Chapter 2 Researching flood recovery

> "Obviously we see people at public meetings fairly immediately after a flood but the longer-term effects are something we don't understand or perhaps realise as much as we should do."
>
> Steering group member,
> Interview, October 2009

> "It was so helpful and you felt as though you were actually doing something so hopefully changing things for the next time. Maybe somebody would actually listen to what we were trying to tell them."
>
> Jan, resident
> Group discussion, 24th April 2008

In this chapter we set out our approach to researching flood recovery. The project emerged during a time of increased policy and research interest in understanding resilience. We briefly situate our study within the context of the literature on the concepts of resilience and vulnerability, arguing that 'recovery' is a key, if neglected, part of the resilience-vulnerability distinction. In order to understand how resilience and vulnerability may arise and develop in the aftermath of a disaster such as flooding, it is necessary to look in detail at what happens in people's lives as they go through the recovery process. Finally, we also describe the context of the flooding in Hull.

2.1 The policy context: learning to live with flood

The events in Hull and other parts of the country in the summer of 2007, as well as subsequent inundations, clearly demonstrate a need to acknowledge and live with the uncontrollable nature of some flood hazards; something that has become a principle in contemporary policy frameworks for flood management. Looking back, however, Johnson *et al.* (2005) identify two earlier phases of flood management within England and Wales, which effectively set the scene for this current approach. The first phase ran from the time of war and post-war austerity in the 1940s to the 1980s, when activity concentrated on land drainage in support of agricultural productivity. From the 1980s to the 1990s, a reorientation occurred, which refocused attention from agricultural productivity toward assuring the nation's economic security. This shift was designed to enable economic growth and social-welfare improvements to be driven by the urban and commercial development of the nation's floodplain; with hard-engineered measures being used to prevent inundations. During the 1990s, however, a further reorientation led to the current approach, which is characterised as one of 'flood risk management'. The significance of a shift to flood risk management is that it recognizes that not all floods can be prevented. As a result, it involves the principle of 'learning to live with flood' and, consequently, the need to better

understand the ways in which different social and physical interventions can contribute to improving flood resilience (Defra 2005, Environment Agency 2005, National Audit Office 2001).

The floods of 2007 prompted a wealth of review documents, with each identifying lessons to be learned from the events. These took the form of proposed improvements to institutional responses, as well as suggested ways to facilitate resilience building across sectors and scales (e.g. responder, community, household). For example, within the 'Pitt Review' (The Cabinet Office, 2008), are calls for better preparedness and planning from central and local government as well as for higher levels of protection for critical infrastructure and an improvement in the quality of flood warnings issued. Similarly, the consultation on the National Flood Emergency Framework (Defra, 2008b) – in itself a response to Pitt – focuses on the importance of achieving clarity in terms of the roles and responsibilities of government and its agencies in relation to flood response. The Pitt Review also called for more guidance on what individual households can do to be more prepared for flooding and advocated the preparation of personal 'flood kits', whereby householders prepare an emergency bag containing survival essentials such as a torch, a blanket and spare food in addition to insurance documentation. Similarly, Defra's consultation on property-level flood resistance and resilience measures (Defra, 2008a) dealt with the question of what can be done to incentivise a greater number of individual households to install measures such as flood gates, air-brick covers and basement and cellar tanking in their homes. Such pronouncements clearly correlate with *Making Space for Water*'s[1] comments about individual responsibility: "*The public will be more aware of flood and coastal erosion risks and empowered to take suitable action themselves where appropriate.*" (Defra, 2005: p.14).

These reviews introduced specific recommendations into a domain occupied by other types of formal guidance, which had been available and used to inform civil protection arrangements for some time prior to 2007 (HM Government, 2005; HM Government, 2006; Home Office, 2000). This guidance, which forms part of civil protection doctrine in the UK, was either written prior to when the Civil Contingencies Act (CCA) (2004) came into law, or subsequently as a means of bringing the various provisions of the Act into effect. From the perspective of this report, however, it is necessary to point out that the statutory provisions of the Act and, therefore, the compulsory aspects of the guidance detailed in these documents concentrates primarily on codifying the roles of designated Category 1 and Category 2 responder agencies (e.g. the Blue-Light services; utility companies). For example, guidance is given as to how a Local Resilience Forum (LRF) consisting of all relevant local responders[2] should be assembled and how, once formed, the LRF should go about compiling a register of all known hazards in their area (HM Government, 2005).

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[1] Making Space for Water is the cross government programme taking forward the developing strategy for flood and coastal erosion risk management in England. www.defra.gov.uk/environment/flooding/policy/strategy/index.htm
[2] The principal mechanism for multi-agency cooperation under the CCA is the Local Resilience Forum (LRF), which is based on each police area. The forum is a process by which the organisations on which the duty falls (i.e. Category 1 and 2 responders), co-operate with each other. The LRF does not have a separate legal personality and it does not have powers to direct its members (HM Government, 2005).

Admittedly, within the guidance documents the fundamental importance of engaging communities and third-sector organisations in hazard management and recovery processes is increasingly acknowledged. However, whilst this issue has gradually gained this greater recognition[3], the principal focus of these documents was, prior to 2007, and to some extent remains, on encouraging local authorities – as the 'lead agency' once the emergency enters its recovery phase – to manage the recovery process in quite deterministic ways. For example, recovery guidance has concentrated on describing the need for local authorities to ameliorate the potential for post-event budgetary strain by encouraging them to search proactively for potential post-disaster aid and mutual aid funding streams, which can be called upon to help their finances at times of need (Home Office, 2000; Cabinet Office, 2008; CLG, 2009). The latest version of Emergency Response and Recovery guidance (HM Government, 2009) reiterates this suggestion. However, this latest guidance also concentrates more explicitly on outlining the post-emergency role of the local authority, as being to facilitate the delivery of what the 'affected community', rather than what the LA alone, would define as recovery. This is an important progression, however, this guidance is also quite prescriptive about the need to audit and quantify any recovery process, through the use of relatively easily quantifiable indicators – e.g. the return of services and commerce to "normal" levels of functioning (*ibid.* p.6). Whilst, undoubtedly, these indicators are important, it could be suggested that by exemplifying service provision and commerce specifically, the guidance is actually illustrating a quite simplistic notion of what constitutes a recovery 'success' for its audience. The macro-analyses of (e.g.) local service demand and supply might indeed provide an indication of a return to pre-event levels. However, this project has revealed that such macro-analyses can actually miss important aspects of the recovery process that, if improved, could greatly enhance the way that the process of recovery is experienced, especially by those struggling to achieve it (e.g. more effective communication between policy holders and insurance agents).

Regarding the longer term, it is recognised that local authorities should integrate organisations other than those designated as CCA responders into their contingency arrangements (e.g. the insurance industry). However, these other organisations are not bound by the Act and, therefore, their operating protocols and business arrangements are subject only to other articles of law (e.g. the Competition Act 1998) or to professional standards (e.g. those set by the Association of British Insurers (ABI)). Taking these facts into consideration, it is clear – both from a reading of policy and from the conclusions of our study in Hull – that when it comes to the protracted process of returning *households* to a satisfactory state of functioning, a gap emerges between where the legally-defined contingency arrangements provided to the affected community by its local authority diminish, and where the less well-defined services provided by the private sector (e.g. insurance, building industry) start. In effect, once people have been appropriately warned and subsequently evacuated or rescued (if necessary) from immediate danger and after the situation has been handed from the response agencies to the Local Authority (as Lead Recovery Agency),

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[3] The 2009 update of 'Emergency Response and Recovery' now contains almost 30 pages dedicated to the management of the recovery process, whereas the chapter in the 2005 version 1 was 5 pages in length.

the formal responsibilities to householders become more obscure, with less delineation of who should support people or what help they should get over the following months and years. It is this protracted recovery process – and the challenges that residents experience during this time – that is the focus of this project.

2.2 Approaching flood vulnerability, resilience and recovery

2.2.1 Vulnerability

Understanding vulnerability to flood and its impacts is central to developing the possibilities of learning to live with flood. This concept of vulnerability has been a growing concern within the literature on the social dimensions of flooding (e.g. Fielding and Burningham 2005; Tapsell *et al.* 2002; Walker *et al.* 2006). That literature makes an important start in understanding how a range of demographic and social-economic factors are associated with higher levels of vulnerability to the impacts of flooding including income, age, ethnicity, pre-existing poor health and family structure (Walker *et al.* 2006, Thrush *et al.* 2005 a/b). Where these different kinds of vulnerability intersect, for example within deprived communities, there can be particularly intense problems connected with low flood awareness, lack of mobility and physical capacity, lack of resources to protect, insure or repair property and weak social networks. This can be exacerbated when coupled with a lack of investment or maintenance of the infrastructure and built environment. However, it is important to recognise that these factors do not necessarily determine vulnerability to experiencing a flood hazard itself[4]. Rather, they are factors that may influence vulnerability to the *impacts* of flood hazards. In other words, flood vulnerability may in part be a consequence of pre-existing social vulnerability. Our goal in this research was to look at the way in which the flood event, and subsequent recovery process can both reveal and create new forms of vulnerability that might not be anticipated.

2.2.2 Resilience

However, while the flood might reveal and create these different forms of vulnerability, so too, floods can reveal, create and indeed disrupt, forms of resilience. To some extent 'resilience' can be considered as the flip-side to vulnerability – for example, we might say a 'resilient community' is less vulnerable. However, this relationship is not *straightforward*. A community could well be considered as resilient – for example having strong support networks that enable it to deal with a crisis – but nonetheless could find itself more vulnerable than other communities to the event of a crisis such as flood, because for example, of failings in infrastructure management that lead to a large scale event impacting severely on that community.

What though is resilience and what is its relevance to this research? Different conceptions of resilience have emerged across a wide range of disciplines, for example, psychology (Luthar 2000), organisational

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[4] Factors that might affect vulnerability to experiencing a flood could include geographical location (for example, living in a floodplain) or living in single storey housing.

science (Marcus and Nichols 1999), Information Technology (IT) studies (Riollia and Savickib 2003), biomedicine (Biros and Adams 2002), small state islands (Pelling and Uitto 2001) and cities (Pelling 2003). Across these literatures meanings of resilience have multiplied with different implications for what the analysis of building resilience might mean. For example, resilience is variously manifest as persistence, resistance, stability, stasis, continuity, innovation, adaptation, transformation, immunity and recovery. At its most basic conceptualisation, resilience can be defined as "the ability of a system to absorb disturbance and still retain its basic function and structure" (Walker and Salt 2006). The basic argument is the more resilient a system is then the stronger its resistance to an event and/or the quicker it can recover from the event, and of course, with minimum 'damage' and/or loss of life.

Resilience, then, can take very different forms. Typically, the socio-ecological literature portrays a move from equilibrium based models of resilience – in which there is one optimum state – towards those informed by models of complex adaptive systems:

> *"Resilience is an emergent property of ecosystems and is related to self-organized behaviour of those ecosystems over time. In this sense, self-organisation is the interaction between structure and process that leads to systems development, regardless of initial conditions. Self-organization also implies that for certain scale ranges, structure and process are not easily separable and interact in an organized way to generate emergent patterns" (Gundersen 2000 p.430).*

This approach develops an understanding of adaptability, building on the work of Holling (1973), and develops a sensitivity to the different temporalities and scales through which socio-ecological dynamics are constituted and evolving (Gundersen and Holling 2002).

For our purposes – to understand the lessons for resilience and flood – we can learn from this literature to think about resilience in four ways (although, as explained in the text below, it is important to be clear that these are not mutually exclusive):

- resilience as <u>resistance</u>, that is, the ability of a system (a person, household, community, city) to hold fast, to stay strong. A resilient sea defence structure, for example, is one that is able to resist the power of the sea. However, in the event that resistance fails or indeed is not present, then resilience becomes more a focus on recovery.

- resilience as the ability to <u>bounce-back</u> from an event; the more resilient the quicker the return to 'normal' will be. For example, a 'resilient' home, once flooded, can be 'dried' out more quickly.

- recovery can involve learning – in this case resilience refers to <u>adaptation,</u> to the ability to adapt to the changed environment; the better the adaptation, the more resilience to the future. For example, a city that learns from a flood event may put in place new procedures that enable speedier recovery in the future.

- Finally, the process of recovery may involve a more fundamental shift, a <u>transformation</u>. In this form of resilience a more extreme form of adaptation may occur – moving house (or even an entire community relocation), the establishment of a new organization for flood responsibility, a change in social relations.

So to learn the lessons for resilience we need to understand that resilience can come in different forms. In the first two forms detailed above, the emphasis is on continuity, in the latter two, the emphasis is on change.

While the socio-ecological approach offers an important framing for understanding the dynamics of resilience there are, however, some limitations that we need to keep in mind (building on Medd and Marvin 2005). First, we need to think about how types of resilience might be supportive rather than exclusive. A householder may be better prepared to 'bounce-back' because of the adaptability of the social networks around them. Second, therefore, the resilience of one entity – the individual, the household, the home – is a characteristic that emerges partly in relation to wider social, infrastructural and institutional networks. For example, the resilience of a community is partly enabled precisely by the resilience of the infrastructure networks (drains, communications, transport) as well as of key services required. Third, and crucially, what resilience is – and as a strategy what is appropriate – shifts over time. During an event resilience might be manifest as resistance and the ability to withstand the shock while during recovery it is manifest in terms of a community's ability to regenerate.

By way of summary, therefore, our approach here is to understand resilience in terms of relationships and processes, rather than as a static characteristic of an individual, household, public service or community. In other words, 'resilience' is not so much a response to the flood hazard itself, but is an emergent characteristic of the way in which the flood response and the subsequent recovery process are managed. Fundamental to this characteristic is how we understand recovery. Understanding what is meant by 'recovery' is key to understanding resilience, because the principal concern of the recovery process could be said to be the extent to which life resumes after a significant event; and how that is achieved through resistance, bounce-back, adaptation and transformation. However, as we discuss using the example of the charity funding on p.61, residents' understandings of recovery may be very different from those of the organizations charged with managing the recovery process and this can be problematic when the forms of support offered by the various agencies do not meet people's needs at that particular time.

2.2.3 Recovery

Applying a relatively simplistic interpretation to the concept of recovery, Pitt (The Cabinet Office 2008) uses a model to illustrate how three phases of activity (Response; Recovery Coordination and Mainstreaming: Figure 1) can be understood to interact after any emergency event. In this model, the

system's pre-event condition is defined as 'normality', with this condition visualised as a straight line, with two curves being used to indicate two alternative response/recovery trajectories. In the first instance, one curve is used to illustrate that the 'state' of the affected system sharply falls beneath the stasis of 'normality' during the emergency-response phase. However, the curve then turns and rises rapidly as 'work' is invested in mitigating hazard effects and in the implementation of 'recovery coordination'. As the system continues to 'recover' and as mainstreaming commences, however, potential trajectories are conceptualised as diverging into one of the two paths, i.e. Normalisation (purple) or Regeneration (green). Using this model, in conjunction with the discussion on resilience above, it is possible to associate the purple trajectory with system continuity and the green with system change.

Figure 1 Recovering from an emergency
(from p.398 of the Pitt Review)
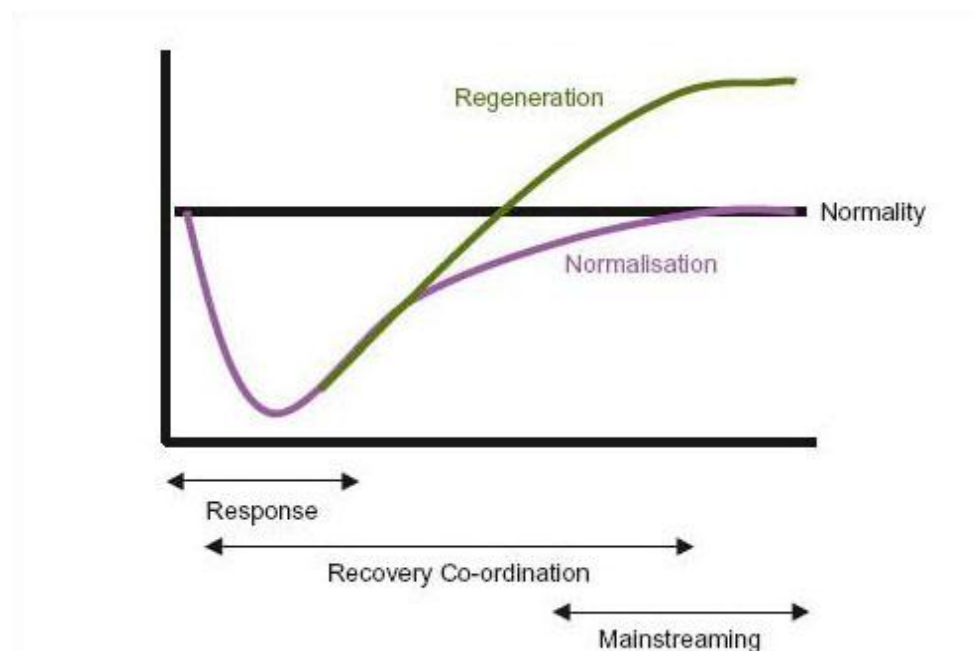
Whilst this model can provide a crude interpretation of potential paths to recovery, both the wider disaster literature and our study in Hull show that people's 'real world' recovery experiences do not follow the kind of smooth, upward curve described by Figure 1. Firstly, in the disasters literature, work by Erikson (1976; 1994), for example, shows how important it is to understand the kinds of pre-existing vulnerabilities that are omitted from Figure 1. Erikson argues that in some communities – such as Buffalo Creek, West Virginia, where dam failure in 1972 caused flooding that killed over 100 people and made 4,000 more homeless – the disaster itself is already present in the kind of poverty and hardship that community members live with on a daily basis. The subsequent hazardous event that brings that particular community into the headlines is therefore only compounding the much less visible disaster that pre-existed it.

Other key works show that recovery is a much more disjointed process (Mileti 1999; Wisner *et al.* 2004). In fact, over time, it has been increasingly acknowledged in this literature that rather than being indicative of a smooth process, 'recovery' has the potential to be protracted along extensive periods of time and to be experienced in vastly different ways by the inevitably diverse mix of individuals, communities, groups and organisations that are affected. Even in the UK Civil Protection context, for example, the government acknowledges recovery to be something that:

> "…usually takes years rather than months to complete as it seeks to address the enduring
> human, physical, environmental, and economic consequences of emergencies."(HM
> Government, 2007: p.3)

Wisner *et al.* (2004), speaking of disaster recovery in its widest context, go further. They suggest that the very concept of 'recovery' should be understood to be a relative and contingent term:

> "The terminology associated with disaster recovery is biased towards optimism. The key
> words – 'recovery', 're-establish', reconstruction', 'restoration' and 'rehabilitation' – are all
> prefixed with 're', indicating a return to the pre-existing situation. A more realistic view
> challenges the assumption that such recovery will actually be achieved. Instead, the more
> pessimistic argument suggests there will be uncertainty, unforeseen events and even the
> reproduction of vulnerability. A rather depressing implication … is that in some cases the
> most vulnerable households and individuals do not recover." (Wisner *et al.* 2004 p.357)

We approach the concept of recovery – and through the associations made above, resilience – with a sensitivity to this latter position, because accounts contributed by diarists in Hull support this. As we will see, beginning with the water itself, we explain that hidden flood damage and the complex ways in which water enters a property can make it hard to determine where the crisis actually starts. Accounts by residents of the recovery process show that, far from being a smooth curve, recovery is actually a long and difficult process that involves many peaks and troughs (see section 3.4.1). These highs and lows are affected by how residents are treated by the different agencies that they come into contact with, as well as by the 'everyday crises' of routine life. Finally, we will see that recovery is not completed when a person moves back home, and neither do things go back to 'normal'. Instead, diarists' accounts of the anniversary of the floods show how people are trying to adjust to a new normality[5] as a result of changed feelings about their home and the threat of future floods.

2.3 Project Methodology
In order to understand how resilience and vulnerability arise and develop in the aftermath of a disaster such as flooding our concern was to find a way to understand in detail what happens in people's lives as

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[5] The phrase 'new normality' was used by a respondent severely affected by the 2001 Foot and Mouth Disease disaster in Cumbria (Mort *et al.* 2005)

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they go through the recovery process. Such an approach would contrast with those studies based around 'one off' data collection methods and unable to capture the protracted and dynamic nature of flood recovery or offer any detailed insights into how vulnerability and resilience were being created in the process (for example Tapsell *et al.* 2001, Werrity *et al.* 2007). The project design was focused on using weekly diaries, combined with interviews, group discussions, and stakeholder engagement activities. It was adapted from a longitudinal diary based study into recovery from the Foot and Mouth Disease (FMD) disaster which severely affected Cumbria in 2001 (Mort *et al.* 2004) which raised questions about how trauma was understood and the re-traumatising effects of 'top down' recovery protocols in relation to the importance of local experiential knowledge and expertise. There were felt to be important parallels with the Hull flood.

2.3.1 Case study: Hull

The city of Kingston-upon-Hull has a population of 243,589 and is located in the North-East of England where the River Hull meets the Humber estuary. Hull's geographical position and low-lying elevation (90 per cent of its area lies below high-tide level) makes it particularly vulnerable to flooding from both rivers and the sea, and flood defences – including the Hull Tidal Surge Barrier – exist to counter these threats.

However, the floods that devastated the city in 2007 came not from rivers or the sea but from an excess of rainfall. Environment Agency statistics show that June 2007 was the wettest month recorded in Yorkshire since 1882, while a rain gauge at the University of Hull revealed that over 70mm and 110mm of rain fell on June 15th and 25th, respectively (Coulthard *et al.* 2007a). Due to its low-lying elevation, Hull's drainage system relies on a series of pumps to empty its sewers and, during the floods of June 2007, this drainage system was overwhelmed by the volume of rainfall entering it, with the result that over 8,600 households were flooded and 91 of the city's 99 schools were affected (Coulthard *et al.* 2007b). Figure 2 gives an indication of the scale of the flooding across Hull.

In order to examine the causes and consequences of the floods, an Independent Review Body (IRB) was brought together to investigate the circumstances leading up to the disaster. They concluded that the floods happened as a result of the extreme amount of rain falling on the city, which exceeded the drainage infrastructure's capacity to cope: Hull's drainage system is designed to cope with a 1 in 30 year storm event, while the size of the storm experienced was so great that similar events are only expected to occur every 150 years (Coulthard *et al.* 2007a).

However, delve a little deeper and it becomes clear that the floods were more than just a matter of rainfall. For example, the IRB questioned whether recent 'improvements' made to the drainage system had actually compromised the system's ability to cope with extreme storm events and found what they described as a number of "serious issues with the design, maintenance and operation of Yorkshire

Water's pumped drainage system in Hull" (Coulthard *et al.* 2007b p.4). In addition to highlighting the culpability of particular institutions, the IRB also pointed to the problems of coordination involved in a privatised drainage system where no single agency is responsible for the system as a whole (Coulthard *et al.* 2007b).

Figure 2 Map showing flooded roads and properties
(Coulthard *et al.*, 2007b, p.9)
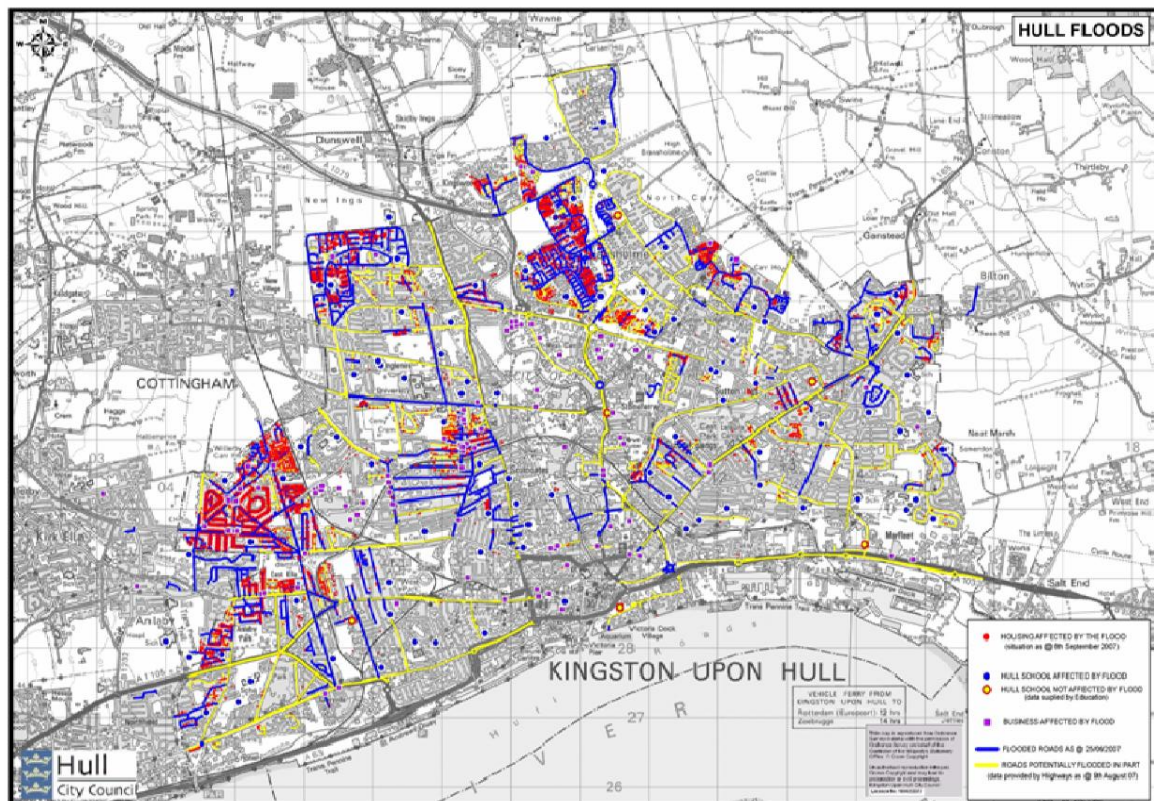
In addition to Hull's physical vulnerability to flooding, the city also has a number of longstanding social and economic problems which might impact on the flood recovery of the city and mean some residents are particularly susceptible to the impacts of flooding. The following data is from the Office of National Statistics:

- 46% of the population of Hull lives within the 10% most deprived areas of England and the local authority area is ranked 9th in the country using combined indices of deprivation (Yorkshire Forward, 2006).
- 6.2% of the population aged 16-65 were unemployed in 2001 (Average for England: 3.4%).
- Approximately 40% of the working population have no formal educational qualifications (Average for England: 29%).
- 43% of households in Hull do not own a car.
- State benefits are claimed by approximately 21% of the local population (Average for England: 14%).

❑   Approximately 28% of the 104,288 residential properties are rented from the local authority (Average for England: 13.2%).

Such statistics are often used in an attempt to map where we might expect vulnerability to the impacts of flooding to be greatest. In particular, they are important because, as well as affecting specific individuals, such large-scale urban floods will inevitably have an impact upon the city as a whole. These impacts can be especially important in a place like Hull which already experiences a considerable level of social and economic disadvantage. However, as we shall discuss in this report, understanding vulnerability and flood recovery is not as straightforward as mapping socio-economic characteristics. Instead, we need to acknowledge that the recovery process can produce its own kinds of vulnerability that relate to the specific circumstances going on in a person's life and the ways in which they are dealt with by the various organizations involved in flood recovery (See Section 6.3.5, *Understanding and addressing vulnerability*).

2.3.2 Selecting a panel of diarists

It was important to identify a panel of respondents which could reflect a broad range of flood and flood recovery experience. One difficulty was that to identify pre-defined groups as particularly at risk, (i.e. the most vulnerable), would be to assume that key variables determine such vulnerability. Yet our task was to also look for where vulnerability, and resilience, might emerge in unexpected places. Another difficulty was that since people had been displaced from their homes, finding them was also going to be tricky.

What unfolded was a two step process of sampling. First, following consultation with Hull City Council, Hull Neighbourhood Resource Centre and Wardens[6], and coupled with insights from the flood vulnerability literature (Walker *et al.* 2006) we identified a list of key characteristics that the panel should include: age (particularly elderly people), gender, type of disruption/ displacement experienced (e.g. living upstairs, with relatives, in a caravan etc.), tenure type, disabilities, uninsured, single parents, and families with young children. We then drew up a 'flood profile' as a guide when recruiting to ensure that people from these groups were included in our study. We also sought to include some 'front line workers' i.e. those whose involvement in the floods came through their job roles. Note, we intended to examine ethnicity as a factor, however, Hull has a relatively small population of minority ethnic groups and very few were affected by the floods. Second, we used two techniques for recruiting the panel. To achieve our flood profile we asked key workers to recommend people who they thought might want to be involved. Finally we used 'snowballing', that is asking people we recruited for further contacts who had particular kinds of experiences.

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[6] Hull has a Community Warden scheme which is funded by the city council and administered by a third sector organisation www.wardens.goodwintrust.org. Community Wardens deal with a range of neighbourhood issues from environmental problems to anti-social behaviour.

In total, 44 people were recruited for the diary component of the study, which lasted for 18 months. Of these, 42 were flooded residents and two were frontline workers[7] who were not flooded at home. However, 10 of the 42 residents were also frontline workers. For ease of reference we have provided short biographies of each participant quoted in this report in Appendix 1. The following statistics give a breakdown of the 42 residents by age, tenure type and additional considerations.

Age

20 - 29	30 - 39	40 - 49	50 - 59	60 - 69	70 - 79	80 – 89
4	9	10	7	5	5	2

Tenure

Owner occupied	Council rented	Private rented	Housing Association
33	5	3	1

Type of displacement from property[8]

Rental property	Caravan	Lived in flood-damaged property	Lived with friends or relatives
20	7	12	3

Additional considerations:

Disability or serious illness in the family	Uninsured	Single parents	Families with children under five
9	7	2	12

Following the floods, Hull City Council undertook a detailed survey of the flooded population of the city (see Section 3.1 *What is flood and where does it come from?* and Table 1 on p.31). The profile of the diarists is broadly similar in nature to the statistics from this city-wide survey in that homeowners are the largest group of those affected, followed by council tenants. However, as this was an in-depth, qualitative study, the aim was not to produce statistically representative data sets but to gain access to people's varied flood recovery experiences with a particular interest in those whose circumstances might make them particularly susceptible to the impacts of flood recovery – hence the inclusion of those with disabilities, single parents, the uninsured and families with children under five.

Recruitment for the diary study took place between October 2007 and February 2008 with the vast majority of the diarists being recruited before Christmas 2007. This was a deliberate decision as we wanted to ensure that as many people as possible were able to get started on their diaries before too much time had passed since the floods.

Participants were also offered payments in recognition of their flooding expertise and to cover any expenses and inconvenience encountered in writing diaries and attending group discussions.

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[7] Frontline workers were those who helped and supported flooded residents through their job roles.
[8] Where people had more than one kind of displacement, i.e. hotel followed by rented house, their main form of accommodation has been listed.

In addition to the 10 frontline workers involved in the diary component of the study, we also conducted interviews with a further eight frontline workers, giving us 18 in total for that category. One of these eight additional worker interviewees was also flooded at home. The employment roles of the 18 frontline workers are summarised as follows:

Job role	Number of interviewees
Teachers	2
Caretakers/community centre managers	3
Community wardens	3
Public and voluntary sector employees	8
Journalists	1
District nurses	1

2.3.3 Diaries

The methods for data collection centred firstly around the use of weekly diaries over an 18 month period. The chief advantage of using diaries for research is that they provide a regular, personal and contemporaneous record of people's experiences (Alaszewski 2006, Meth 2003). By giving participants the freedom to choose what to write about using their own 'natural language' (Coxon 1996) the researcher can gain "privileged access to the diarists' perceptions and world" (Alaszewski 1996, p.42. See also Elliot 1997, Verbrugge 1980, Zimmerman and Wieder 1977). Crucially for the purposes of this study, diaries also offer a real-time record of events and experiences which make it possible to study change over time (Hayes, 2000). This meant that we were able to track the flood recovery process as it was experienced by the participants on a week by week basis.

Building on the design used by the FMD study (Convery *et al.* 2008), the weekly diary booklet began with a few 'warm up' exercises where we asked participants to rate their quality of life, relationships with family and friends, and health using a simple scale ranging from 'very poor' to 'very good'. There was also a section where they could enter details of what they had done on particular days during the week. The main purpose of these sections was to get the participants used to writing in readiness for the main, unstructured part of the diary where they were encouraged to write whatever they liked about their lives that week. A copy of the diary format is included in Appendix 3.

In practice, most people chose to handwrite their diaries in the A5 booklets provided. For the purpose of archiving and analysis, these were then transcribed into electronic format. Some participants preferred to complete their diaries on their own computer[9].

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[9] We were aware that using diaries might cause problems for those with low levels of literacy or visual impairment and, for this reason, we were also willing to offer dictaphones for people to speak into and record their thoughts. In practice, no one took this option.

Figure 3 Example of a participant's diary

Throughout the project, we encouraged the diarists to reflect upon the process of writing a diary. Some of their thoughts on this issue are reproduced in the box below.

Box 1 Writing the diaries

For many participants, the diaries provided an important space in which they could vent and process what they were going through. As Leanne described:

> "It was something like a lifeline that we had to cling on to because somebody was listening to us. You could actually put things down on a daily basis – one day it would make us feel a lot better and one day make us cry and get rid of all the feelings that had been pent up in the past 24 hours so I always thought it was a good thing and I still think so."
>
> Leanne, resident
> Group discussion, October 1st, 2009

Tessa agreed that the diaries had some therapeutic value in helping her through the recovery process:

> "You could write your thoughts down. You know, your husband's going through it or your partner or whatever, and I used to go to bed at night and I'd write down exactly what had happened every day. I know some people did theirs weekly, I did mine every night and then I would give it to Bob and he would put it on the computer or type it out for me."
>
> Tessa, resident
> Group discussion, October 1st, 2009

Emma also saw the diaries as helping her overcome her sense of isolation and keeping track of how she was thinking and acting about things:

> "Writing my emotions down was a relief, really because there were no phones, until I got a mobile phone I was out of touch with everybody. I had to rely on my daughter to ring the insurance and sort it all out, so it was a way of communicating with myself I think!"
>
> Emma, resident
> Group discussion, October 1st, 2009

However, Caroline wanted to take part in the study because she wanted to ensure that those affected by floods in future did not suffer the same problems as people in Hull. But she found doing the diaries to be more demanding than she anticipated because so little time was left after coping with the floods. She also found that writing the diaries intensified the emotions that she was experiencing:

> "I spend most of my time doing those, catching up, I've not been able to achieve doing it every week. But every time I get those things out I end up in tears… at the moment, I am still finding it very emotional"
>
> Caroline, resident
> Group discussion, April 24th, 2008

Like some of the other diarists taking part in the project, she also worried in case she was not writing the 'right' things:

> "Just got home in time for Beccy to collect diaries. As usual just lately I wasn't up to date with them. Don't even know if I'm doing what they need."
>
> Caroline, resident
> Diary, March 17th, 2008

We reassured Caroline and those like her that, firstly, there was no 'right' or 'wrong' way to write – what mattered was what seemed important to them. Secondly, we made it clear that diary writing should not exacerbate problems and that people should stop if they felt doing the diaries was making things harder. Five participants discontinued writing for these reasons, although three of these continued coming to the group discussion sessions.

2.3.4 Interviews

Interviews are a valuable tool for social science research because they allow the researcher to develop a deeper understanding of what particular experiences mean to individuals by allowing the interviewee to describe things that are important to them in their own words (Mason, 2002; Ford & Merriman, 1990). We undertook two sets of interviews. First, initial interviews with the diarists enabled us to catch up with events through their eyes (clearly we were not researching during the flood event itself). The interviews were semi-structured to ensure that participants were able to raise issues that were important to them. Second, additional interviews with eight frontline workers who were not part of the main panel of diarists took place in early summer 2009. The purpose of these interviews was to provide us with more

information about what it was like to cope with the flooding as it was encountered in their working roles. All interviews conducted for the project were taped, transcribed and anonymised, with the respondents' permission. Interview themes for both residents and workers are contained in Appendix 2.

2.3.5 Group discussions
The original project design prescribed two group discussions with the diarists – one at the start and one towards the end. However, following our first group session in April 2008, diarists requested to meet quarterly. While the initial aim of the discussions was to encourage group reflection on the challenges they were facing and suggestions for the future, the adjustment to more frequent group discussions reflected, firstly, the 'therapeutic' role the groups came to offer and, secondly, the expertise that emerged as the diarists grew more confident in sharing their experiences and opinions about flood recovery and drainage management issues (see section 5.3.4).   This emerging expertise meant that the groups evolved to take on a more participatory, consultative role through interaction with steering group members (see section 2.3.7). Within the literature, the use of standing panels in different forms as a consultative mechanism is well known (e.g. Coote and Lenaghan 1997) and, by combining this approach with the diary study and continued stakeholder engagement, we tried to address the problem that such deliberative processes often have little 'follow through' and opportunity for learning (Dowswell *et al.* 1997; Harrison and Mort 1998; Kashefi and Mort 2000; Kashefi 2006).   Again, we followed a semi-structured format when running the sessions in that we would introduce key issues that we would like to ask about. The issues comprising the more structured parts of the sessions came from an initial analysis of diary material which allowed us to ground the discussion in the issues people had been raising throughout their diaries. However, for the most part, we would simply let the conversation flow and allow the diarists to bring up the issues that they felt were most relevant for them. As with the interviews, the group discussions were recorded and transcribed for inclusion in the archive.

Box 2 Taking part in group discussions

The group discussions played an important role in the lives of many diarists. Jan stopped doing the diaries early in the project because she felt that she did not have the time to complete them at the same time as upholding all her other responsibilities. However, she continued to find the group meetings helpful – both on a personal level and in terms of what she hoped they could do for others in the future:

> "I just stopped [doing the diaries] because I didn't have time to carry on, but I've still been coming to the meetings and everything because it was so helpful and you felt as though you were actually doing something so hopefully changing things for the next time. Maybe somebody would actually listen to what we were trying to tell them."

<div align="right">Jan, resident
Group discussion, October 1st, 2009</div>

Tessa had similar feelings about the support that she gained from coming to the group:

> "It was a lifeline. I've said it from the beginning, you came and you were speaking directly to people who were in the same boat, we were all for each other."
>
> Tessa, resident
> Group discussion, October 1st, 2009

For Amy, it was the group sessions that provided the catalyst for the supportive relationships that the diarists developed with each other throughout the project.

> "What I really think everything started from was that first group meeting and meeting people who'd been through similar situations and it was the ability to talk to people whether you were up or down, and to be able to help people if they were down and support them when they were up and because we were all in probably very different situations but very similar situations and emotionally we knew how people felt at different times. We just had one main pull together and we all just hit it off from then."
>
> Amy, resident
> Group discussion, October 1st, 2009

Such comments reflect the therapeutic role of the groups and the ways in which participants used them to exchange support and information with other people.

2.3.6 Analysis

The analysis followed the principles of grounded theory (e.g. Glaser 1992, Strauss and Corbin 1994) which involves a process of constant comparison by breaking down, examining, comparing, conceptualizing and categorizing data in order to develop core analytical themes that were recurrent and robust. In practice, this was achieved through the use of 'data clinics' a process where the entire research team would read a sample of diary/interview/group discussion and then meet to compare and discuss emerging themes. This process was repeated through data clinics looking at interview transcripts, diary transcripts and group discussion transcripts. The result was five core themes: flood recovery as a journey (chapter 3); the emotional and health impacts of flood (chapter 3); the work of flood recovery (chapter 4); reassembling social life, and perspectives on the future (chapter 5). The themes were also discussed with the project steering group and the diarists.

A key problem we faced early on in the analysis was the question of how best to represent the data, given the large volume of material involved. With well over 1,000 documents to study (including interviews, group discussions and diaries), this study could not aim to analyse everything – although all material was read. Ultimately, the best solution we found was to use a flexible approach, depending on the subject in question. For example, when looking at 'key events' (a sub-theme under "emotional" responses to flood) such as Christmas, birthdays or the first anniversary of the floods, we coded each mention of these events, so that we could look across the data and compare everyone's responses. However, other issues such as the effect of the floods on family life or managing and negotiating expertise were best illustrated by different approaches, such as including selective 'vignettes' from diarists who recorded contrasting experiences, or a more in-depth analysis of the recovery trajectories of individuals. Another useful

technique was the timeline (see Figures 4-6) – a graphical representation of a diarist's recovery story. Timelines could be compiled for those who had chosen to fill in the 'warm up' sections at the start of the diary, where they rated their quality of life, health and relationships for the week on a simple scale. These participants' responses could then be put on a graph together with some of the comments they wrote beside their responses to illustrate what lay behind their answers. In this way, it was possible to get a visual representation of how the recovery process was progressing. Using these strategies we believe we have found a way to illustrate commonly experienced effects as clearly as possible, while also doing justice to the particular context of individual experiences.

2.3.7 Stakeholder participation and dissemination

From a very early stage in the project, we felt that it was important to involve policy makers and stakeholders with an interest in flood and flood recovery so that we could exchange information in ways that would both benefit our project and influence policy and practice to help those flooded in the future. There were three key mechanisms for this engagement process throughout the project: a steering group, stakeholder presentations and consultation responses, and a project workshop.

Steering group

A key element of the research involved the use of a project steering committee – a group of committed stakeholders with an involvement in flooding issues at the local and national level who came together at various stages throughout the project in order to provide feedback and suggest opportunities for dissemination of the findings. The organisations involved in the steering group are listed in the box below. A diarist was also represented on the group. The steering group performed various roles during the project. In the first instance, steering group members were able to comment on the research design and methodology while the project was being set up – in particular, the expertise of the local organisations helped us to make contacts in Hull and identify potentially vulnerable groups who might otherwise have been missed. Regular steering group meetings throughout the course of the project were also helpful in providing input and suggestions on reports and future work plans. Secondly, the steering group provided an important means of breaking down the gap in expertise between the 'flood experts' and the 'diarists'. From the start of the project, we worked on the premise that it was the diarists who were the experts in flood recovery, simply because they knew what it was like to live through a flood in ways that the researchers, policy makers and stakeholders did not. As described in the boxes overleaf, the existence of the steering group helped this process of sharing and acknowledging expertise to take place.

Project Steering Group	
Association of British Insurers	Humber Primary Care Trust
Cabinet Office	JBA Consulting
Diarist	Middlesex University
Environment Agency	National Flood Forum
Hull City Council	North Bank Forum
Hull Community and Voluntary Services	University of Cumbria
Hull Residents and Tenants Association	Yorkshire & Humber Neighbourhood Resource Centre

In addition to researching the impacts of flood recovery, we were also eager to learn more about how the steering group members viewed the research methods that we had employed. As explained in section 2.3.8 we commissioned an independent researcher (Kashefi) to evaluate the project methodology through interviews and group discussions with steering group members and diarists. The box below includes some of the comments that steering group members made about taking part in the project.

Box 3 On forms of engagement in the project

Firstly, there was praise for the way in which the diarists themselves were supported and handled:

> "I think all things considered, with the trauma the diarists were going through, I think it was handled very, very sensitively and done very, very professionally. And I know from a couple of colleagues I've spoken to, they said it was like having an extended family and that said it all for me. You realise that somebody out there does care"
>
> Steering group member
> Interview, October 2009

For others with more strategic roles, the project provided an important source of connection to the kinds of issues and debates affecting people in real-world situations that enabled them to develop better policies and practices for the future:

> "The thing for me is to hear the real people on the ground, who were involved in the emergency, what happened, how did it affect them, what sort of things could have been better? I think at national level … there are lots of bits of government that actually don't consult that much with people on the ground and what you end up with is a policy that's good for an ivory tower in Whitehall but is actually useless for real people trying to deliver it on the ground. So I think the value of projects like this is that it enables the people writing the policy to talk to the people on the ground, to hear how it really was for them, rather than how they think it might have been"
>
> Steering group member
> Interview, October 2009

> "It was great to meet some of the other members of the steering group – it was a great networking opportunity – that was really useful. I found it quite different to the rest of the work I do so it was quite interesting from a personal point of view to have a slightly different look at things"
>
> Steering group member
> Interview, October 2009

Another key feature of the project for some stakeholders was that it revealed possibilities of a new and more practical role for academia within policy and stakeholder communities and, potentially at least, a new method that could be used to help the recovery and learning process after disasters:

> "I think the key learning that came out for me was the whole role of academia; I wasn't quite sure what it was. Normally academia, in my biased opinion, comes in quite late and tells us what we already know a couple of years later. This sort of action research approach seems to me, what I witnessed was quite a unique role of academia facilitating a discussion without an agenda… It should be a model that's written up and perhaps used after any incident …"
>
> Workshop attendee
> Interview, October 2009

Yet another steering group member reflected on the way in which the feedback processes between the steering group, diarists and research team were able to shape the project process in a way that was beneficial to all involved:

> "…because they had the steering group and they had some really good people round the table, and because they listened to the feedback from that group, there were lots of tweaks and changes made in the way the project was handled. And issues they pushed for or information they tried to extract from the diarists is a direct result of the steer they got from the steering group. So whilst there might have been a few things at the beginning that weren't ideal, actually those were improved throughout the project, so I think at the end what we came out with was something really useful. I think if they'd stuck with the original intention it might not have been quite so useful. It showed the value of the steering group I think."
>
> Steering group member
> Interview, October 2009

Stakeholder presentations and consultation responses

A key feature of the project was the role that it played in helping to influence the changing policy agenda after the 2007 floods. The case for policy engagement was particularly strong because it was clear from an early stage in the project that our emerging findings could help answer many of the questions that government departments and key agencies were asking in the wake of the 2007 events. As expressed in Box 3 (above), the much longer timescales needed for academic research can sometimes be problematic for policy makers and practitioners who need to move more quickly. However, this study tried to address this problem by presenting and discussing its emerging findings with policy and practitioner communities throughout the entire research period. There were two key mechanisms that we used to do this.

Firstly, the network of contacts accessed through the steering group provided us with plentiful opportunities through which to promote the project's findings, for example at stakeholder events and workshops. Such events not only maximized opportunities to present the emerging results, it also gave us valuable feedback to inform further analysis. For a full list of stakeholder engagement activities, see Appendix 5.

Secondly, we made a direct contribution to the policy process by providing evidence to the government's Pitt Review and three Defra consultations – on property-level resistance and resilience measures, the

National Flood Emergency Framework and the Draft Flood and Water Management Bill. Summaries of our responses to these documents are provided in Appendix 6-9.

'After the Rain' Project Workshop
On the second anniversary of the floods, June 25, 2009, we held a project workshop that brought the diarists together with steering group members and local, regional and national policy makers, the insurance industry and representatives of other organizations with an interest in flood recovery. This interactive workshop involved a series of activities that engaged participants in the experiences, challenges and implications of the flood recovery journey.

The day started with two 'live' group discussions, where the diarists sat round a table and discussed their experiences, with the audience listening in as part of a wider circle behind. We then progressed to more interactive activities and finished with a stakeholder group discussion, to explore the issues from practitioner perspectives. Box 4 gives some examples of people's reactions to the workshop and the ways in which it was run. These quotations are also taken from Kashefi's independent evaluation of the methodology (see section 2.3.8).

Box 4 Reflections on the Workshop

To help create an environment where diarists and stakeholders could mix on an equal footing, we asked everyone to come in casual clothes. According to several people, this had a big impact on the kinds of interactions that were able to take place on the day:

> "I think going in casual clothes subconsciously makes you more approachable from
> their point of view and I didn't feel like I was there on display either. You could sort of
> blend in and go and chat to somebody. It was a more natural conversation than going
> up as a sort of authority figure, which was really good".
>
> Steering group member
> Interview, October 2009

The workshop also provided stakeholders with an ideal opportunity to experience the project process – and its results – first-hand, in a succinct and powerful way:

> "You got a better idea of how much it had affected the whole community and not just
> the individual people but also that some people find it more difficult to deal with it than
> others, and taking that human aspect into account is probably something we don't do
> enough of."
>
> Steering group member
> Interview, October 2009

Box continued overleaf

> "I think my emotions ranged from, fascinated to this is a bit voyeuristic, because they were opening up. Because on the one hand I was thinking tell us a bit more then, but then I was feeling guilty about hearing the pain. I think it was quite therapeutic for them and when good therapy happens it sort of rubs off on everyone and everyone feels a bit better. I think their honesty made the practitioners more at ease. If you'd put the responders on first they would've got defensive I think. To have an inner circle where people are having a chat and then there's people around listening is very, very effective I think."
>
> Workshop attendee
> Interview, October 2009

Crucially, some of those who attended the workshop felt that they were able to take away real-world examples to help them improve what they did as part of their day jobs:

> "I do use some of the quotes and stories I heard in my teaching. There've been a few examples of being able to contextualise theoretical policy discussions with real life examples in the training. And I think that's why I went, to try and get some real live up-to-date examples of real people who have gone through something. You know, how do you make these things real to people? The only way to do that is to quote real people"
>
> Workshop attendee
> Interview, October 2009

There was therefore something very powerful about hearing about the experience of flooding in the most direct form possible – i.e. the stories as told by those people who actually experienced it.

2.3.8 Evaluation of project methodology

At the end of the project, we conducted a number of exercises in order to evaluate the success of this methodology. Specifically, we held two small group discussions with diarists at the final group meeting in October 2009 where they talked to an independent researcher (Kashefi) about their experiences of being on the project. This researcher also carried out a postal survey with a larger number of diarists in order to capture the views of those not present at the group meeting. Finally, the researcher also interviewed some members of the steering group and workshop attendees in order to reflect on the project's engagement with stakeholders and the value of the research. Comments from these group discussions and interviews have been used as evidence throughout the preceding sections to illustrate the points made. The evaluation process confirmed what we had suspected from an early stage of the research – which was that the project process had value above and beyond its role as a research method. Firstly, there was the therapeutic role of the project which was achieved through the way in which the group sessions created a collective space within which residents could meet and share experiences – thereby providing each other with support and advice. Secondly, as expressed by the steering group member on p.25, the project also provided a mechanism for learning in the aftermath of the disaster and engaging with policy. By creating a forum through which the diarists and steering group could interact in a constructive way over a sustained period of time, the project was able to promote respect and learning between steering group members and diarists in ways that can be more difficult to achieve with one-off consultation events.

2.4 Chapter summary

This study sought to understand the protracted experience of flood recovery from the perspective of the householders and workers who had to live through it. Using ideas of vulnerability and resilience, we adapted an in-depth, qualitative methodology based around the use of diaries, interviews, and group discussions in order to follow people's experiences through the recovery over 18-months. The project also brought together a steering group encompassing stakeholders and policy makers with an interest in flood recovery and this steering group, in tandem with the diarists themselves, helped shape the analysis. Our emphasis has been on participatory methods and interactive working between participants, researchers and stakeholders. The feedback that we have received from both diarists and stakeholders has been very positive and suggests that this project process could be used beyond a flooding context in order to promote learning and recovery in the aftermath of other kinds of disaster.