ran around the perimeter of their property was raised by the responsible land owner, raising it to a height well above which water came in during the January 2016 flood. This participant had also installed other measures, at the insistence of their insurance company.

A Garioch participant told us in his final, Project Year 3 interview, that he was aware of flood resistance options for his home. However, he had been mulling over what would happen if his home was badly flooded again. The following quote illustrates the complexity of the decisions he faces:

“... because if I were to be flooded again, I would obviously...I'd potentially have two courses of action, you know, assuming that house was reinstated. One is to invest heavily in flood defences and accepting the fact that no one was ever likely to buy the property from me and I would be stuck with it until I passed away or win a National Lottery ticket or potentially go all out and just cut my losses and get shot of it and just be elsewhere. I don't know – at this moment in time, I don't know what my choices would be and therefore, would I invest heavily in the reinstatement for renovation of the property? I don't know that. Very hard one.” (Male, Garioch, home flooded, Project Year 3 interview).

Other participants who had not installed any property level protection also recounted cost-benefit framed deliberations that had led to their decision not to install any resistance measures. For example, some participants thought the likelihood of a major flood occurring again was so low it was not worth spending money on property level flood resistance measures that would never be used. Others were convinced that water would get into their homes even if they had flood doors, flood gates, air vents etc., citing how water could easily come up through

floors, through toilets or vents. Other barriers to installing property level flood resistance measures included:

- A perception that interventions such as flood gates would not stop their homes from being flooded if a flood of similar magnitude to that in winter 2015/16 occurred again;
- Listed building status and living in a Conservation Area prohibited the adoption of some resistance measures;
- Not having storage space in which to keep removable flood gates, sand bags etc;
- A feeling that although householders can take actions in and around their own properties these are not effective if neighbours do not do likewise;
- Presence of property related flood resistance/ resilience measures being a constant and unwanted reminder of the winter 2015/16 flooding;
- A perceived lack of progress by the local authority or other agencies with regards to installing protection measures for the whole community dissuaded some participants from investing in flood resistance measures for their own homes.

Our findings demonstrate that decisions about property level flood resistance measures are not just made in the immediate aftermath of a flood or soon after someone returns to a renovated home. Taking action to make the home more resistant extends into the medium term following a flood and it would thus be helpful if residents living in communities where there has been flooding could easily access sources of advice about appropriate measures and obtain support for installing measures beyond the immediate post-flood period. Unkept promises about advice for appropriate property level protection measures provided by organisations or businesses was a particular cause of frustration for a number of interviewees throughout the project.

4.1.2 Individual and household resilience and preparedness for future flooding

Preparedness for future flooding can take many forms. During the Project Year 3 interviews we were told about a number of actions that indicate how the experiences of winter 2015/16 have had a lasting impact on the attitudes and behaviour of some residents in both case study areas. For example, a Ballater participant who had purchased flood gates told us they would be installed if he was concerned that river levels were getting too high. He had worked out that it would take about an hour and a half to erect these property level resistance measures around his property. A Garioch resident who also owned two domestic rental properties in the locality had also purchased flood gates, for all three premises, between his Year 1 and Year 2 interviews. Knowing that he could not quickly install the flood gates at all three properties himself, he had established a plan involving family and friends so that in the event of a flood warning being received swift action could be taken. Following a test run he knew that the job would take about 15

minutes. Another example of preparedness came from a Ballater participant who told us that they always installed their flood gates if they were going to be away from home for more than just a weekend. The utility of such preparedness was, however, questioned by another Ballater interviewee who told us that they did not want to always put up their flood gates when away from home because it could be a signal that the property was unoccupied. However, this view conflicted with the worry they told us they felt when they were away from home: if a flood warning was received there would not be anyone to put up the flood gates. These comments illustrate tensions between wanting to be prepared to protect your home, but also not wanting to always be prepared for a worst case scenario.

measures had had their measures tested. During the flash flooding that hit Ballater in June 2018 (flooding caused by torrential rainfall that fell directly over the village rather than a water course bursting its banks) water entered retail premises where post winter 2015/16 renovations had included the laying of a flood resistant floor. Here *“there was (no) real damage at all”* (Male, Ballater, Business flooded, Project Year 3 interview). However, if a serious flood occurred again it was thought that resilience measures installed in the retail premises would not be enough to prevent serious damage being caused again. For this reason, further investments in flood resilience measures were not considered a business priority at a time when the business was still to regain the financial position it had been in before the winter 2015/16 flood.

Only one participant who had installed flood resilience

Vignette One. James, flooded business owner

“James”, in mid-life and working full-time, co-runs a business which was flooded in winter 2015/16. James described the financial impacts of the flooding on his business. His interviews included reflections about his changing attitudes towards re-establishing the business should another severe flood reoccur.

Since the winter 2015/6 flooding, the refurbishment of James' premises included several measures to minimise any future damage caused by flooding, for example, blocking air vents and increasing the height of electrical sockets. These measures were all aimed to minimise damage caused by water ingress but to make the premises completely water-tight even more would need to be done, as James related in his Project Year 1 interview: *“I don't think you can defend against the flood that we had. We have to just say...hopefully it'll be another 200-odd years before we have another one. But we can defend against a slightly lesser flood.”*

A year later, James told us that he thought installing flood protection measures such as flood doors, to ensure the business premises were water-tight, was too costly. He said *“There was a certain amount of money granted for doing flood defences but I would still say that, yes, it's in the back of our mind but could we do more as in flood prevention, yes, there is more we could do but we need the extra funds to be able to do that”* and went on to note *“These things are all expensive and you're still playing the game where you're thinking the chances of it happening twice in three years is slim. The chance of it happening twice in ten years is slightly more. So, yes, you're still going on playing the averages a little bit.”*

Over the course of the study, and largely attributed to wider economic changes, James told us that his business had not returned to its pre-flooding financial position. In the months immediately following the winter 2015/16 flooding cash-flow was a real problem and the emergency grant the business received was spent paying staff wages as narrated in James' Project Year 1 interview: *“Until money came back in. I mean it all sorted itself out eventually, but... But em, I mean...we obviously had [number of] employees [...] I mean the initial problem is cashflow [...] Obviously you've still got to pay your guys. They're in more need of their money than- You still had bills. Because the bills were coming in for stuff that you'd just thrown in the skip”.*

Another business cost was described in Project Year 3. Although not wholly attributable to the business premises having been flooded, insurance costs had increased significantly. James said *“Our insurance is three, four, five – probably five times as much as it was before the flood, simply because – not particularly because we were flooded but simply because we did the review, which we probably should've done long before the flood [...] ...It's a lot of money per month now, yeah”.*

Rebuilding the business had both financial and personal implications as the following extracts from Project Year 2 and Project Year 3 interviews respectively illustrate: *“No, getting out in the hills (...) etc. has depleted just now. It's something that I'm conscious of and trying to make more time for [...] I seem to be spending quite a lot of time at work trying to make the business work. That's still very much the main focus two years on”* (Year 2) and *“I mean, before the floods, we were very lucky in business that we had a reasonably good kitty, I mean, we had plans to develop the business to try and take it another stage. We haven't got that anymore, that money”* (Year 3).

In Project Year 1 James had discussed very positively his drive and the impetus he had felt when his refurbished shop had opened. Three years on from the flooding his attitude towards re-establishing the business again should another severe flood occur had changed considerably. In his Project Year 2 interview James said: *“If you were to ask me now if it happened again next week, would I open the*

[business premises] again, I couldn't give you the answer. Last time, it wasn't a question; yes, it would be repaired, but I think to have to go through that once in a lifetime is plenty. If we were hit with that again, whether I would say, 'No, that'll do me', I'm not..." In Project Year 3 he went on to say: *"It's a concern. If I'm brutally honest, if my business was destroyed again, I wouldn't rebuild it. I'm a wee bit older ... [..] and I know how long it would take to try and get it up to any sort of level again and I could probably understand better now how some of the businesses felt last time, if you see what I mean? I couldn't understand why people didn't want to get on with it, because I did but three years down the line and seeing what's involved, no, I'd be saying, 'no, let's have a settlement, thank you very much'".*

James' experiences illustrate how, as time went on, his drive to rebuild the business after a serious setback had diminished. On reflection, he stated that rebuilding his business had ultimately been like starting the business venture from scratch, which was not something he would want to do again: *"We have been in business for [a while] pre-flood and obviously you're trying to build up a bit of money. People ask me now how long I've been in business and I say, 'I've been in business for two years', because it was like starting again after the flood, totally starting again. In fact, you were starting again on borrowed money".*

Some interviewees described behaviour change that persisted in the years following the winter 2015/16 flooding. For example, many described how they now kept belongings such as important documents or laptops on a high shelf or kept precious or sentimental items such as jewellery upstairs instead of downstairs where this was possible. One female interviewee told us in Project Year 3 that she takes the contents of her safe upstairs when water levels in the river look high and brings them back downstairs when the river level falls. In Ballater a lasting behaviour change for two households had been to keep items such as photo albums and important documents and other paperwork upstairs and to be very aware of what they were keeping on the ground floor of their home. For example, we were told *"even just little things like making sure we have copies of photographs, sentimental things that are the hardest to lose"* (Female, Ballater, home flooded, Project Year 3 interview). Some interviewees, however, had not changed their behaviour, due to feeling "too old" to change how they organise their belongings or on the basis that they thought the winter 2015/16 flooding was a one in a hundred-year event and that a repeat flood of the same magnitude was highly unlikely. For many, giving thought to what belongings they would move, or pack and take with them if they had to leave their home in the event of another flood was more commonplace than it had been before the flood. Many interviewees told us that they would be quicker to move precious belongings upstairs if they thought that another flood was imminent. For some their flood-related experience had prompted thinking about being better prepared for any emergency (not just a flood)

and they were now more vigilant about knowing where their insurance documents or passports were kept and keeping mobile phones and chargers close to hand before they went to bed. We were told of documents being kept in a fire-proof container and of instances where an emergency grab-bag was always half-packed. None of the householders we interviewed had been required to test their preparedness for an emergency since the winter 2015/16 flooding.

In the Ballater area a *Preparing for Emergencies* guide had been distributed to all households by the time Project Year 2 interviews were conducted in this case study area. A similar document had been distributed in the Kintore area between the Project Years 2 and 3 interviews but, as of summer 2019, Port Elphinstone residents had not received resilience planning materials. Some interviewees remembered receiving emergency planning documentation, but we were told by one Garioch interviewee that although they remembered receiving documentation they didn't know where it was. A Ballater participant who remembered receiving a booklet said: *"I didn't pay much attention to it, it's just more paper"* (Male, Ballater, home flooded, Project Year 3 interview). These reflections illustrate how, with the passing of time, residents forget about emergency planning despite the best efforts that local resilience groups and others have made to help people be well prepared in the event of a future emergency situation. We were told by one participant in the Ballater area whose home was not in the village itself that they had not received a copy of the *Preparing for Emergencies* guide.

Vignette Two. Jennifer, home outside the village was badly flooded but has felt 'overlooked' in the post-flood period

Aged 55-64 and living in the outskirts of one of the case study areas, Jennifer's home was badly flooded. She stayed in temporary accommodation about 20 miles away from her home for over a year while renovations were undertaken. After the flooding she had little formal contact with organisations and groups leading flood-recovery efforts in the area. Any updates she received came via a friend who was a member of the local community council. When talking about how she found out about what was going on in the area Jennifer observed: *"I did eventually get through, one of the ladies from the community council started sending me the (flood newsletter). And I think we picked one up in the (local shop). But apart from that, nothing. You know, I had to find out for myself. Nobody was actually in touch at all"* (Year 1). Jennifer also described how she wanted to avoid the area worst affected by flooding, she did not want to be perceived by others as a 'flood tourist' (described by some interviewees in Project Year 1 as

unwelcome, and a source of anger), despite being a victim of the flooding herself.

The following excerpt from her Project Year 3 interview describes Jennifer's reaction to being asked about the Resilience planning material distributed to households in the case study area:

Interviewer: Did you get the pack [...]?

Jennifer: I don't remember it. I mean, you know, if I'd got one, it would be here but I don't think so [...] I mean nobody, you know, people didn't really know. I wasn't included in the [name of place and number of homes flooded] or whatever...sort of thing.

Jennifer's experience raises two issues worth reflecting upon further. First, her comments illustrate how it can be difficult to keep abreast of local developments if living in temporary accommodation that is at a distance from one's home. In Jennifer's case the fact she was out of her home for so long exacerbated 'being out of the loop'. Second, care should be taken when compiling distribution lists for public information such as resilience planning documentation to make sure that householders whose homes are outwith the population centres of a locality are not overlooked.

Preparedness for flooding was discussed by a Garioch participant in the context of the need for home buyers to be aware if a property they were considering purchasing was located in a flood risk area. This participant had moved into their home a year or so before the winter 2015/16 flooding and, although he was aware of proximity of his new property to the River Don, he had been unaware of the Port Elphinstone lade that ran to the rear of the house. The financial implications of living in a flood risk area had only come to light once he had moved in and was arranging insurance cover. This participant's experience highlights a need for home buyers to be more aware of the environment within which a home they would like to buy is located. The same Garioch participant suggested that home insurance premiums for a property buyer should be costed alongside arranging a mortgage to ensure that the total costs of moving into a specific property are known before it is too late to back out of a purchase.

4.2 Insurance

Issues relating to insurance were prominent in responses to the Household Survey and in the three phases of interviews with participants from both case study areas. In Project Years 2 and 3 the focus of insurance-related discussions changed and this is now considered. In Project Year 1, the discussion focused on individual experiences of dealing with insurance company personnel and associated parties directly related to settling claims and issues arising during the renovation process. Discussed below are insurance-related challenges faced by those who rented their home or business premises, a theme most prominent in Project Year 2 interviews. This is followed by reflections on recurrent themes that were discussed in detail during Project Years 2 and 3 interviews, namely the cost of insurance, difficulties faced when attempting to reinsure with the same provider or switch cover to a different insurance company, issues relating to Flood Re and relationships between flood protection measures in the locality and/or property level flood protection measures and insurance.

4.2.1 Insurance-related issues faced by tenants and landlords

In Project Year 2, tenants renting in the private sector residential market reported difficulties securing insurance that were quite distinct from the challenges affecting home owners. For example, were told that if the landlord

does not have a buildings insurance policy for the property they rent out, it can be difficult for tenants to obtain contents insurance for their personal possessions. This difficulty is illustrated in the following quote from a Project Year 2 interview where the interviewees, home was part-owned by another family member who did not live in the property:

"... because we don't own totally the property, the [relative] in question wouldn't get buildings insurance, which made it really difficult for us to get contents insurance. So I tried to do it the other way round, can we just get both together, got quotes but a lot of companies wouldn't quote. I'd go through the whole process with them, companies that other people in my street have, like [company name], went through another well-known company, Went through all the process answering questions and then it was, "it's not a personal thing, I'm really sorry, I'll have to phone you back". The reason why it wouldn't process was because they weren't prepared to give a quote. So I had that from about three different companies, And when they finally did it was thousands, so there's been lots of discussion about that between various people living in the village as well." (Female, Ballater, home flooded, Project year 2 interview)

In Project Year 2 we were told about challenges a landlord had faced when trying to secure landlord's insurance for a property they owned. In this case although the landlord was quoted a renewal policy with no premium increase they were refused flood damage cover on the policy. The Flood Re scheme was not available to landlords. An alternative policy was arranged, but at a cost: *"I've had to take one [an insurance policy] out for ... five hundred pound ... with a twelve thousand pound excess!"* (Ballater, male, home not flooded, Project Year 2 interview). Another Ballater interviewee who owned a commercial property in the village told a similar tale of a massive excess being applied to a buildings insurance policy to cover their premises. He said: *"something like twenty thousand pounds, which ... is probably what it would cost to ... make good damage again"* (Ballater, male, home flooded, Project Year 2 interview). He mentioned that the commercial lease used for his property stipulates that whilst the property owner secures an insurance policy the tenant then pays the premium, otherwise they would be liable for making good damage. This type of lease protects

the property owner unless the property is unoccupied. With a number of former commercial premises in Ballater remaining empty at the time Project Year 2 interviews were completed it is conceivable that some commercial landlords were facing difficulties through either having to pay for insurance themselves or taking the risk of not securing insurance cover.

4.2.2 The cost of insurance

In the UK the average cost of a combined buildings and contents insurance policy increased by c19% between quarter one of 2016 and quarter 2 of 2019 (Money Supermarket, 2019), the time frame covered in this research. It is thus unsurprising that the insurance premiums paid by many participants in this research increased over the period 2016-2019. Some interviewees felt that their insurance premiums were reasonable, even if they had increased after having to claim for flood-related costs in winter 2015/16. For example:

"we stayed with our insurers and our insurance is actually not that bad, it only raised by – it wasn't even that much, it was by about a tenner a month it went up. We didn't go overboard with what we claimed for [...] we can't complain." (Female, Ballater, home flooded, Project Year 3 interview)

Significant increases in insurance costs were not reported in many responses to the Household Survey but, as subsequent phases of data collection were undertaken it became apparent that many residents in both case study areas were being faced with higher insurance premiums. Some participants were not surprised that their insurance costs had increased after they had experienced flood-related damage, particularly given that other day-to-day living costs had also increased. Others, however, were shocked by how much their premiums went up, particularly when renewing their policies for the second time following the winter 2015/16 flooding. For example, a Garioch participant said:

"But when it came to re-insuring the first year, we did ... rather well, they just renewed the premium because my insurance renewal was in the January, so we were just flooded in the January so they just renewed it at the old price. But the following year after all the costs were in, there was a huge hike in the premium and the excess. So I just had to shop around after that. Because there was a government initiative for insurance, called Flood Re, so I just phoned the insurers that I was with and said, 'look, could you try and get me a quote through this'. It was some broker I was using. 'could you get me a quote through the Flood Re' and I did. Although the actual premium took a hike, the excess remained at two hundred and fifty pounds. The other one was five thousand." (Female, Garioch, home flooded, Project Year 2 interview)

In some cases, an unanticipated increase in insurance costs came in 2019, more than 3 years after the winter 2015/16 flooding. A Garioch participant told us that, since 2016, their premium had tripled and that the price they were quoted to reinsure in 2019 was 50% higher than what they had paid in 2018. This increase was, they felt, unaffordable and promoted an attempt to secure insurance from another provider. They eventually secured cover from a new provider, but at a cost not much lower

than what they had been charged in 2018. Two Ballater participants interviewed in Project Year 3 observed that they were now paying twice as much for insurance than they had done before the winter 2015/6 flooding, in both cases for policies backed by Flood Re. Another participant from Garioch whose home insurance was covered through Flood Re, found it to be less "affordable" than she had expected it to have been. It was, however, cheaper than the other quotes she had received.

Despite the costs involved, participants were aware that having insurance (as opposed to not being covered at all) provided what one Garioch interviewee called a "financial safety net" (Male, Garioch, home flooded, Project Year 3 interview). Although many participants disliked having to pay more for their home insurance, and some struggled to meet the cost, the pervasive feeling was that it was better to have cover than to go without.

4.2.3 Securing insurance cover

Positive and negative stories about re-insuring their homes were narrated by participants during the Year 3 interviews. Some householders had no difficulties renewing policies at what they considered to be an acceptable price, others managed to switch provider and get a better deal. In both Ballater and Garioch, however, some interviewees talked about difficulties they had faced when trying to switch insurer. A Garioch participant told us that he was told by unnamed alternative providers that they would not offer a quote for cover until the fifth anniversary of the winter 2015/16 flooding had passed. A Ballater participant had been told by their insurance broker that they should be able to secure a better deal after the fifth anniversary of the flooding had passed. It would be interesting to track changes in insurance premiums in both case study areas over the medium term, something that does not appear to have been done in flooding research, to see if the cost of premiums do indeed drop after 5 years and by how much.

4.2.4 Issues relating to Flood Re

In Project Years 2 and 3, interviewees provided evidence that the Flood Re scheme has been a successful means for some householders to secure more affordable insurance cover than would have been possible otherwise. Where Flood Re backing was secured, however, this did not necessarily result in a 'cheap' insurance policy. In the final year of the project, a Ballater participant had been placed in a challenging position when he was informed that the underwriters of his home insurance policy were withdrawing from the domestic insurance market. He was subsequently refused cover by six providers. He then tried to secure cover from insurers listed on a Flood Re leaflet and settled for a policy that was twice as expensive as his previous cover.

Some difficulties with Flood Re were reported in Project Year 2 which suggested that residents of both case study areas would benefit if awareness of the Flood Re scheme was enhanced. A need for better awareness of Flood Re and what the scheme offers also appears to be necessary within the insurance industry. Some study participants told us that they had been told by insurers affiliated to Flood Re that an individual insurance company was only required to offer policies to a set number of people per flood risk area and once that quota had been reached Flood Re supported cover was no longer offered. This led to a perception that there is an element of a lottery to

securing Flood Re linked cover which is at odds with the scheme being promoted as available to all. Flood Re were passed these comments and reported back to confirm that there are no quotas for the number of properties whose insurance is ceded to the scheme in any geographical area. It would thus be useful if insurance companies, and perhaps also insurance brokers, reviewed the provisions of the Flood Re scheme to ensure that correct information is provided to consumers.

A Garioch participant told us that she had attended a public meeting involving people who had been flooded from across Aberdeenshire at which representatives of Flood Re had been present. The meeting was held between her Project Year 2 and 3 interviews. She thought that the meeting had been very constructive, with the Flood Re staff listening to members of the public and taking on board suggestions based on the personal experiences of those who had been flooded and who were trying to secure insurance. A Ballater participant suggested that, to secure insurance backed by Flood Re, home owners should be able to deal directly with a Flood Re helpline rather than having to contact individual insurance companies and mention Flood Re during a discussion about cover. This approach might be able to help consumers avoid situations where insurers claim not to know about the Flood Re scheme.

4.2.5 Relationships between local flood protection schemes and property level flood protection and insurance cover

As discussed above, many participants in this research have installed property level flood resistance measures and enacted resilience behaviour designed to protect their homes in the event of another flood. The overall impression gained from the interviews is that the installation of measures such as flood doors, air vents etc. has been of little interest to insurance companies when policies were being renewed or new policies sought. A Garioch participant told us she had been required to install a property level flood protection measure by her insurer to remain eligible for cover. A Ballater interviewee was irritated that her insurance company was not interested in the fact that she had installed a flood door and that this measure was not taken into account when calculating her insurance premium. A Garioch interviewee, whose own home and two rental properties were in the study area, had a similar experience and told us: *"I've been in touch with them [insurance company] saying I've put in flood defences, it falls on deaf ears, the whole of this area has suffered"* (Male, Garioch, home flooded, Project Year 3 interview).

In Project Year 2, some participants observed that they thought it was inappropriate for insurance companies to expect consumers to be in a position to provide detailed information about, for example, the amount of money that had been spent locally on flood defences or about the exact distance between their home and a water course. A Garioch interviewee talked about how they had been required by an insurance company to provide very detailed information about changes to local flood defences and, having sourced information from the Local Authority which included how much money had been spent, was still refused a renewal quotation. In Project Year 2 interviewees also passed comment on insurance companies asking for information that participants did not

think they could easily provide. Frustration was expressed by a Ballater participant who had been asked for detailed information about flood defences when he was not in a position to be able to tell insurers exactly when works on flood defences would be approved, let alone put in place. A review of what information consumers should be expected to provide, and some consistency across the insurance sector in terms of what information is requested and which minimises the risk of refusals, would be useful.

4.3 The roles of voluntary and statutory agencies and service providers

The role of voluntary and statutory agencies and service providers has been a topic of interest throughout the project. In Project Year 1, the roles of specific groups including the local authority, emergency services and organisations including Scottish Flood Forum and SEPA were discussed with interviewees. Perceptions about the activities of these groups at the time of the flooding were elicited alongside suggestions of how such bodies could respond more effectively in the event of another emergency situation. In Project Year 2, the expectations associated with communications about proposed flood protection developments was a significant topic, discussed by many interviewees and specific suggestions for improving communication were provided in the Year 2 report. Benefits and downsides of SEPA's Floodline warnings and alerts have been discussed during all phases of the research. In Project Year 3, responses to local flood development plans were discussed. Further reflections about communications between residents and statutory and other organisations are considered. This is followed by further observations about the local responses to flood development plans published in both case study areas.

4.3.1 Communication

In Project Year 2 interviews, we found that there had been dialogues between members of community groups in both case study areas and between with other community groups and voluntary and statutory agencies. These discussions had helped to develop an improved understanding of the roles and responsibilities of private citizens and other actors in the event of an emergency, had contributed to developing new or revising existing emergency plans and had improved understanding about what actions were being taken in the case study areas to mitigate against future flooding. Enhanced communication between community groups and other actors was, as a result of these activities, viewed positively. However, among interviewees who were not members of community groups, concerns were raised about a perceived lack of information regarding the development of local flood protection plans and a lack of understanding regarding roles and responsibilities in the event of a future emergency situation. There was an impression that, two years on from the flooding, there was much less communication between local residents and voluntary and statutory agencies than there had been in the immediate aftermath. Not everyone can or wants to get involved in community groups thus other means of building trust between statutory bodies, community groups and the public are required. It was recommended that all statutory and voluntary agency personnel should be more empathetic towards those who are flooded; these observations were specifically targeted towards the insurance industry. Some participants thought that other

local residents expected too much of local government, but high expectations could be a consequence of roles and responsibilities being poorly understood. Suggestions for improving communication between voluntary and statutory agencies and local residents were offered and included the following:

- Communications from the local authority could be clearer, presented in plain English to ensure messages are more accessible;
- The local authority should be more proactive and offer information proactively rather than operate in a reactive mode, expecting local residents to seek information themselves;
- The planning process is not thought to take the views of local residents into account, especially in Garioch where there is a perception that new housing and industrial developments have been allowed in areas known by locals to be at risk of flooding;
- There was uncertainty in Garioch with respect to who had long-term responsibility for the maintenance of specific flood defences;
- It should be easier to establish who owns land and who is responsible for discharging obligations such as flood mitigation and clean-up operations that come with land and property ownership;
- Clarity about who is responsible for maintaining water courses was sought along with reassurances that those responsible for maintaining them actually have the capacity to undertake any required work.

Responses to the Household Survey recorded that those living in both case study areas have varying levels of trust in different sources of information. These views were elaborated upon during interviews leading to the conclusion that advice and updates about local issues related to flooding should be communicated by statutory and voluntary agencies in as many ways as possible. For example, information could be published in community newsletters, posted on local Facebook groups or websites or set out in leaflets distributed to residential properties: a multi-pronged approach would ensure as many people as possible received the information. In Project Year 3 the responsibilities of different organisations remained unclear for some interviewees. This is illustrated by the experiences of a Garioch participant who talked about his on-going frustration at the lack of progress that had been made by the local authority who had indicated that they would deal with ongoing surface drainage problems by installing a pumped drainage system. He spoke about this issue in Project Years 1, 2 and 3, the following excerpts are from his second and third year interviews and illustrate the ongoing frustration felt by this individual:

“because at the time, we asked them to build an automated pumping station for the drains which they rejected. The commitment they gave then was that it would supply a mobile pump as and when it was required. So, as I say, we’ve had flood warnings, I’ve seen no physical evidence of anybody

taking any kind of preparing actions [...] That was the commitment they gave. And I’m not sure what the...detail arrangements they are, you know, is it something that’s going to come from their stock? Is it something that they’ve made an arrangement with a third party? How exactly does that happen? We have got no contact details of anyone to phone, so if we become concerned – you know, and we’re going to be the most twitchy about it – actually, who do we phone? Don’t know. There’s no ghostbusters number there that you can phone and they come charging down the street with a pump. So by the time we figure out who to talk to, get to the right person, they arrange the dispatch, they arrange the installation, could be too late.” (Male, Garioch, home flooded, Project Year 2 interview)

“So we had asked for a permanent installation to make sure it was pumping the drains out back into the river course and they said, ‘no, we’re not going to do that but what we’ll do is put a contract in place with a local pump hire company.’ Personally I’ve got no idea how anybody would call that off, so if we’re concerned, who do we phone? Then who do they phone, what’s the response time, there’s nothing I’m aware of. Now it could well be there and I’m just unaware of it but that in itself is a weakness and if I’m unaware of it and I live in the street.” (Male, Garioch, home flooded, Project Year 3 interview)

4.3.2 Preparedness for flooding: Floodline and river height measurements

As described in Chapter 3, prior to the winter 2015/6 flooding those living in Garioch were more likely than those in the Ballater area to have been signed up to Floodline. Registrations in both case study areas increased after the flooding. Levels of Floodline registration reported by those interviewed in Project Years 1 and 2 were similar suggesting that, once registered, few people withdrew from the service.

Interviewees were asked about how useful they found Floodline warnings and alerts and they were asked to offer suggestions of any improvements that could be made to make Floodline more effective in a future emergency situation. Among those interviewees who were not signed up to Floodline, some felt that the notifications induced feelings of worry and that keeping an eye on water levels in nearby water courses or monitoring the impact of continuous heavy rain were suitable warnings of potential flooding for them. Others had family members or neighbours who were signed up to Floodline, who then informed the interviewee if a notification was received that they should take notice of. Some reasons for cancelling registrations to Floodline were described, including a desire to avoid the feelings of worry or panic that receiving a notification could induce. It was often thought that Floodline notifications were received when local weather conditions did not suggest that a flood was likely. Flood alerts are issued for large geographical areas, in both case study areas Floodline alerts are issued for Aberdeenshire, a local authority area that covers 6,313km². (Aberdeenshire Council, 2018). It is thus not surprising that the weather experienced in, for example, Ballater, does not necessarily align with a region-wide flood warning being issued. Receipt of a Floodline

warning or alert prompted some interviewees to look up information about river levels online or to go out and check river levels for themselves, both actions that were considered to offer reassurance. An interviewee in Ballater told us on repeated occasions how reviewing river level data was a source of reassurance for her, particularly at times of heavy rain. In Project Year 1 she said: *“Not the flood warning, no. But I obsessively check the Polhollick data [...] So, I just found it on SEPA, because... And in fact, the reason that I now check that is because the first time we got heavy rain after the flooding I was absolutely petrified. I just, I thought I'd recovered. Ha ha ha. [Laughing] And, especially I think being by myself too.”* (Female, Ballater, home flooded, Project Year 1 interview) and the following year she noted: *“...it does make me very anxious when it rains and I do, obsessively, two or three times a day check the Polhollick SEPA data to see how high the river is. Which makes me feel better because it can be really, really rainy. Then you look ‘for goodness sake, it's only just above the bottom bit of normal, it's fine.’”* (Female, Ballater, home flooded, Project Year 2 interview). In Project Year 3, her comments reiterated how she finds being able to access the nearby river height measurements *“comforting”*. Furthermore, she stated that being able to obtain data about other nearby water sources would enable her to be more informed and help to relieve the feelings of anxiety she had experienced since the winter 2015/16 flooding: *“so that maybe the level of Polhollick, there isn't any data for what's coming in on the (Gairn) because that comes in further downstream. But it's still comforting! [...] I think more data, especially near enough live data that you can access that you can trust. I would like to see water levels...of all the tributaries coming in. And I know that would be quite expensive but hey ho.”* (Female, Ballater, home flooded, Project Year 3 interview).

4.3.3 Responses to local risk management plans

4.3.3.1 Garioch

Port Elphinstone residents reported that in the period between the Project Year 2 and 3 interviews there had not been any new local flood protection measures implemented. Some Kintore residents, however, told us about a bund that had been constructed in a field near their property which they hoped would protect their homes in the event of another flood. In both communities within the Garioch case study area, concerns were voiced regarding the maintenance of existing local flood protection measures. For example, we were told about a vehicle parking on the reinforced bund in Port Elphinstone during the annual raft race and of pedestrians walking over the new bund in Kintore, both actions which were considered to potentially lower the height of the bunds and to compromise their structural integrity as a flood protection measure. Furthermore, a collective call for ongoing maintenance of drains and gullies and the clearance of water courses was voiced. In Project Year 3 concerns about the potential flood risk impacts of the construction of a new railway station in Kintore and the proposal for a new bridge to be built as part of plans to dual the A96 between Inverurie and Huntly were expressed. With reference to the Kintore railway station development we were told about site traffic passing through areas affected by the winter 2015/16 flooding leaving grit on the roads which added to existing problems in the area of

blocked drains. Questions regarding who is responsible for flood protection and prevention and concerns about the enforceability of these responsibilities were frequently raised during interviews. Interviewees felt that it is difficult to identify exactly who is responsible for maintaining local infrastructure such as drains and there is a perception that maintenance work is not carried out as often as it should be. Perceived lack of responsibility and action caused much frustration among interviewees, particularly when they could see drains near their homes over-flowing during periods of heavy rainfall or following receipt of Floodline warnings.

A public consultation following preparation of a flood scheme appraisal study by Dougall Baillie Associates and JBA Consulting was held in Inverurie in February 2019. Some interviewees had attended or had been told about the meeting by friends who had attended, illustrating their ongoing engagement with and interest in proposals for local flood defences. Overall, Garioch interviewees were keen to discuss flood proposal plans and to have an opportunity to have their questions addressed, particularly questions which related to specific concerns in their area such as how snow melt would be accommodated in flood defence schemes. Garioch interviewees included individuals with a background in engineering and they told us that they thought information disseminated about the flood scheme proposed for their local area were too technical for those without specialist knowledge to evaluate and a lack of understanding could lead to some local residents being unnecessarily critical of proposals.

4.3.3.2 Ballater

In March 2019 a flood protection feasibility report to identify flood risk and assess options for the alleviation of flooding in the Ballater area was published. The work was commissioned by Aberdeenshire Council and undertaken by RPS Consulting Services. The report includes several flood protection options including, for example, increasing the height of existing walls, the construction of new flood protection walls and relocating amenities including the caravan park for reasons of public safety. The proposals had been widely discussed in the community before Project Year 3 interviews were conducted and had featured in an issue of the local newsletter, *The Eagle*, whose publication coincided with when many Ballater interviews took place. Varied opinions regarding the proposed flood defences were reported, as were comments about the timing of the study and the way in which information informing the report's recommendations was collected.

Some members of the Ballater community were invited to a stakeholders meeting in advance of the RPS Consulting Services report being published (including the caravan park directors and golf club owners). However, some interviewees told us that they thought members of the Ballater Flood Group should have had more input into the process: *“there wouldn't be so much anger going towards the council if they'd actually bothered to consult people on the grounds that they've been looking at this for three years now”* (Female, Ballater, home flooded, Project Year 3 interview). Some interviewees felt that the report could have been written in more accessible language.

A few interviewees thought that it was taking too long for any flood protection action to be undertaken. A few

thought that although the proposals to re-locate the caravan park and to build walls would alter the character of the town, the safety of residents was of paramount importance. One interviewee thought that property level resistance measures were just as important as local flood protection measures. However, for a majority of those interviewed in Ballater in Project Year 3, the proposals provoked serious concerns, with perceptions that the character of Ballater would be irrevocably damaged. There was also a view that costings of the proposals were unrealistic and the upheaval of moving the caravan park and six-foot high walls blocking scenic views were thought likely to have detrimental impacts on the local economy because they would have a negative impact on tourism. Finally, there were unanswered concerns about how the proposals would impact communities further downstream. The caravan site, which has been comprehensively refurbished since the winter 2015/16 flooding and draws many visitors to the area, is operated as a community enterprise, with profits used to support local activities. Plans to further improve the site have been put on hold until there is more certainty regarding which flood protection measures will be developed in Ballater.

4.4 Community and local resilience

Findings from Project Year 1, in particular narratives from interviewees, illustrated the remarkable impact the winter 2015/16 flooding had upon the case study area communities. A strong sense of community spirit was engendered in the aftermath of the flooding. There was also a dramatic impact on the commercial life of Ballater, with refurbishments to commercial property requiring premises to be closed to the public, some for many months. Some shops never reopened. The actions and momentum of local resilience groups were discussed at length by some interviewees in Project Years 2 and 3 and these reflections provide some insights into the challenges of both keeping members of community groups engaged with processes such as emergency planning and attracting and sustaining interest in emergency planning efforts from members of the public. Themes prominent in interviews were community spirit and interactions (the social community), impacts on services and facilities (the physical community), and ongoing community-led activities including the actions of local resilience groups.

4.4.1 Social community

"I think because of the flooding everyone was kind of pushed together and to work as a team. I think people are more involved in the community, so people are more interested in what's going on in the community" (Female, Ballater, Home not flooded, Project Year 2 interview)

The quote above provides a useful illustration of how, in both case study areas, we were told that the experiences of winter 2015/16 had engendered a strong sense of social community. This community spirit and enhanced levels of day-to-day interaction was not just a feature of community life in the immediate aftermath of the flooding, it remained in evidence in Project Year 3. The winter 2015/16 flooding was a topic that came up in everyday conversation, but as time passed interviewees

thought that local people were speaking much less about it than they had done in the months following the event. Some interviewees in Project Years 2 and 3 observed that they thought it was still important for people to be able to talk about their flood related experiences, but others preferred not to talk about it in day-to-day interactions with other people. Community spirit engendered or boosted in the aftermath of the winter 2015/16 flooding remained strong and many interviewees reported having developed new, lasting friendships through coming into contact with people for reasons related to the winter 2015/16 flooding. Others had lost friends, deciding to no longer maintain a relationship with those whom they felt had not been compassionate enough towards them in the challenging months after the flooding. The winter 2015/16 flooding helped to bridge community divides, for example it brought people living in 'old' and 'new' Kintore into contact.

4.4.2 Services and facilities within the case study communities

In Garioch, few changes to local services and facilities had been observed by interviewees since the flooding but in Ballater a number of changes to the physical fabric of the area were commented on. In Project Year 3 one of the key attractions for tourists in the centre of Ballater reopened following extensive fire damage which occurred one year before the flooding. Some new shops had opened, including a number of new cafes. The ability of the local consumer base to sustain these businesses outwith the tourist season was questioned, however the re-opening of the station was viewed very positively. Some interviewees commented about businesses that had not reopened following the flooding. Although it was welcomed that new businesses were now occupying premises that had been vacated, for some this change in the village was a constant reminder of the flooding and the loss of locally owned and run business was regretted.

"The butcher's opened really quickly and then one by one all the little shops started to open, which was fantastic and we all celebrated every time on Facebook [...] It was good to see new businesses happening again or old businesses re-happening. But then it sort of stopped on this bit of the street because you've got what was the old (shop) and (name of resident's) shop that are still not open." (Female, Ballater, home flooded, Project Year 1).

Flood related damage to outdoor recreation facilities had still not been addressed at the time of the Project Year 3 interviews. For example, the popular 'Seven Bridges' walk has still not reopened (not all the damaged pedestrian bridges over the River Dee had been repaired) with perceived negative impacts on tourist footfall and impacts on local residents who had been used to using this outdoor facility³.

4.4.3 Community-led activities

Many participants from both case study areas thought that their local community had acted in a resilient manner following the winter 2015/16 flooding. Some participants who were interviewed in Project Year 2 referred to post-

³ At the time interviews were conducted funding to repair one of the bridges had been secured; it reopened in mid-December 2018. At the time of writing this report (November 2019) Cambus O'May suspension bridge remains closed however repairs are due to start next year (<https://www.pressandjournal.co.uk/fp/news/aberdeenshire/1888443/prince-charles-steps-in-to-help-save-historic-cambus-omay-bridge-ravaged-by-storm-frank/>).

flooding fundraising efforts which had supported local volunteer-led efforts and provided some funding that was donated to flood victims to help them deal with unexpected flood-related costs. On reflection, it was felt that expenditure could have been better planned and managed. In particular, concern was raised that vulnerable or 'hidden' individuals in a community may have missed out when donations were disbursed because they did not come forward and identify themselves as being in need. Similar concerns were raised about those living in temporary accommodation being difficult to identify and offer help to. In Garioch we were told about an unnamed external organisation that came into the community after the flooding which, although having much to offer, did not engage with local points of contact who could have helped them connect with those most in need. How to most effectively coordinate help and assistance after an emergency event needs thought, perhaps as part of formal resilience planning efforts.

Our findings inferred that strong social capital in a community, or 'everyday' resilience, was already present in both case study areas before the winter 2015/16 flooding. This 'everyday' resilience provided a framework within which the Ballater and Garioch communities could base an effective response to the unfolding emergency. Interview findings in Project Years 2 and 3 indicate that the experience of responding to an emergency may enhance existing everyday resilience and further the ability of a community to respond in the event of a subsequent emergency situation. The resilience required in an emergency is thus made possible by strong everyday resilience in a community and, in turn, an emergency instigates enhanced everyday resilience by bringing together different groups within a local population and encourages local residents to play a more proactive role within their communities.

In Project Years 2 and 3 we were told about ongoing efforts in both case study areas to develop and publicise local resilience plans. Created in partnership between local resilience groups and various statutory and voluntary agencies, these resilience plans clearly set out the responsibilities of different agencies and members of the local community in the event of a future emergency situation. In Ballater there was a perception that there were too many community groups trying to promote resilience activities, although the view of interviewees directly involved in resilience planning was that volunteers from these groups were working together better than ever before.

At the time Project Year 2 interviews were conducted in Ballater, the Ballater resilience group had produced a '*Preparing for Emergencies*' leaflet which was distributed to households in the village. The document was provided in a resealable plastic envelope to which residents could add any other important documents. It was designed so that materials would be kept dry. In Project Year 3, members of the Ballater Halls Committee and the Resilience Group were involved in further preparing for emergencies planning. We were told that a memorandum of understanding that had been drafted between the Victoria Hall committee in Ballater and Aberdeenshire Council regarding roles and responsibilities in the event of another flood. A similar preparing for emergencies booklet had been prepared and distributed in Kintore by the time

Project Year 3 interviews were conducted. By the time Project Year 3 interviews in Garioch had been completed a booklet for Port Elphinstone residents, being prepared by the Inverurie resilience group, had not been distributed. This group had experienced delays to the completion of their planned programme of activities due to the serious illness of a key individual. This situation highlights the difficulty many volunteer run community groups face in being over reliant on a handful of individuals. Since the winter 2015/16 flooding, community halls in Ballater and Kintore have been kitted out so that they can be used as emergency centres.

In Project Year 2 some interviewees who were not directly involved in resilience-related groups told us that they were unsure what the remit of their local resilience group was and they felt they needed more information about what emergency planning was being undertaken within their community. In Project Year 3 there was greater awareness of local resilience plans, a direct result of residents having received copies of local resilience planning documentation. In response to having received emergency planning advice, some interviewees felt that resilience planning should be less about planning for future flood events and more about preventing repeat flooding.

Despite all these efforts at the community level, some participants questioned whether they would actually do anything differently if there was another serious flood. The medium and longer-term sustainability of community groups leading resilience efforts was queried. For example, some interviewees who were directly involved in local resilience groups felt that membership entailed a big commitment, one they could no longer keep up. We were also told about third parties who had been known to play an active role in community groups, driving forward post-flood activities, who were standing down from those roles. In addition, many interviewees who told us that they were aware of the actions and plans of local resilience groups were also members of another local group or community organisation. Developing effective means of ensuring that those who want to know details about flood resilience planning and associated activities but who, for whatever reason, are not involved in local groups and activities, would be welcomed by some members of a community.

4.5 Health and wellbeing

Although the health and wellbeing of individuals and their families post-flooding has been a focus of earlier research, it is rare for flood impacts research, qualitative studies in particular, to look beyond the immediate aftermath of a flood. This research project has provided an opportunity for longer-term impacts of flooding on health and wellbeing to be explored. Discussions around the topic of health and wellbeing were wide ranging during Project Years 2 and 3 interviews. The issues discussed with participants illustrate the long-term impact of the flooding on health and wellbeing, challenges faced by many participants and others they knew in the case study communities. Topics discussed with interviewees included illness since winter 2015/16, sources of stress and anxiety, triggers for emotional or physical reactions, how worries could be alleviated and what useful support could be offered to help address health and wellbeing challenges.

4.5.1 Illness since the flood

In Project Years 2 and 3 interviewees provided accounts of poor physical health which they perceived to have either been brought on or exacerbated by the stress of dealing with the flooding. Illnesses which had been diagnosed since winter 2015/16, and which were considered to be directly attributed to the flooding, included chronic obstructive pulmonary disease (COPD), microscopic colitis, suffering a mini-stroke, anxiety and depression. A female interviewee pulled tense ligaments/muscles, the tension attributed to flood-related anxiety. Many interviewees knew of others who had experienced severe health problems or who had died following the flooding and these unfortunate events were attributed to the

upheaval and stress local residents experienced during and after the winter 2015/6 flooding. A couple who were interviewed had both suffered from a persistent cough since moving back home following renovations. A female participant who lived alone had suffered from a persistent throat infection since dealing with wet and dust-covered belongings. Other interviewees, most commonly women, told us that they had very low energy levels after the flood which they felt compromised their ability to deal with stressful issues. For example, one interviewee described how she prioritised “self-preservation” over dealing with stressful matters such as shopping around for alternative home insurance cover.

Vignette Three: Thomas and Anna, an elderly couple facing ongoing post-flood challenges.

Both retired and in their sixties at the time of the flood, Thomas and Anna's home was inundated by several feet of water. They required emergency assistance to be evacuated from their home. They owned their home, a semi-detached, two storey property, and had lived in it for more than 10 years before the winter 2015/16 flooding. After the flooding they stayed in more than eight different places, with their temporary accommodation including places in their home community and elsewhere. The main difficulties they experienced in the period they were out of their home included being out of the community at times when their neighbours were receiving support, having to travel to undertake routine activities like grocery shopping when they had previously been able to walk to shops and the difficulty of having to live out of a suitcase for over one year.

Thomas and Anna experienced serious problems with their home-renovations, including faulty electrics which led to one of them being seriously injured. The accident occurred shortly after they had finally moved back into their home and they had to move out again to allow repairs to be undertaken. In Project Year 1 they told us they had considered trying to claim compensation for the poor quality of repairs to their home: *“The old wires were in and that's why we had to get out of the house; because it was a death trap, the electrician said. He says it was a death trap waiting to happen.”* (Anna, Project Year 1 interview)

Since before the flooding and in the period since both Thomas and Anna had had episodes of ill-health. Thomas had been diagnosed and treated for a chronic illness just before the flooding. By the time of the third interview, he was due to receive further treatment. Anna suffered from a particularly worrying illness between the Year 1 and Year 2 interview, attributing her ill-health to stress directly associated with the flooding such as having had to move so many times when their home was being renovated. On top of this, in the final interview, Thomas described how they had both been suffering with a respiratory-related health issue which had been on-going since moving home following their renovations: *“...one of the things we've found since we've been back in the house. It's constant. I have...I can't go to sleep at night without putting Vicks [the vapo-rub]...it's as though something is in the house, dust or something, and I do get...used to get hay fever but I've had it, like, for...since I've been in – hay fever sort of things [...] Yeah, but it's definitely since the day we came back.”* (Thomas, Project Year 3 interview)

Thomas and Anna's experiences clearly illustrate how physical health can be compromised for years following a flood, with ill health triggered not only by experiences directly linked to the flood event.

A theme raised both in Project Years 1 and 2 was the perception that premature deaths of older people (or younger adults with existing medical conditions) in the case study areas were attributable to the flooding. The research team are not medical professionals and are thus unable to verify the claims. However, the belief that the flooding and its aftermath had considerably affected many individuals and played a significant role in hastening deaths was widespread among interviewees and other members of the case study communities.

One individual who was interviewed in Project Year 1 passed away before Year 2 interviews were arranged. During the Project Year 1 interview this individual recounted the physical injury she had sustained whilst living in temporary accommodation:

“There was another, I would say, incident, that probably prolonged my stay out of my own house. I was washing the dishes one day in the flat and I must have blacked-out, because I have no idea what happened. I came-to on the floor with my head at a silly angle against the kitchen units and the...I've one of these community button things and I just pressed that. I thought, 'oh, you're in trouble here.' So, I pressed that and [close relative] actually is at the top of the list and she came around in a hurry and they realised that I had done something nasty to myself so I was taken into the ARI. It was, let me think, em...just a day or 2 after New Year, I think [...] And they said, 'oh, you've broken your (name of bone)'” (Female, Ballater, home flooded, Project Year 1 interview)

In Project Years 1, 2 and 3, a younger close relative of this individual also took part in the project. The younger woman attributed the injury her older relative sustained to having to live in unsuitable temporary accommodation and believed that the death would not have occurred if Ballater had not been flooded in December 2015. Her sentiments are described in the following quote:

"[name of close relative] was another one that died because of the flood. Okay, it was two years later but she was in very good health before the flood and she just went downhill, and downhill...and as many people did. Some people died very quickly, some – no-one died at the time but I can think of a good half dozen of deaths that can be directly attributed to the aftermath of the flooding. Imagine how it would be, her family home, (hadn't) been flooded ever [...] she broke her (name of bone). Which would never have happened at home."
(Female, Ballater, home flooded, Project Year 3 interview)

4.5.1.1 Sources of stress

"Most of the time, people are absolutely fine but then you get, again, four or five days of continuous rain and you can see all the tension raising again or..." (Community Figure, Ballater, home not flooded, Project Year 3 interview)

In Project Years 2 and 3, a number of sources of stress identified throughout the project were discussed with interviewees. In Year 2 the most prominent of these were seeing a home or community destroyed by the

flooding, dealing with companies involved in renovating a property, staying in temporary accommodation, and not receiving adequate support and/or counselling from friends/family/relatives/professionals. Discussions with interviewees during Project Year 3 indicated that the main sources of stress had changed. In the final year the main sources of stress were a lack of continued empathy from some people, being worried or made anxious by periods of heavy rain and by high river levels, worrying about a lack of local maintenance of water courses etc which was thought to increase flood risk and feeling tired of being a source of support to other people. These appear to be largely 'legacy effects' and they illustrate how experiencing flood-related stress can make it challenging for some people to deal with other stress-inducing life events. For some interviewees, the period following the winter 2015/16 flooding was considered to be the main period when stress and ill-health was experienced, with the flooding identified as the sole or main cause of these difficulties. For others, the flooding was one of several combining factors which were felt to lead to stress or ill-health in the following months. Three and a half years on some interviewees were still unwell, others reflected that as time had passed they were starting to get over the flooding, evidenced by reduced use of anti-depressants for those worst affected. Many other participants have lived with sub-clinical levels of anxiety and/or stress since the flooding which has had an impact upon them and their families. The long-term nature of post-flooding stress has surprised some participants, and for others it was only when they looked back and reflected on their experiences that they realised quite how stressed they had been in the aftermath of the flooding.

Vignette Four: Morven, people face simultaneous challenges in their life

Between winter 2015/16 and her final interview in 2019 Morven had faced many challenges in her personal life as well as being directly affected by the flooding. Although part of her home was flooded Morven and her partner did not need to move out and use temporary accommodation. Her insurance premiums had not increased significantly, probably because extensive remedial work to her home was not required. Nonetheless, Morven was rescued by emergency services during the flooding and her partner's business premises were flooded. Since around the time of the flood, she had continued to deal with family issues, including the death of a parent, increased caring responsibilities and serious medical diagnoses of loved ones. In Project Year 3 she told us: *"There's been quite a lot. Like, the last five...well, when was the flood? Three years. Yeah, three years. So I would say the last, sort of, four, five years have been really tricky, you know, like my [parent] died and then [partner] was diagnosed and then it was the flood and then there was all the moving and...yeah, so there's been quite a lot on, actually, yeah."*

Aged 55-64, Morven works full-time but dealing with everything that has gone on in her life over the three years has been difficult and her health has suffered. She has had periods of being signed off work, been treated for stress and anxiety and attending counselling sessions. During interviews she commented that the way she felt could not only be attributable to the effects of the flood but also to so many other challenges going on at the same time. Despite having moved to a new property since the flooding, she remains worried that her new home may be at risk of flooding. She noted that receipt of timely, one-to-one advice about how her previous property could have been protected would have helped to put her mind at ease about the risk of further flooding. In her new property she described a feeling of unease about not having implemented property level flood protection measures, but reflected that getting round to this had been put off because too many other things were happening. In Project Year 1 she said: *"And... I just have been quite overwhelmed by everything and so therefore I feel quite bad about the fact that I've not done anything about the house. But I have had quite a lot of other things on my plate"*.

4.5.2 Triggers for emotional/physical reactions

During Project Year 2, and especially during Project Year 3, interviewees commonly voiced the opinion that, within their community, there was a sense that local people had put the winter 2015/16 flooding behind them. On a day-to-day basis, people were less likely to bring up the flood in passing conversation or indicate that they wanted to, or had a “need” to talk about it. However, prolonged heavy rain or rising river levels triggered concern among members of the Ballater and Garioch communities, concern that was particularly acute among those whose homes had been flooded. During periods of heavy rain, interviewees described strong feelings of worry and anxiety, “*being on the backfoot*”, having butterflies in their stomach, achiness or feeling uneasy. Some described that although their feelings of being anxious and worried were not worse than they had been in previous years, they had not eased as much as they had expected either. Although female interviewees were the most likely to describe prolonged heavy rain a source of worry and anxiety, male interviews also mentioned that this made them feel uncomfortable.

As well as the weather, other triggers of unpleasant physical or emotional responses were mentioned. For example, seeing weeds growing through drains near to their home became a source of anxiety for some because this was associated with poor maintenance and a lack of attention being paid to local infrastructure designed to prevent future flooding. Seeing property level flood protection measures such as flood doors installed on local properties, and seeing measures elsewhere (a few interviewees mentioned Stonehaven in this context) elicited unpleasant feelings. For example, “they did not give you comfort,” (Male, Garioch, home flooded, Project Year 3 interview). Seeing vehicles belonging to a company that had been involved in post-flooding home renovations triggered feelings of nausea for one interviewee who associated the company with the stressful aftermath of the flooding. Watching footage of other areas that had flooded on television news programmes was mentioned by a few interviewees as something that elicited strong feelings of sympathy for others going through what they had done. In other instances viewing such footage prompted physical reactions such as feeling nauseous as personal experiences of the aftermath of the winter 2015/16 flooding were recalled. For example, we were told: “he was here when there was flooding on the TV and I said to him, ‘oh, God, it just makes my stomach turn’. He said, ‘I’m sitting here’, he said, ‘I feel physically sick’, you know? Like, it really affects you.” (Female, Ballater, home flooded, Project Year 3 interview). Concern and worry was also expressed on behalf of neighbours who had recently bought properties in both case study areas and who were thought to potentially be unaware of the extent of flooding that had occurred. Concern was most acute for those considered to have moved into what was locally perceived to be a ‘vulnerable’ home (i.e. one that was badly flooded).

4.5.3 Easing worries

“No, safety – no, I’m satisfied with what I’ve done. Now we’ve got flood-proof doors and a non-return valve in the sewer. I’ve got...essential ventilation in the walls.” (Male, Ballater, home flooded, Project Year 3 interview)

If interviewees were worried about, for example, river levels rising following heavy rainfall, it was common for evidence to be sought that could offer reassurance that their home was not in danger of flooding. For example, river levels were monitored closely, either by foot or using online sources of information such as outputs from webcams recording river levels or SEPA or Met office websites. Some would phone neighbours if they were away from home to ask about the weather conditions and this was perceived to alleviate concerns. A feeling that there should have been more local flood protection measures put in place since the winter 2015/16 flooding was another source of worry and there was a view expressed that if flood protection was in place, members of the community would worry less.

When explicitly asked about their health, some interviewees replied that they did not think that their emotional or physical health had been directly affected by the flooding. However, one such interviewee indicated that he was purposefully participating in activities that made him feel good as a distraction from other negative outcomes of the flood which for him included worry about the impact of the flooding on the value of his home. He also reflected on the ill-health of his neighbour, telling us:

“What precipitates cancer, is it stress? Potentially, is it genetics, there are many bits that can be tied into that but something that you just start to think about, you just start to think about because otherwise, you can’t dwell on it because if you dwell on it you unfortunately go down a depressive cycle [...] I find weekends and trips away help. What do you do normally? If you want to have a good time, what do you do? You go for a walk ... walk the dog, go fish, read a book, potter in the garden, whatever is your ... bag, you do more of it. To try and alleviate ...” (Male, Garioch, home flooded, Project Year 3 interview)

4.5.4 Support and counselling for those who have experience flooding

“...people don’t want to hear about it but that’s the same with everything in life, there are people who want to move on and ignore what happened and other people that just want to talk about it and other people that have dealt with it and don’t mind either way.” (Community Figure, not flooded, Ballater, Project Year 3 interview)

“I mean, on balance, I’d rather somebody was interested enough to ask than they thought they couldn’t or had forgotten all about it or whatever and I suppose it’s much more dependent on the way it’s asked and who asks and the relationship with the person that’s asking. I guess if I had to – I’m kind of just thinking of the people that I’ve talked about it with recently, it’s probably, for me, less stressful to talk about it with somebody that’s been through it as well than it is to talk about it with somebody who’s just asking from outside” (Female, Garioch, home flooded, Project Year 3 interview)

The types of formal and informal support perceived to be useful in the aftermath of a flood varied amongst participants. There was an appreciation that what was found to be effective for some may not be as useful

for others. Interviewees discussed the pros and cons of receiving both formal and informal support as they recovered from the flooding. Two interviewees had sought formal support from a counsellor. This was regarded as having been effective for both, talking to someone removed from the experiences was found to be beneficial. There were, however, drawbacks to formal support such as the waiting time for an appointment (6 weeks for one interviewee) and the costs of private counselling sessions. Some interviewees felt that there could have been more formal support available, or better advertising of services that were available to those affected by the flooding once the immediate aftermath was over and the prominence of statutory agencies, volunteers and charities within the affected communities had lessened. It was recognised that not everyone wants to speak about their experiences in a formal setting. Opportunities to go to places within the community where people could informally talk about their experiences or listen to others were viewed positively. Local churches were felt to provide such a forum, and can be meeting points for those living in temporary accommodation away from their home as well as those who have not been evacuated. It was thought that opportunities for someone who was flooded to talk to others who had also been flooded was most beneficial. In Project Year 2 interviews some participants were of the opinion that the flooding was now in the past and that support for members of the community was not needed. Findings suggested that a mix of formal and informal support and the provision of places where people could talk, share and listen was still important more than three years after the winter 2015/16 flooding.

Informal support given to and received from others in the aftermath of the flood was reflected upon by some

interviewees. One of the youngest participants in the research, whose family home had been badly flooded, commented that it was not until two years after the flooding that she began to feel more at ease. This was attributed to it having taken a long time for her parents (who were leading the reinstatement of their property) to feel that they were getting back to 'normal'. When home renovations were being undertaken extended family members who were regular house guests were unable to visit. In consequence there was less support from the wider family in the aftermath of the flooding than would normally have been received. Another female interviewee whose home was flooded commented that she found it difficult to be a source of support to others who were seriously flooded and she reflected that, in the aftermath of the flood, she would have benefitted from being the recipient of support from others. A number of Project Year 2 participants flagged the importance of formal and informal support not just being required by those who were flooded but also by those individuals who were helping others in the community who were flooded, many of whom were volunteers and not professionally trained to cope with such challenging situations. We were told that there were few services, facilities or other structured means of support available to cater for the needs of children and young adults who had been affected by the flooding, including school pupils whose lives were disrupted by having to live in temporary accommodation. There appears to be a need for statutory and voluntary agencies to think about how they can ensure that post-flooding interventions are appropriate for people of all ages and for primary and secondary schools to offer more consistent support to pupils from households that have been flooded.

Vignette Five: Leanne, a source of support to her family after the flooding

Leanne, aged 16-24, was one of the youngest interviewees. Her family home was flooded in winter 2015/16 but at the time she no longer lived at home. However, she regularly returned to visit and was with her family during the flooding. Leanne's family had lived in the area for more than a decade. The detached, two storey house was inundated by about 3 feet of water. During the reinstatement of her family home, which took 15 months, her parents and siblings lived in more than three different temporary accommodations. Leanne recounted ways in which she had supported her parents through the reinstatement process. Her mother did not use the Internet much so Leanne took responsibility for sourcing support for her family via social media and handled communications with, for example, the insurance company (during periods when she was both at home and based elsewhere). In her Project Year 1 interview Leanne made the following observation: *"So much is done over email, contacting contractors, who would email surveyors, who would email the insurance company who would email back and back and back. There was so many chains of communication and so many lines and if the email was down to my mum you would be here for the next two years writing three lines so I knew I was a good help in that respect. And so she was able to call me in (name of place) and over the phone she would say, 'You need to send an email to the contractor for me', so she would dictate and I would write the email or send it that side. Or I'd phone her up and say, 'You've got an email from our contractor, it says this, what do you want me to reply?' And because she's not great on the IT...".* She also noted that *"I was able to look up the internet a lot faster and a lot easier than what they were able to so I was able to say 'the (local charity) Club are offering financial help for this reason', stuff that they might not have been aware of [...] without that they might have found out word-of-mouth but that would have happened a little while later, it wouldn't have been an immediate response whereas I was able to tell them quickly what was going on and what they could do".*

Leanne reflected on how she *"grew up"* during the process of supporting her parents throughout the stressful aftermath of the post-flood period. She said in the first year she was interviewed: *"I think I...*

yes, took on obviously not as much as my parents but I was there with them throughout, I would get involved in the consultation processes as much as possible [...] and when they were sitting at night formulating emails for the next morning, I would always be there. I definitely took on a much bigger supportive role than usual, to be able to help them and a consultational role as well so they were able to ask me, 'What do you think Leanne, do you think this is a good idea?' Or 'is this reasonable?'" In Project Year 3 Leanne reflected on how the reinstatement period affected her parents and how this had a knock-on effect to her siblings and wider family. She observed: "So the effects were felt for at least two years. Over time, of course, they did get less and less as they became more comfortable and mum became more confident [...] But I would like to say that things are all good now and she is 100% back on track and (I would say for myself) and my dad, who you know underwent a lot of health problems and we are certain that part of that was due to the stress of the whole experience [...] it was definitely a big deal at the time for everyone involved and obviously the ripple effect from what our parents are going through, went through the rest of us; we're a very close and tight-knit family so we all felt that pain [...] [Mum]'s from a huge family and they are all – they even felt the pain as well because they were on the phone and hearing her and knowing that she wasn't herself, absolutely not, and understanding there was very little they could do to help her support but empathising and understanding her frustration and things, so it had a wide-reaching effect, I would say.

4.6 Being at home after the flood

Prominent topics in Year One interviews related to the challenges faced by those who lived in their homes when post-flood renovations were being undertaken and how people felt when they returned home after home renovations and repairs were completed. This section addresses how interviewees felt about their home as more time elapsed after the winter 2015/16 flooding. Themes raised in Project Year 1, including how interviewees felt about being back in their home, positive and negative outcomes of the renovations undertaken to their home after the flooding and reflections about personal belongings remained prominent in Project Year 2 and 3 interviews, as discussed below.

4.6.1 Being back home

In Project Year One, the extent of damage to residential properties caused by the winter 2015/16 was vividly illustrated. Extensive home renovations were required by many Ballater and Garioch residents and the time during which renovations were undertaken was described as being very stressful by many interviewees. The stress was caused by the time renovations took to complete, being overwhelmed by the many decisions that had to be made regarding renovation work and having to be constantly involved with the renovation process which included making regular site visits to oversee the quality of work being undertaken. Dealing with the general upheaval of being out of one's home, and issues associated with living in temporary accommodation (see Chapter 3) was also very stressful.

Some participants felt they had been given an opportunity to alter and/ or update their property during renovation works and this made their homes better suited to their lifestyle. We were told of instances where interviewees were happy they had been given the chance to redecorate, renovate, reconfigure existing layouts and generally make their home more to their liking. Moving back into a home that had been renovated and redecorated was, for some, considered to be moving into a better property than the one they had lived in pre-flood. Most of those interviewed in Project Years 2 and 3 told us that they felt settled in their homes. On the other hand not all interviewees had a positive experience of moving back into their home. Some were still unused to being

back in a home that did not 'feel' the same. For example, one interviewee told us in both her Project Year 1 and 2 interviews about how she was still to become habituated to the changes in her home. She said:

"I went home, it was the first week in December and I went over there and it was just a long weekend and came back here, maybe because of Christmas, so much going on (in my head), I came back, got to the back door and thought, 'Something is not right', because the back door was different. My brain had played a funny trick on me and I had forgotten the whole change and I was expecting it to be the way it was. Isn't that bizarre? [...] I imagined the old storage heater, the old floor and it was just in my head that was what it was going to be and all of a sudden – just this total shock, it was really bizarre [...] It was obviously a post-traumatic thing or somebody said that to me)." (Female, Ballater, home flooded, Project Year 1 interview)

This feeling of not having adjusted to her home persisted, as illustrated during her Project Year 2 interview when she said: "And it took me probably even for that year since we met, even coming downstairs, quite often it was quite common, I would still get a wee surprise when I came to the living room, and I felt really stupid about it but I just accepted that was the way I was dealing with it so we just got on with it and didn't worry about it, just accepted it! [...] I just completely felt completely shocked that the kitchen was different, it was like my brain had expected it to be the way it had been before." (Female, Ballater, home flooded, Project Year 2 interview). In her Project Year 3 interview feelings of confusion over which belongings she still had were mentioned, further illustration of how it can take a long time to get 'back to normal' after moving back into a renovated home.

4.6.2 Renovations

Difficulties with the home renovation process were raised repeatedly during Project Year 1 interviews but most interviewees made little reference to their post-flood home renovations in Project Year 2, other than to mention some snagging issues. Three years after the flooding, further snagging issues were identified including, for example, paint peeling because poor quality or watered-down paint had been used, poor finishes to interior

and exterior work and concerns over the reconstruction of weight-bearing support beams. Some interviewees were not happy with the furniture they had bought to replace items lost to flood damage or did not think their home was as warm or 'cosy' as it had been. A female interviewee told us that she now has to monitor humidity levels in her home to avoid her replaced flooring from rising and buckling. By the time Project Year 3 interviews were conducted the cut-off point for notifying insurers about problems arising from renovation work had passed. However, a minority of interviewees were still trying to sort out issues associated with poor quality renovation work. A male interviewee told us that he was still in discussion with his insurance company regarding several issues with his home renovations:

"the skirting boards in the house were not put in place in accordance with the specification and after a long argument and three years after the flood, the radiators have dropped a bit and had to be removed, so all the skirting boards were taken down and replaced by profiled wooden skirting in accordance with the specification given to the contractors when they were awarded the contract carrying out the work [...] this is all very recent. The insurance company agreed that they would pay for this improvement work to be done two or three weeks ago and we're still waiting for it to be acted upon." (Male, Ballater, flooded, Project Year 3 interview).

Also in Project Year 3, two householders told us about problems with the fabric of their property over the past year or so, mentioning roof leaks and cracks appearing in the walls, faults believed to have been caused by the flood but which were not identified earlier. It would be interesting to follow-up whether or not the insurance companies are willing to cover these issues as they came to light after the cut-off (which tended to be two-years) for home owners being able to notify building repairs as a result of flood damage.

4.6.3 Belongings

Descriptions of rescuing, salvaging or disposing of belongings were prominent in Project Year 1 interviews both for those who were flooded and those who were not. Interviews in Project Years 2 and 3 illuminated reflections on losing belongings and changing attitudes towards organising the home, having possessions and the meaning of personal items to individuals. In Project Years 2 and 3 some interviewees talked about how they had changed how they lived and used space within their homes, often as part of efforts to improve their personal resilience to flooding (see section 4.1 and Chapter 3). It was common for interviewees to have given careful consideration to where they kept important documents and valuables or sentimentally important items. One Garioch interviewee told us that their partner had moved their home office upstairs. In Project Year 3, some further reflections about the loss of belongings were made, particularly items which were sentimental and precious. Some interviewees expressed regret over having disposed of belongings (often in response to having been told to do so by loss adjusters and/or insurance companies). For example, *"[...] we were told to throw out everything and on reflection, I wish I hadn't [...] we lost all our precious things"* (Male, Ballater, home flooded, Project Year 3 interview). Others told us that they often wondered if they had made the right decision, having disposed of

belongings soon after the flood and later regretting not having salvaged what could have been dried, cleaned or repaired:

"So I went through a period of agonising thinking 'maybe I shouldn't have thrown this out, maybe I shouldn't have thrown that out', even yet, if I don't...if I'm tired, and feeling that way, that's when that negative thought can come back and you think 'well why did I throw such and such out?' and annoyed at myself but you did what you could at the time, don't beat yourself up. And it's not for the possession itself, it's more just because we're so lucky to have things and it seems so wasteful as well and unnecessary, some of that stuff that went out that probably didn't need to" (Female, Ballater, home flooded, Project Year 3 interview).

A few interviewees noted that their *"paperwork was still a mess"* three years after the flooding, depicting a lasting sense of feeling disorganised in some respects since the flooding. Despite being back in their home for over two years, some were still replacing objects which had been lost in the flood that they only required occasionally, such as garden tools or kitchen utensils: *"Yeah, well I still find that I'm still, you know, I've lost everything in the kitchen and I'm still buying stuff and I thought, 'oh, I'll get one of them'. So, you know, I'm still getting stuff. It's weird [...] Because you had everything before, everything was at hand and you've got to start from fresh again"* (Female, Ballater, home flooded, Project Year 3 interview). Two interviewees noted that belongings (including sentimental objects, valuables and antique furniture) had been lost in storage or were ruined because they were held in storage for so long after the flood (in both cases items were in storage following arrangements made by an insurance company). The loss of these items remained keenly felt at the time the final, Project Year 3 interviews were conducted. There remained some suspicion that belongings which interviewees were told to throw out had been retrieved and then sold by others: the feeling that others had capitalised financially at the expense of flood victims was resented.

4.7 Impacts of flooding on local housing markets

In Project Years 2 and 3, many interviewees told us that they were happy to remain living in the Ballater or Garioch case study areas, despite their recent experiences of flooding. Particularly in Project Year 3, interviewees discussed future plans to move house, motivated by reasons including a desire to down-size or move to a more manageable home as they got older (e.g. without stairs). Although often not the primary motivating factor for those contemplating a move, the winter 2015/16 flooding was often discussed as one of several contributing factors. For others the flooding had *"accelerated"* the prospect of moving; a handful of interviewees told us that they had wanted to move house before the flooding, had postponed a move in the aftermath of the flooding but were now seriously considering moving in the near future. Others mentioned that their flood-related experiences had prompted them to consider a move, something they had not thought about before the flooding. A few interviewees reasoned that if their locality was seriously flooded again they would definitely want to move house but they would not necessarily want to leave the community they lived in.

Potential impacts of the flooding on house prices and home owners' ability to sell in the future were discussed in a number of interviews. Most participants in Project Years 2 and 3 were owner occupiers. By Project Year 3, one participant had sold the property they had lived in during the winter 2015/16 flooding but their new home was located within the same case study area. A Garioch couple who participated in the research had put their home on the market six months after the winter 2015/16 flooding but with no interest shown had withdrawn it a year later. The Scottish Land and Buildings Transaction Tax (previously known as stamp duty) thresholds introduced in 2015, which doubled the tax that would have been due if their property had sold before April 2015, was more of a deterrent to a sale than the flooding. Difficulties associated with attempting to sell their home in the future were also discussed by some interviewees. One described feeling "trapped" because they thought they would not be able to sell their home. Another interviewee was worried about a perceived decline in the market value of her home (she had not had it valued). For another participant it was thought that if one of their neighbours sold their home others would follow suit. We were told:

"Not that we're aware of but we do get the impression that there's lots of people just waiting to see who goes first. So if we look at it from the perspective of [Couple A] up at [house number], they'll definitely be selling. [Neighbour A] will stay, [Neighbour B], [Neighbour C] will stay. [Couple B], they will sell at some point, we'll sell at some point. [Couple C] will sell at some point, [Couple D] will sell at some point. Probably 50-60% of the houses on the street, I would think, will be put on the market over the next two or three years." (Male, Garioch, home flooded, Project Year 3 interview)

4.8 Chapter conclusion

Findings from Project Years 2 and 3 clearly illustrate the length of time it takes for those affected by a serious flood event to 'get back to normal', in practical, emotional and financial terms. By the time Project Year 3 interviews were completed it was evident that most participants in both case study areas had been able to move on from the flooding. However, for some the impact of the winter 2015/16 flooding was still keenly felt on a regular basis, and for almost everyone who took part in the research unpleasant memories could be triggered at unexpected moments.

Having an opportunity to follow individuals for up to three and a half years after a serious flood event has provided further evidence about the sustained impacts of flooding reported in previous research. It has also highlighted some new issues that further our understanding of the long-term impacts of flooding. In particular, the research highlights the importance of being able to speak to householders and business owners/ managers more than once. Behaviour, recollection of events, personal circumstances and financial status can all change as time passes: our longitudinal approach allowed such change to be captured and our analysis of flood impacts is enriched as a result.

5 Advice to Others

As outlined on page 1 of this report, the purpose of the research was to better understand the impacts of flooding upon people and communities and to consider what types of support and advice are needed at different stages of a long-term recovery. It was initially assumed that suggestions regarding advice and support would be developed by the researchers following analysis of the data collected during all three years of the project. It had not been anticipated that advice and recommendations for supporting individuals and communities would emerge as a co-produced outcome. This chapter begins with some methodological reflections about the co-production process as it developed in this research project. It then presents an overview of the advice to others who live in an area at risk of flooding and to statutory agencies and voluntary groups whose activities include dealing with emergency situations such as flood events and their aftermath that was articulated by those who were interviewed in Project Years 2 and 3. The chapter concludes with an 'Advice to others' document that could be used as part of resilience planning efforts in flood risk areas.

5.1 Methodological reflections about the co-production of advice and recommendations to those who live in a flood risk area

During the analysis of Project Year 1 interviews an emergent theme, one that had not been anticipated by the research team, was interviewees articulating advice and recommendations they wished to make to others who lived in areas at risk of flooding and to voluntary groups and statutory agencies whose activities included dealing with emergency situations such as flood events and their aftermath. This desire to reflect on personal experiences and offer suggestions that might help others was taken into Project Year 2 by posing the question "*What advice would you give to those who are living in a flood-risk area?*" at the end of each interview. The decision to ask the question as each interview was drawing to a close was purposively made to encourage interviewees to reflect on the responses they had provided throughout the interview. All participants had suggestions, some of which came directly from their own personal experience, other suggestions were based on knowledge of what had happened to other members of their community.

Analysis of the advice offered in Project Year 2 interviews identified eight broad topic areas which were subsequently developed into a list of recommendations that those interviewed in Project Year 3 were invited to evaluate. The list, comprising twenty-three statements grouped under seven headings, represented a co-produced attempt to develop advice to others at risk of flooding. Some statements were directed towards residents of flood risk areas. Others were targeted towards those who had a formal or informal role to play during and after a flood such as local authorities, SEPA, emergency services, community groups, voluntary agencies and private sector bodies such as the insurance industry. Alongside evaluating the relative importance of each statement, Project Year 3 interviewees were invited to identify what they thought were the five most important. There

was a high level of agreement amongst Project Year 3 participants as to which items were the most important.

5.2 Interviewees' advice to others who live in a flood risk area and to formal and informal groups and organisations who play role in flood risk management

This section provides an account of the advice to others offered by those interviewed in this research. It draws primarily upon findings from Project Year 2 interviews, and considers eight themes, all of which were raised by interviewees in both case study areas.

5.2.1 Receiving and responding to flood warnings

Despite some interviewees expressing their frustration with Floodline, there was a consensus of opinion that it was imperative that everyone who lived in an area at risk of flooding should be signed up to receive Floodline warnings and alerts. Exhortations to heed flood warnings, to take them seriously, were made as participants recalled how surprised they had been at how quickly the water rose during the winter 2015/16 flooding. The following quote illustrates this point: "*... all the time it was coming up until we got the severe flood warning, we thought well it is not going to happen because on the Monday it had been up there. But I think what I would do is certainly take a lot more action to move things upstairs from downstairs because we lost an awful lot of stuff. ... If you do get a flood warning make sure you get all your possessions upstairs*" (Garioch, male, home flooded, Project Year 2 interview).

Some participants suggested that having a home emergency escape plan was important. Others noted that getting out of the house quickly and safely was the most important thing to do if a flood warning was received. Having a household flood escape plan was likened to a fire escape plan and it was suggested that all residents in an area at risk of flooding should have one. For example, a Ballater interviewee told us: "*When I moved back in here, again, I don't know whether it's because of my healthcare background, the first thing you think of is, 'how do I get out of here in a fire?' And everybody should do that, they tell you they should do that. So I have plans... the same thing would be, if you know you are in an area that may flood, have a plan. Just have a plan.*" (Ballater, female, home flooded, Project Year 2 interview). A flood plan could include knowing how to switch off electricity, gas and water supplies and ensuring that this could be done easily and quickly. It was noted that residents should be prepared for flooding to be accompanied by power cuts and the loss of mobile phone signals. Participants felt that during a flood people should try to help their neighbours, but specific actions were not identified. In the event of evacuating a property it was suggested that residents should try to ensure that other people knew they were doing so, and knew where they were going to seek refuge.

Advice about taking precautionary action if a flood warning was issued was offered. For example, it was suggested that householders should know where their

important documents, precious and sentimental items are normally kept and, if possible, always keep them high up, for example, on a shelf or upstairs. Having details of important phone numbers in more than one place was also suggested as well as thinking in advance about the important documents you should take with you (in a sealed plastic bag) if you had to leave your home. Taking photographs of important documents was suggested as a simple means by which electronic copies of paperwork could be created. Participants from both case study areas suggested that a 'grab bag' should be made ready if a flood warning was issued, for example *"hae a wee bag packed the next time"* (Garioch, female, home flooded, Project Year 2 interview). Contents could include a change of clothing and footwear, medication and/or details of repeat prescriptions, a blanket and a torch, all of which would be invaluable if an individual became stranded outside their home. A few participants recommended moving cars packed with essential items to higher ground if a flood warning was issued and if time permitted.

5.2.2 Insurance

Most participants considered home insurance to be essential and advised others to review the 'fine print' of policies every year to ensure that the policy actually covers what a householder thinks it should. Interviewees also recommended that the sum insured should be realistic, especially for home contents value insured. Some interviewees noted that they or people they knew were 'underinsured' and were thus unable to claim the full cost of replacing their belonging. It was observed that a realistic total value of home contents was likely to be higher than an initial estimate. The cheapest premium would not necessarily provide the most appropriate insurance cover and there was a view expressed that *'you get what you've paid for'* if you needed to make a claim on an insurance policy. A Ballater interviewee noted that property level flood resistance measures were not a substitute for insurance, saying *"To me it's more important to protect yourself with insurance than to protect against the water coming in anyway. Be insured and make sure you understand what your insurance company can do for you"* (Couple, Ballater, home flooded, Project Year 2 interview). The experiences of Garioch residents whose homes were flooded in winter 2015/16 despite having flood gates and other resilience measures adds further strength to the argument that there is no substitute for being adequately insured.

As mentioned in sections about insurance in Chapters 3 and 4, interviewees identified some problems with the Flood Re scheme. A Ballater interviewee suggested, in Project Year 3, that those seeking insurance cover should be able to deal directly with a Flood Re helpline rather than having to contact individual insurance companies and mention the Flood Re scheme themselves when entering into a discussion about cover. This approach might help consumers avoid situations such as those we were told about in Project Year 2 when insurance companies or brokers claimed not to know anything about Flood Re.

There was concern expressed that online insurance application forms did not allow households to provide accurate, detailed information about, for example, their recent flood-related insurance claims, the distance of their property from water bodies, the type of water body their property was close to or the elevation of their property. It

was not thought reasonable to expect householders to be able to provide potential insurers with detailed information about existing or proposed flood protection schemes in their locality.

Participants in the research who went through the process of making a post-flood insurance claim had learnt a lot from their experience and made suggestions that might help others in the future deal with a claim. It was recommended that people making insurance claims should be able to access impartial, independent support and advice and that the information provided should be consistent. The Scottish Flood Forum provides this type of support but the resources of this organisation were such that help could not be offered to everyone in the case study areas who was affected by the winter 2015/16 flooding. It was suggested that organisations such as Scottish Flood Forum should target assistance towards people who live on their own or to vulnerable members of a community.

The importance of getting in touch with your insurance company as soon as possible following a home being flooded was stressed. A Garioch interviewee told us: *"post flood, you cannot, cannot contact your insurance company quick enough"* (Male, Garioch, home flooded, Project Year 2 interview). One perceived benefit of being in touch with an insurer quickly was that you would be near the top of the queue of those seeking temporary accommodation identified by insurance companies. When participants returned to a flooded home for the first time it was a shock to see the state of their home, particularly damage to furniture and personal belongings. Others should be warned that the first return would be a difficult experience. We were told that different insurers gave different advice about the disposal of possessions once householders had been able to gain access to their flooded property. This had created some confusion in both case study areas. More consistency between loss-adjustors and insurance companies was requested. Participants recommended taking photographs of items being disposed of so that householders could provide evidence of the type and quality of items they had lost when negotiating for replacements. It was also recommended that receipts for all major household purchases, such as items of furniture, should be kept so that the value of household goods could be verified. Keeping receipts for anything purchased post-flooding was also strongly recommended. Interviewees felt that people should be made more aware that it is possible to settle an insurance claim, receive financial compensation and then manage the refurbishment process themselves and/or employ a project manager of their choosing.

Numerous examples were cited in Project Years 2 and 3 interviews of problems associated with home renovations, many of which referred to poor quality workmanship and a lack of oversight of the quality of renovation work. It was suggested that insurers should provide evidence that the contractors and/or tradespeople they want to appoint have a decent track record, for example: *"I would have asked for – before I would have let anyone in the house to do any work, I would have asked the insurance company for testimonials from the company that's coming. Simple. You can check them. Because so many cowboys just set themselves up as remedial companies in the Central Belt, got themselves white vans and came and*

basically f***d up a lot of people's houses" (Female, Ballater, home flooded, Project Year 2 interview).

Those who had dealt with an insurance claim recalled that they had been surprised they had needed to deal with multiple organisations and individuals involved in renovating their home including, for example, the insurance company, loss adjuster, company clearing out their home, contractors appointed by the insurance company and individual tradespeople. Many interviewees advised that an assertive attitude and persistence are required when dealing with all parties involved in home renovations.

5.2.3 Development and land management in flood risk areas

In the Garioch case study area concern was raised by participants about the scale of recent housing and industrial developments and the potential impact these had on flood risk. It was thought that the impact of new developments on drainage patterns and the water table had been detrimental. It was queried whether the consequences of planning permission being granted at sites within or in close proximity to a flood risk area was something those responsible for making decisions about planning applications took into consideration. It was suggested that house builders constructing properties within or near a flood risk area should be required to install property level protection measures such as suitable air vents to new homes. If developers make contributions towards the construction and maintenance of flood defences as a condition of planning permission being awarded local people wanted evidence that payments funded what they were intended to finance rather than going towards another area of public sector expenditure.

In the Ballater area large tracts of land are managed for forestry, farming and sporting activities. A Ballater interviewee was of the opinion that too much emphasis was placed locally on maintaining grouse moors at the expense of increasing forest cover which would slow water flow in the event of high rainfall. A balance between estate interests and protecting local housing was advocated: *"And there has to be a balance there because there's a lot of work in the community that's created out of the estates and the grouse shooting and so on. But, the fact that this is a community of housing which has been there for over a hundred years now, I think it needs to be protected as well...I'm sure that be discussing things and managing how, where this could be done with the estates, that there will be solutions"* (Male, Ballater, home flooded, Project Year 2 interview).

5.2.4 Being aware that you live in a flood risk area

It was implied that some interviewees thought that home buyers in both case study areas were naive about flood risk in the localities. A number of interviewees suggested that home buyers should routinely check SEPA's flood risk maps before making a decision to purchase a new home. It was thought that members of the public were unaware that purchasing a property located near a river or other water body could carry risk. It was also thought that potential home buyers did not appreciate that insuring property in a flood risk area could be expensive, or impossible to secure. One Ballater interviewee advised

"ask yourself why a property is so cheap" (Female, Ballater, home flooded, Project Year 2 interview). It was suggested that Home Reports should state if a property had previously been flooded or was located within a SEPA designated flood risk area. This would ensure that home buyers were aware of flood risk *before* purchasing a property (and it was felt that such a requirement could deter house builders developing in known flood risk areas). Interviewees exhorted homeowners living in flood risk areas to install property level protection measures such as air vents and other precautions suitable for specific types of property. They also strongly discouraged homeowners from concreting (front) gardens because this impedes drainage. It was suggested that trusted businesses (such as those approved by local or national government) could be encouraged to publicise their property level protection measures and installation services in areas which have been flooded and that their advertising be reissued at regular intervals to give residents time to both become aware of and to consider their options at a point in time appropriate to them. The promotion of property level protection measures would be best left for a few months after a flood because the focus of householders immediately after flooding tends to be home renovations rather than what they could do to make their home more flood resilient.

One to one advice about property level flood protection measures was recommended by some interviewees because they thought such advice would help property owners to make well informed, confident decisions about protecting their properties should another flood occur. Flood resistant air vents were considered an affordable measure that any household could install. Flood gates were also advocated. Flood doors in particular were considered to be very expensive, often unaffordable measure. Maintenance costs incur further expense that some households cannot afford.

5.2.5 Formal and informal support for community members

Participants felt that there should be more formal and informal support for older and vulnerable residents during and following a flood event. Participants urged others who might find themselves in an emergency situation to think of their neighbours, especially the more vulnerable such as older or disabled people, those living on their own or those with young children. Assistance could include helping a vulnerable person to move possessions, to leave their home or offering them refuge in your home if they had been told to evacuate. Help could also be offered when insurance claims were being made, for example, the compilation of an household item inventory was found to be a difficult task to undertake on your own. Neighbours could also help the owners of new household appliances decipher user manuals. It was thought that vulnerable adults, including the frail elderly, would benefit from an independent expert being on hand to help them review their insurance policies to ensure that adequate and appropriate cover was purchased. Charities sometimes offer benefits advice to elderly people at events such as lunch clubs where all those attending are given an opportunity to talk one-to-one with a benefits expert. A similar format could be used for providing impartial advice about insurance to those who live in a flood risk area.

The impact of flooding on children who live in flooded

communities also needs to be carefully considered. During a Project Year 2 interview where a teenage member of the household contributed to the discussion we were told about how the local secondary school had not appeared to be aware of the impact of the flooding on a pupil who was living in temporary accommodation:

Parent: *the teachers from the primary school came and helped clear up*

Interviewer: But for the secondary there wasn't anything?

Teenager: *There was just nothing. Not even like guidance teachers even mentioned ...*

Parent: *Your guidance teacher ken, I'm sure we must have phoned and said.*

Teenager: *I'm not sure we did, he never mentioned it to me. ... It should have been discussed, just knowing that they are there if you needed them, that support was there. But you didn't really because they never mentioned it. ... It wasn't easy to approach that teacher and say, "I've lost all my stuff. I can't find it".*

(parent and teenage child, Garioch, home flooded, Project Year 2 interview)

It was suggested that primary and secondary schools should adopt a consistent approach in their response to children who have been directly affected by flooding. Schools could also be a source of formal support to children from homes that were and were not flooded who needed help to understand what had happened in their local area.

Many interviewees talked about how it had taken them a long time to feel they were getting back 'to normal' after the winter 2015/16 flooding. Concern was expressed by some that not all friends and acquaintances who had been flooded were dealing with their experiences well. Opportunities for formal or informal counselling within a community were considered desirable, and it was thought that such opportunities should not be promoted as something exclusively for those whose homes had been flooded. It was felt that more resources should be available to support the mental health of individuals in the community experiencing anxiety and feeling upset or unsettled by the flooding. A community-based social event could provide 'safe space' within which people could talk about their experiences if they wanted to and those in need of support could be identified and pointed in the direction of appropriate counselling or other services.

5.2.6 Information about what to do in an emergency

Participants in both case study areas told us that they would have benefitted from knowing what to do in an emergency, who could be contacted (with contact by phone the preferred mode), which agencies were responsible for what and what channels would be used to disseminate information. The Ballater resilience group had prepared and distributed a guide to residents that set out how to prepare for an emergency by the time Project Year 2 interviews were conducted in this case study area.

The information included in the leaflet and the way it was presented (delivered in hard copy, in a waterproof pouch, to all households and business premises) aligned with the views of Garioch participants who told us about the type of emergency planning information they thought people should have to hand.

5.2.7 What could community groups do if there is another flood?

Although interviewees from both case study areas recognised the efforts made by community groups during and in the aftermath of the winter 2015/16 some thought that these efforts could have been better coordinated. Most of the advice that interviewees offered to community groups related to what could be done *after* a flood event and their suggestions have been addressed in the emergency plans developed/ being completed in both case study areas. Development of these emergency plans has required local communities to think about who in the community will do what, when, and in what order to ensure that help and assistance is offered in the most effective manner.

It was suggested that community groups leading emergency response efforts should have a list identifying vulnerable people in the community so that those who might struggle to take appropriate action on their own could be offered prompt assistance. The practicality of compiling and maintaining lists may, however, prevent this suggestion from being adopted. Under the provisions of the General Data Protection Act (2018) it is more difficult than it was in previous years for community-led groups to retain personal details of community members.

Discussions about insurance led some participants to suggest that a community-based, independent loss-adjuster could be appointed who would act for those directly affected by flooding. For example, a Ballater interviewee suggested "*Yes, somebody you can appoint and can collectively be paid by funds raised locally or something. How it would work in practice, but I just feel that somebody who could say, 'no, I think this is what this is worth' and if you like, go and argue with the loss adjuster and say, 'hey look (you might have) your assessor, we've got somebody here and he says that's not fair value'*" (Male, Ballater, home was not flooded but handled home renovations for a flooded family member, Project Year 2 interview). A community assessor could act as an advocate for householders and mediate between them and the insurance company appointed loss adjusters if required. A community-based loss adjuster could work alongside and offer complimentary support to that already offered by the Scottish Flood Forum and be paid for out of local fundraising or other post-flooding grants made available to a community. Suggestions of having someone working on behalf of the community was not just restricted to supporting insurance claims. A few interviewees suggested that the role could include having an independent named individual available for consultation by local residents wanting advice on *all things flooding*, including impartial information about property level protection measures.

5.2.8 Advice for statutory agencies

Project Year 1 findings included interviewees reporting how important it is to get information about imminent flooding out to the public using as many means of

dissemination possible (see Chapter 3). A single method should not be relied upon because whatever method is chosen will not suit everyone or be available to all in the event of an emergency. Suggestions were made by interviewees from both case study areas that there should be a well publicised phone number that anyone could call during a flood to receive up to date information. For example, a Garioch participant told us *“I think if there’s a good floodline, if you can go and – not everybody has got a computer so I wouldn’t say everything has to be online but even a telephone, a number that isn’t over the top – expensive, you know, like nine pounds a minute but somewhere, whether it’s a council number you call, twenty four hours, and somebody could get back to you. I think that’s the problem; there wasn’t... nobody really knew who to contact...”* (Female, Garioch, home not flooded, Project Year 2 interview). Many participants told us that they thought the local authority should tell people what to do if there is a flood and what their responsibilities are. This observation illustrated how many private individuals are unaware of the responsibilities that fall upon *them* as householders. The emergency planning materials disseminated in Ballater and in Kintore, and under development in Port Elphinstone are a good response to this plea; they make clear what is the responsibility of local authorities and other statutory agencies and what is the responsibility of individual householders. Some interviewees thought that communities should be more closely involved in deciding how to spend any funds allocated for resilience measures in a local area. Those aware of local resilience groups thought these community groups could be involved in such decision making. Participants were in agreement that future emergency planning efforts and associated decision making should be undertaken via local communities, statutory agencies and voluntary organisations working in partnership together.

The importance of, and in some cases a perceived necessity for counselling services to be readily available to anyone who might need help was discussed by interviewees in Project Years 1, 2 and 3. It was thought that professional help and support could prevent trauma-related anxiety or clinical level mental illness developing in the wake of a flood event. It was unclear which statutory agency should be responsible for providing counselling

services but it was suggested that public bodies could, as part of their post-flooding efforts, organise events in a community that would provide a forum for people to get together in an environment where talking about their experiences with others could mitigate a need for formal counselling at a later date.

5.3 Advice to others who experience a serious flood event

Project Year 2 findings provided the basis for developing a means of eliciting Project Year 3 interviewees’ views about the importance of specific advice they felt should be communicated to other people who lived in areas designated as being at risk of flooding. The advice to others offered in Project Year 2 interviews was grouped under seven broad themes, namely: receiving and responding to flood warnings; making your home more flood resistant and resilient; being aware that you live in a flood risk area; insurance; managing development in known flood risk areas; dealing with stress or ill health associated with flooding; and community level and statutory agency actions following a flood. Aligned with these themes, twenty-three specific recommendations were composed and presented to Project Year 3 interviewees for evaluation. Interviewees were invited to rate each statement using an attitudinal scale comprising five categories (strongly disagree, disagree, neutral, agree, strongly agree). No differences in the responses were observed between respondents from the two case study areas or by whether or not the home of a participant was flooded.

5.3.1 Agreement with suggested advice and recommendations to others

Overall, most participants agreed that the statements regarding advice to others and recommendations to those who live in a flood risk area they were asked to consider were important but some issues were identified as being more important than others. Aggregating response options ‘agree’ and ‘strongly agree’ identified the order of importance of the items of advice or recommendations (see Table 10). There is a strong degree of concordance between the views of those whose homes had been flooded and those whose homes had not been flooded.

Table 10 Aggregated responses of strongly agree and agree in order of importance for flooded and non-flooded participants

Theme	Advice or recommendation	Agree and Strongly agree combined		
		All participants (n = 32 participants)	Participants whose home was flooded (n = 24)	Participants whose home was not flooded (n = 8)
Theme 2: Making your home more flood resistant and resilient	Those who live in a flood risk area should consider keeping important documents and precious/sentimental belongings in a ‘safe place’	32	24	8
Theme 4: Insurance	Adequate buildings and contents insurance is essential if you live in a flood risk area	32	24	8

Theme 7: Community-level and statutory agency actions following a flood	If flooding is anticipated, and during and immediately after a flood, it is important that information is disseminated using a wide range of communication methods	32	24	8
Theme 2: Making your home more flood resistant and resilient	Those who own property in a flood risk area should be able to easily access independent advice about flood resistance and resilience measures suitable for their property	31	22	8
Theme 4: Insurance	The installation and maintenance of suitable flood resistance measures in a property should be taken into account by insurance companies when calculating premiums and associated excess payments	31	23	8
Theme 5: Managing development in known flood risk areas	The potential flood-impact of new developments to neighbouring properties should be consistently reviewed in flood risk areas	31	24	7
Theme 5: Managing development in known flood risk areas	Planning conditions should mitigate potential flood risk arising from new developments agreed with developers should be consistently enforced	31	23	8
Theme 1: Receiving and responding to flood warnings	Households living in a flood-risk area should have a home emergency plan	30	22	8
Theme 3: Being aware that you live in a flood risk area	A widely publicised central point of contact within communities where information about food resistance measures etc can be obtained should be widely publicised	30	23	7
Theme 4: Insurance	Online insurance application forms should be designed to allow those who live in a flood risk area to provide appropriate and detailed information in an effort to make obtaining insurance a more straightforward process	30	22	8
Theme 4: Insurance	Insurance companies should be required to monitor the quality of work undertaken by those they contract to undertaken renovations and repairs required because of flood damage	30	23	8
Theme 7: Community-level and statutory agency actions following a flood	Information about plans for flood defences etc. should be widely disseminated in communities that been affected by flooding using a variety of methods	30	23	7
Theme 4: Insurance	The availability of assistance from groups to help deal with post-flooding insurance claims should be widely advertised in areas that have experienced a flood	29	22	7
Theme 6: Dealing with stress or ill-health associated with flooding	Information about organisations that provide help and support to those finding it difficult to cope in the aftermath of a flood should be widely and regularly publicised	29	21	8

5.3.2 Strong agreement with suggested advice and recommendations to others

Set out in Table 11 are the eight specific issues, that fall under four themes, that were strongly agreed with by more than two-thirds of participants. Of particular note is the strength of agreement with the statement “adequate

buildings and contents insurance is essential if you live in a flood risk area” which received a ‘strongly agree’ rating from 29 of the 32 respondents. Three of the eight items that participants were in strong agreement with were issues grouped under the insurance theme, a prominent theme throughout all phases of data collection for this research.

Table 11 Top eight most strongly agreed with advice/recommendations by Project Year 3 participants

Theme	Advice or recommendation	Number of Year Three participants who strongly agreed with the advice or recommendation
Theme 2: Making your home more flood resistant and resilient	<ul style="list-style-type: none"> Those who live in a flood risk area should consider keeping important documents and precious/sentimental belongings in a ‘safe place’. 	22/32
Theme 4: Insurance	<ul style="list-style-type: none"> Adequate buildings and contents insurance is essential if you live in a flood risk area; 	29/32
	<ul style="list-style-type: none"> The installation and maintenance of suitable flood resistance measures in a property should be taken into account by insurance companies when calculating premiums and associated excess payments; 	23/32
	<ul style="list-style-type: none"> Insurance companies should be required to monitor the quality of work undertaken by those they contract to undertaken renovations and repairs required because of flood damage. 	24/32
Theme 5: Managing development in known flood risk areas	<ul style="list-style-type: none"> The potential flood-impact of new developments to neighbouring properties should be consistently reviewed in flood risk areas; 	20/32
	<ul style="list-style-type: none"> Planning conditions should mitigate potential flood risk arising from new developments agreed with developers should be consistently enforced. 	24/32
Theme 7: Community-level and statutory agency actions following a flood	<ul style="list-style-type: none"> If flooding is anticipated, and during and immediately after a flood, it is important that information is disseminated using a wide range of communication methods; 	22/32
	<ul style="list-style-type: none"> Information about plans for flood defences etc. should be widely disseminated in communities that been affected by flooding using a variety of methods. 	23/32

6 Conclusions and Recommendations

The research sought to better understand the impacts of flooding upon people and communities and to consider what types of support and advice are needed at different stages of a long-term recovery. It was initially anticipated that suggestions regarding advice and support would be developed by the researchers following analysis of the data collected during all three years of the project. However, the suggestions emerged as a co-produced outcome: our interviewees wanted to share their experiences and spontaneously offered advice to others who may be in a similar situation in the future in project Year 1 interviews. A formal invitation to do so was then incorporated into subsequent interviews. All participants had suggestions, some of which came directly from their own personal experience, other suggestions were based on knowledge of what had happened to other members of their community. Analysis of the advice offered in Project Year 2 interviews identified seven broad themes which were subsequently developed into a list that those interviewed in Project Year 3 were invited to evaluate. Summaries of each of the eight themes are discussed below.

Through the analysis of the collective research findings and the identification of particularly important themes articulated by participants, a number of recommendations

have been developed. They are presented below along with suggestions as to who they are targeted towards (e.g. members of the public, community groups, voluntary organisations, statutory agencies). The time at which they are most relevant, (during or immediately after a flood or in the longer term) is also identified.

6.1.1 Being aware that you live in a flood risk area and taking appropriate action

Participants felt that there were measures people could take themselves to increase their awareness and responsibility with regards to flooding (see Table 12). It was suggested that people who were thinking of buying a property should consider its flood risk by checking whether it had flooded previously. They should also check SEPA's flood risk maps and be aware that purchasing property in a flood risk area can incur costs such as high insurance premiums and excess payments. Participants stressed the need for those who live or work in flood-risk areas to think about appropriate measures they could install in their property to make it more flood resistant (e.g. flood gates, air vent covers). Various flood resilience measures for home and business premises were also identified, which included having multiple copies of important documents (digital photographs or other electronic copies could be saved to multiple locations, including cloud storage, were suggested), where possible valuable and sentimental items should be kept above ground floor level, and non-porous landscaping in gardens and drive-ways should be discouraged.

Table 12: Recommendations: Being aware of living in a flood risk area

Recommendations: Being aware that you live in a flood risk area and taking appropriate action	Timeframe for Advice			Who advice or recommendations are targeted towards
	Before a flood	During or Immediately after a flood	Longer-term after a flood	
Home reports should state if a property is located in a flood-risk area, and explicitly state if a property has been flooded. If property level protection measures have been installed these should be identified.	✓		✓	Scottish Government Property Flood Risk Resilience Group
Those who live or work in a flood-risk area should be encouraged to install measures that could make their property more flood resistant.	✓	✓	✓	Community Planning Partnership Companies selling and installing property-level flood protection measures. Individuals who live and/or work in a flood risk area Local authority Property Flood Risk Resilience Group Scottish Flood Forum (SFF) Scottish Government's Resilience Team/Ready Scotland

6.1.2 Receiving and responding to flood warnings

Householders and business owners/ managers in flood-risk areas should be registered to receive flood alerts and warnings from Floodline (see Table 13). Calls to heed flood warnings were made as participants recalled

how surprised they had been at the speed at which the water rose during the winter 2015/16 flooding. Some participants suggested that having a home emergency escape plan was important. Others noted that evacuating a property quickly and safely was the most important thing to do if a flood warning was received.

Table 13: Recommendation: Flood warnings

Recommendation: Receiving and responding to flood warnings	Timeframe for Advice			Who advice or recommendations are targeted towards
	Before a flood	During or Immediately after a flood	Longer-term after a flood	
Those who live or work in a flood risk area should be registered to Floodline and pay close attention to any flood warnings they receive.	✓	✓	✓	Individuals who live and/or work in a flood risk area

6.1.3 Information about what to do in an emergency

Householders and business owners/ managers with property located in flood risk areas should be prepared for flooding in the same way that they would routinely prepare for other household emergencies such as a fire or a power cut (see Table 14). A home emergency plan should include measures to be taken if a flood warning is

issued such as knowing how to switch off utilities, packing a 'grab-bag', moving valuable and sentimental items etc. Awareness of the needs of neighbours and vulnerable members of the community in the event of an emergency such as a flood was also advocated. In the event of evacuating a property it was suggested the residents should try to ensure that other people knew they were going to seek refuge.

Table 14: Recommendation: information about what to do in an emergency

Recommendation: Information about what to do in an emergency	Timeframe for Advice			Who advice or recommendations are targeted towards
	Before a flood	During or Immediately after a flood	Longer-term after a flood	
Those who live or work in a flood risk area should have a household emergency plan that clearly sets out what actions should be taken in the event of a serious flood. This should include being aware of actions that could be taken to assist neighbours and vulnerable members of the community.	✓		✓	Business owners/managers in a flood risk area Fire and Rescue Service Householders Individuals who live and/or work in a flood risk area Local community groups in a flood risk area Scottish Flood Forum

6.1.4 Formal and informal support for community members

Participants felt that there should be more formal and informal support available during and following a flood event, particularly for older and vulnerable residents and those with young children (see Table 15). Assistance could include helping a vulnerable person to move possessions, to leave their home or offering them refuge in your home if they had been told to evacuate. Help could also be offered when insurance claims were being made, particularly for vulnerable adults and those unused to dealing with detailed and protracted negotiations. Neighbours could also help the owners of new household appliances decipher user manuals following the replacement of kitchen and electronic appliances. It was suggested that primary and secondary schools should adopt a consistent and formal approach in their response

to children who have been directly affected by flooding.

Concern was expressed by some that not all of their friends and acquaintances who had been flooded were dealing with their experiences well following the 2015/16 flooding. Opportunities for formal or informal counselling within a community were considered desirable, and it was thought that such opportunities should not be promoted as something exclusively for those whose homes had been flooded. It was felt that more resources should be available to support the wellbeing and mental health of individuals in the community experiencing anxiety and feeling upset or unsettled by the flooding. A community-based social event could provide a 'safe space' for people to talk about their experiences, and those in need of support could be identified and pointed in the direction of appropriate counselling or other services.

Table 15: Recommendation: Support for community members

Recommendation: Formal and informal support for community members	Timeframe for Advice			Who advice or recommendations are targeted towards
	Before a flood	During or Immediately after a flood	Longer-term after a flood	
The NHS should anticipate a need for additional demands on services after a flood. Services should be well advertised and their availability and accessibility in remote rural areas should be ensured.		✓	✓	NHS (community health teams and specialist services)

6.1.5 What could community groups do if there is another flood?

Most of the advice that participants offered to community groups related to what could be done *after* a flood event and their suggestions have been addressed in the emergency plans developed/ being completed in both case study areas. Development of these emergency plans has required local communities to think about who in the community will do what, when, and in what order to ensure that help and assistance is offered in the most effective manner. Communities also need to think about vulnerable people within them and the ways they can be both identified and offered prompt assistance.

being disposed of so that householders could provide evidence of the type and quality of items they had lost when negotiating for replacements.

Those who had dealt with an insurance claim recalled that they had been surprised they had needed to deal with multiple organisations and individuals involved in renovating their home including, for example, the insurance company, loss adjuster, company clearing out their home, contractors appointed by the insurance company and individual tradespeople. Many interviewees advised that an assertive attitude and persistence are required when dealing with all parties involved in home renovations.

6.1.6 Insurance

Most participants considered home insurance to be essential (see Table 16). It was observed that a realistic total value of home contents was likely to be higher than an initial estimate. The cheapest premium would not necessarily equate with appropriate insurance cover. Participants who had gone through the process of making a post-flood insurance claim had learnt a lot from this experience and made suggestions that might help others in the future deal with a claim. It was recommended that people making insurance claims should be able to access impartial, independent support and advice and that the information provided should be consistent. The Scottish Flood Forum provides this type of support and it was suggested that organisations such as Scottish Flood Forum should target assistance towards people who live on their own or to vulnerable members of a community. The importance of getting in touch with your insurance company as soon as possible following a home being flooded was stressed. More consistency between loss adjusters and insurance companies was requested. Participants recommended taking photographs of items

Discussions about insurance led some participants to suggest that a community-based, independent loss adjuster could be appointed who would act for those directly affected by flooding. A community assessor could act as an advocate for householders and mediate between them and the insurance company appointed loss adjusters if required. A community-based loss adjuster could work alongside and offer complimentary support to that already offered by the Scottish Flood Forum and be paid for out of local fundraising or other post-flooding grants made available to a community. Suggestions of having someone working on behalf of the community were not just restricted to supporting insurance claims. A few interviewees suggested that the role could include having an independent named individual available for consultation by local residents wanting advice on *all things flooding*, including impartial information about property level protection measures.

Table 16: Recommendation: Insurance

Recommendation: Insurance	Timeframe for Advice			Who advice or recommendations are targeted towards
	Before a flood	During or Immediately after a flood	Longer-term after a flood	
Those who live or work in a flood risk area should ensure that home/business insurance includes flood cover.	✓	✓	✓	Business owners/managers with premises in a flood risk area Individuals who live and/or work in a flood risk area

6.1.7 Development and land management in flood risk areas

In the Garioch case study area, concern was raised by participants about the scale of recent housing and industrial developments and the potential impact these had on flood risk (see Table 17). It was thought that the impact of new developments on drainage patterns and the water table had been detrimental. It was suggested that house builders constructing properties within or near a flood risk area should be required to install property

level protection measures such as suitable air vents to new homes. If developers have been required to make contributions towards the construction and maintenance of flood defences (as a condition of planning permission being awarded) local people wanted evidence that such finance was directed to a flood defence project. In the Ballater area large tracts of land are managed for forestry, farming and sporting activities. A balance between the interests of, for example, private estates and farmers and protecting local housing was advocated.

Table 17: Recommendations: Development and land management in flood risk areas

Recommendations: Development and land management in flood risk areas	Timeframe for Advice			Who advice or recommendations are targeted towards
	Before a flood	During or Immediately after a flood	Longer-term after a flood	
Those who have a responsibility to disseminate information before, during and after a flood should use a variety of platforms (e.g. print and broadcast media, social media and other online platforms) to ensure that information reaches as many people as possible.	✓	✓	✓	Community groups Individuals Local and national media Statutory and voluntary organisations
Opportunities to purchase flood resistance measures from a local authority should be available to householders and business owners/managers whose property is located in a flood risk area. Trusted advice on the most appropriate measures to invest in should be readily available, with assistance for installing these.	✓	✓	✓	Community Planning Partnership Companies selling and installing property-level flood protection measures. Individuals who live and/or work in a flood risk area Local authority Scottish Flood Forum (SFF) Scottish Government's Resilience Team/Ready Scotland

6.1.8 Advice for statutory agencies and voluntary organisations

Suggestions for improving communication between voluntary organisations and statutory agencies and local residents were offered by participants. It was suggested that communications from relevant agencies regarding flood risk should be presented clearly and simply to ensure that disseminated information is accessible to all. It was also felt that the local authority and emergency services should be proactive in offering timely information as a means of reassuring the community that local flood protection remains an important issue. There was a perception that the planning system does not adequately respond to concerns voiced by local residents. This view was expressed most vociferously in Garioch where there is a perception that new housing and industrial developments have been permitted in areas known by locals to be at risk of flooding. In the Garioch case study

areas there was also confusion and worry about who had long term responsibility for the maintenance of specific local flood defences, drainage infrastructure and water courses. Clarity regarding who is responsible for the maintenance of such measures, who owns land, and who has responsibility for discharging obligations such as flood mitigation and clean-up operations. If those responsible for maintenance do not fulfil their responsibilities, there should be a mechanism of enforcement to ensure communities are not unnecessarily put at risk of future flooding.

Interviewees in both case study areas demonstrated a keen interest in local flood protection proposals or plans. Public meetings to present and discuss these were much appreciated, however communications at these events should be clear and simple for everybody to understand. Opportunities to ask questions and raise concerns from community members are highly valued.

Table 18: Recommendations: Statutory Organisations and Voluntary Agencies

Recommendations: Statutory organisations and voluntary agencies	Timeframe for Advice			Who advice or recommendations are targeted towards
	Before a flood	During or Immediately after a flood	Longer-term after a flood	
Those who have a responsibility to disseminate information before, during and after a flood should use a variety of platforms (e.g. print and broadcast media, social media and other online platforms) to ensure that information reaches as many people as possible.	✓	✓	✓	Community groups Individuals Local and national media Statutory and voluntary organisations
Opportunities to purchase flood resistance measures from a local authority should be available to householders and business owners/managers whose property is located in a flood risk area. Trusted advice on the most appropriate measures to invest in should be readily available, with assistance for installing these.	✓	✓	✓	Community Planning Partnership Companies selling and installing property-level flood protection measures. Individuals who live and/or work in a flood risk area Local authority Scottish Flood Forum (SFF) Scottish Government's Resilience Team/Ready Scotland
Grants to home and business owners intended to meet some of the costs of installing flood resistance measures should be publicised when home refurbishments following flood damage are being planned. Sources of emergency financial assistance should be well publicised, and efforts made to ensure financial assistance reaches all those who would benefit.		✓	✓	Community Planning Partnership Companies selling and installing property-level flood protection measures. Individuals who live and/or work in a flood risk area Local authority Scottish Flood Forum (SFF) Scottish Government's Resilience Team/Ready Scotland

<p>Once the immediate need to use an evacuation centre has passed, co-ordinated efforts to collate and disseminate information about temporary accommodation options and their availability would be very useful. The local authority could play a lead role in this.</p>		<p>✓</p>		<p>Community Planning Partnership</p> <p>Housing Associations</p> <p>Individuals who live and/or work in a flood risk area</p> <p>Local authority</p> <p>Scottish Flood Forum (SFF)</p> <p>Scottish Government's Resilience Team/Ready Scotland</p>
<p>Further research about the long-term impacts of flooding on securing household and/or business insurance, monitoring long-term community resilience and household preparedness for future flooding is recommended</p>			<p>✓</p>	<p>CREW and other research funders</p>

7 References

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8 Appendices

Appendix 1 - Attributes of Year 1 interviewees

Attributes of interviewee		Ballater			Garioch		
		Men	Women	Couples	Men	Women	Couples
Total		9	22	9	11	17	7
Age	16-24	0	1	0	0	0	0
	25-39	0	2	1	0	1	0
	40-54	2	2	0	3	7	2
	55-64	2	9	2	4	2	3
	65-75	4	6	2	3	3	2
Home and/or other property was flooded		6	16	8	7	10	4
Home and/or other property was not flooded		3	6	1	4	7	3
Economic activity status	employee or self-employed	3	10	1*	9	7	3
	Retired	5	9	7	2	5	4
	Student	0	1	1*	0	0	0
Business owner/Manager		3	6	0	2	5	0
Community figure	Ballater Flood Group	1	0	0	0	0	0
	Charitable Chiels	2	0	0	0	0	0
	Ballater Business Association	2	0	0	0	0	0
	Ballater Resilience Group	1	3	0	0	0	0
	Community Action Plan	1	0	0	0	0	0
	Minister	0	1	0	1	0	0
	Member of Community council	0	1	0	0	0	1
	Member of Flood Resilience Group	0	1	2	0	0	0
	Local Flood Group	0	0	0	0	1	0
	Hall Committee	0	0	0	0	1	0
	Community House	0	0	0	0	1	0
Tenure status	Private tenant	0	0	1	0	1	0
	Housing Association or council tenant	0	2	0	1	0	1
Owner occupied		9	20	8	10	16	6

* one of a couple who were interviewed

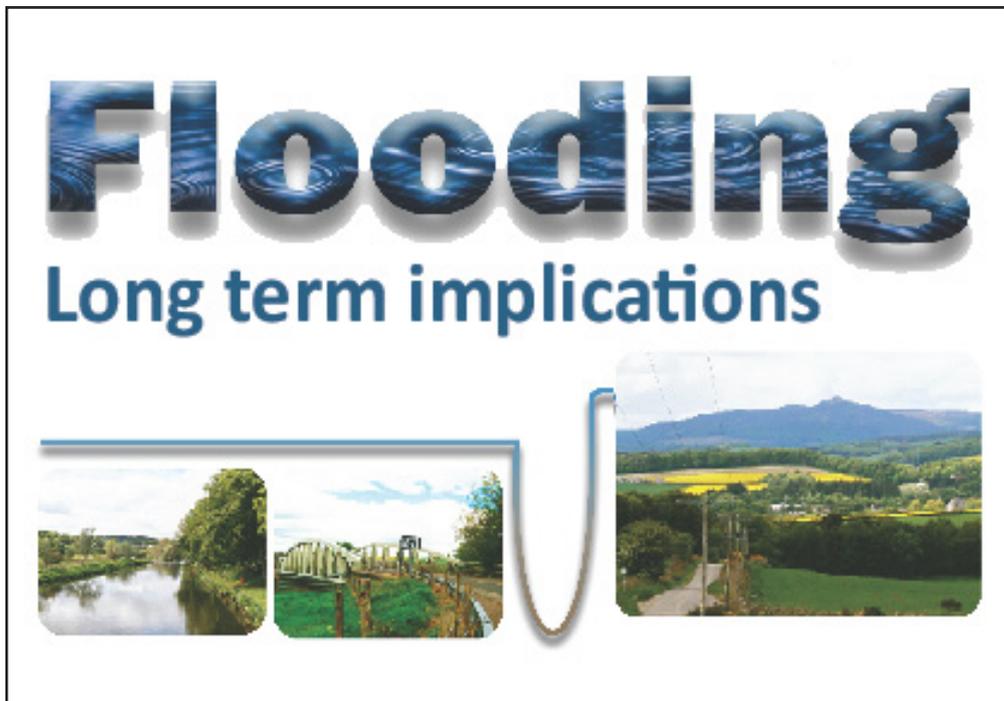
Appendix 2 - Attributes of Year 2 Interviewees

Attributes of participant		Ballater		Garioch	
		Men	Women	Men	Women
Total		13	24	13	17
Age group	16-24	0	2	1	0
	25-39	0	2	0	1
	40-54	1	4	4	7
	55-64	4	8	3	3
	65 and over	8	7	5	6
Home and/or other property was flooded		9	16	10	13
Home and/or other property was not flooded		4	7	3	4
Economic activity status	Employee or self-employed	2	8	8	8
	Retired	11	12	5	7
	Student	0	2	1	0
Business owner/manager		4	4	2	1
Business was flooded		4	3	2	1
Business was not flooded		0	1	0	0
Community Figure	Active in a community group that played a role during the flooding	5	3	3	2
Tenure status	Private tenant/tied house	1	1	1	1
	Housing association or council tenant	1	1	0	0
	Owner occupied	8	17	12	4

Appendix 3 - Attributes of Year 3 interviewees

Attributes of interviewee		Ballater				Garioch			
		Men	Women	Couples	Pair (unrelated)	Men	Women	Couples	Pair (unrelated)
Total		9	12	3	1	8	6	2	
Age group	16-24		1						
	25-39		2						
	40-54	1	2			2	2		
	55-64	2	5			3	1		
	65 and over	6	2			3	3		
Home and/or other property was flooded		7	9			6	5		
Home and/or other property was not flooded		2	3			2	1		
Economic activity status	Employee or self-employed	2	7			3	3		
	Retired	7	5			5	3		
	Student								
Business owner/Manager/ highly involved with a business		2	2			1			
Business was flooded		2	1			1			
Business was not flooded			1						
Community figure	Active in a volunteer community group or a central community figure*	2	4			2	1		
Tenure status	Private tenant/ tied house								
	Housing Association or council tenant	1							
	Owner occupied/ Home comes with job	7	10			8	6		
	Unknown/live far from study sites	1	2						

*These included one of the local church Ministers and a Director of the not for profit local caravan park, members of the local Halls committee, resilience group or community council



The **'Long-Term Impacts of Flooding'** project team would like to thank you for your participation in our research project in 2017



A summary report of our Year 1 findings will soon be available via the project website:
<http://www.crew.ac.uk/project/assessing-impacts-flooding-people-and-communities>

We will soon be commencing the Year 2 follow-up interviews, where we will be interested in continuing to learn about impacts associated with the aftermath of the 2016 flooding in the Garioch area. These interviews will be carried out with fewer participants than required in Year 1.



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If you would like any further information about the Year 2 interviews, or if you no longer wish to be contacted regarding participating in these for any reason, please contact: Gillian.Dowds1@abdn.ac.uk

or

Dr Gillian Dowds, Geography and Environment, Room 110,
St Mary's, Elphinstone Road, Aberdeen, AB24 3UF.

Unless we hear from you advising otherwise, it is likely that we will contact you over the next few weeks. If you don't hear from us, once again, thank you for your participation.

*With best wishes, Dr Gillian Dowds,
Dr Annie McKee and the rest of the project team.*

Appendix 5 - What sources of information were most useful to respondents and their household before, during and in the immediate aftermath (up to one month after) the winter 2015/6 flooding?

		Before the flooding	During the flooding	Up to one month after the flooding
Neighbour(s)	Ballater	22 (16.8%)**	59 (45%)	43 (32.8%)
	Garioch	39 (33.3%)**	53 (45.3%)	37 (31.6%)
	All	61 (24.6%)**	112 (45.2%)	80 (32.3%)
Radio news and announcements	Ballater	11 (8.4%)**	19 (14.5%)**	18 (13.7%)**
	Garioch	32 (27.4%)**	36 (30.8%)**	31 (26.5%)**
	All	43 (17.3%)**	55 (22.2%)**	49 (19.8%)**
Television news	Ballater	17 (13%)**	38 (29%)**	18 (13.7%)
	Garioch	40 (34.2%)**	49 (41.9%)**	20 (17.1%)
	All	57 (23%)**	87 (35.1%)**	38 (15.3%)
Newspaper articles	Ballater	4 (3.1%)**	15 (11.5%)	20 (15.3%)
	Garioch	18 (15.4%)**	21 (17.9%)	22 (18.8%)
	All	22 (8.9%)**	36 (14.5%)	42 (16.9%)
Online news article (e.g. BBC News website, Press & Journal's website)	Ballater	5 (3.8%)**	15 (11.5%)	20 (15.3%)
	Garioch	24 (20.5%)**	21 (17.9%)	22 (18.8%)
	All	29 (11.7%)**	36 (14.5%)	42 (16.9%)
Weather forecasts	Ballater	29 (22.1%)**	35 (26.7%)**	39 (29.8%)
	Garioch	46 (39.3%)**	51 (43.6%)**	38 (32.5%)
	All	75 (30.2%)**	86 (34.7%)**	77 (31%)
Watched river levels rising and through a flood was possible	Ballater	20 (15.3%)	22 (16.8%)**	21 (16%)
	Garioch	58 (49.6%)	49 (41.9%)**	24 (20.5%)
	All	78 (31.5%)	71 (28.6%)**	45 (18.1%)
Announcement on the Council's website	Ballater	2 (1.5%)	4 (3.1%)	7 (5.3%)
	Garioch	7 (6%)	9 (7.7%)	6 (5.1%)
	All	9 (3.6%)	13 (5.2%)	13 (5.2%)
Warning and/ or alert from Floodline (phone call/ text message)	Ballater	5 (3.8%)**	4 (3.1%)**	11 (8.4%)
	Garioch	23 (19.7%)**	21 (17.9%)**	12 (10.3%)
	All	28 (11.3%)**	25 (10.1%)**	23 (9.3%)
Social media post (e.g. Facebook group, Twitter)	Ballater	8 (6.1%)**	22 (16.8%)**	21 (16%)**
	Garioch	35 (29.9%)**	41 (35%)**	36 (30.8%)**
	All	43 (17.3%)**	63 (25.4%)**	57 (24%)**
An official (e.g. emergency services) knocking at the door	Ballater	8 (6.1%)	25 (19.1%)**	5 (3.8%)
	Garioch	4 (3.4%)	5 (4.3%)**	1 (0.9%)
	All	12 (4.8%)	30 (12.1%)**	6 (2.4%)
Loud hailer or siren in the street	Ballater	0 (0%)	0 (0%)	0 (0%)
	Garioch	0 (0%)	0 (0%)	0 (0%)
	All	0 (0%)	0 (0%)	0 (0%)
Phone call from an official (e.g. emergency services)	Ballater	1 (0.8%)	1 (0.8%)	1 (0.8%)
	Garioch	0 (0%)	0 (0%)	0 (0%)
	All	1 (0.4%)	1 (0.4%)	1 (0.4%)
Contact with Scottish Flood Forum	Ballater	3 (2.3%)	10 (7.6%)	13 (9%)
	Garioch	1 (0.9%)	6 (5.1%)	16 (12%)
	All	4 (1.6%)	16 (6.5%)	29 (10.5%)
Contact with another charity	Ballater	13 (9%)	13 (9.1%)	13 (9.1%)
	Garioch	16 (12%)	16 (12%)	16 (12%)
	All	29 (10.5%)	29 (10.5%)	29 (10.5%)
Contact with your insurer	Ballater	0 (0%)	9 (6.9%)*	23 (17.6%)*
	Garioch	1 (0.9%)	2 (1.7%)*	10 (8.5%)*
	All	1 (0.4%)	11 (4.4%)*	33 (13.3%)*

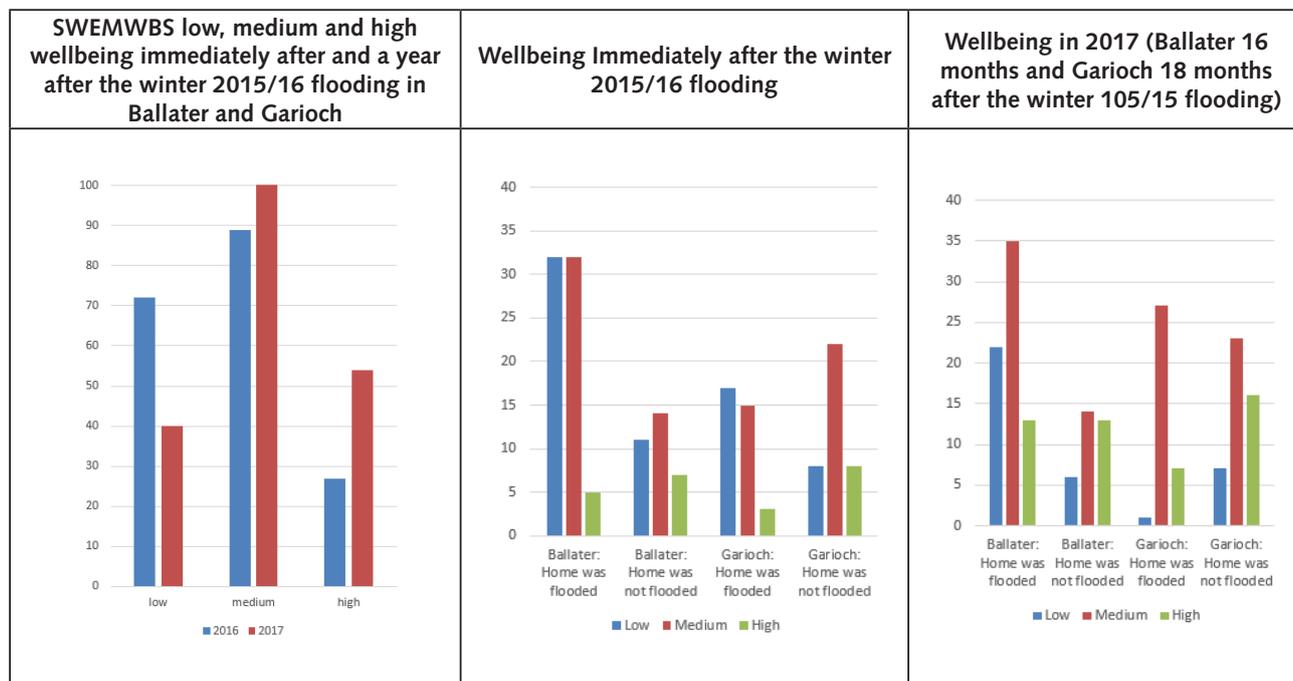
** Statistically significant differences between the two case study areas at 99%

*Statistically significant differences between the two case study areas at 95%

Appendix 6 - Analysis of responses to the Short Warwick Edinburgh Mental Wellbeing Score questions in the Household Survey

	N	Minimum	Maximum	Mean	Std. Dev.
Scaled SWEMWBS 2016	188	7.00	35.00	21.8697	5.32028
Scaled SWEMWBS 2017	198	15.32	35.00	24.9536	5.42146

Appendix 7 - SWEMWBS low, medium and high wellbeing immediately after and a year after the winter 2015/6 flooding in Ballater and Garioch



Appendix 8 - Differences in self-reported mental wellbeing between the Ballater and Garioch case study areas

		N	Mean	Std. Dev.
Scaled SWEMWBS 2016	Ballater	106	21.2	5.2
	Garioch	82	22.7	5.3
Scaled SWEMWBS 2017	Ballater	108	24.1	5.5
	Garioch	90	26.0	5.2

There are statistically significant differences in the mental wellbeing reported by Ballater and Garioch respondents. Wellbeing scores are highest in Garioch in both 2016 and 2017.

2016: $t = 2.006$, $df = 186$, $sig = 0.046$

2017: $t = 2.453$, $df = 196$, $sig = 0.015$

Appendix 9 - Differences in mental wellbeing between those whose homes were and were not flooded

		N	Mean	Std. Dev.
Scaled SWEMWBS 2016	Home was flooded	104	20.7	4.7
	Home was not flooded	70	23.1	5.9
Scaled SWEMWBS 2017	Home was flooded	105	24.0	4.9
	Home was not flooded	79	26.2	5.7

There are statistically significant differences in the mental wellbeing reported by those whose homes were and were not flooded. In both 2016 and 2017 those whose homes were not flooded had higher mental wellbeing than those whose homes had not been flooded.

2016: $t = -2.948$, $df = 172$, $sig = 0.004$

2017: $t = -2.876$, $df = 182$, $sig = 0.005$

Appendix 10 - Differences in mental wellbeing by case study area and if home was flooded, 2016

Was respondent's home flooded by case study area?		Mean difference		Std. Error	Sig.
Ballater home was flooded	Ballater home was not flooded	-1.73		1.11	0.41
	Garioch home was flooded	-0.38		1.08	0.99
	Garioch home was not flooded	-3.14*		1.05	0.02
Ballater home was not flooded	Ballater home was flooded	1.73		1.11	0.41
	Garioch home was flooded	1.35		1.27	0.71
	Garioch home was not flooded	-1.41		1.25	0.67
Garioch home was flooded	Ballater home was flooded	0.38		1.08	0.99
	Ballater home was not flooded	-1.35		1.27	0.71
	Garioch home was not flooded	-2.76		1.21	0.11
Garioch home was not flooded	Ballater home was flooded	3.14**		1.05	0.02
	Ballater home was not flooded	1.41		1.25	0.67
	Garioch home was flooded	2.76		1.23	0.11

Appendix 11 - Differences in mental wellbeing by case study area and if home was flooded 2017

Was respondent's home flooded by case study area?		Mean difference	Std. Error	Sig.
Ballater home was flooded	Ballater home was not flooded	-3.14**	1.10	0.03
	Garioch home was flooded	-2.22	1.08	0.17
	Garioch home was not flooded	-2.89**	0.99	0.02
Ballater home was not flooded	Ballater home was flooded	3.14**	1.10	0.03
	Garioch home was flooded	0.92	1.27	0.89
	Garioch home was not flooded	0.25	1.19	0.98
Garioch home was flooded	Ballater home was flooded	2.22	1.08	0.17
	Ballater home was not flooded	-0.92	1.27	0.89
	Garioch home was not flooded	-0.67	1.17	0.94
Garioch home was not flooded	Ballater home was flooded	2.89**	0.99	0.02
	Ballater home was not flooded	-0.25	1.19	0.99
	Garioch home was flooded	0.67	1.17	0.94

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