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Synthesis of flood social science evidence for policy decision and delivery improvement

Final report

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This document has been prepared by Brook Lyndhurst Ltd on the basis of a research exercise conducted by Brook Lyndhurst with advisory input from Collingwood Environmental Planning and Dr Nigel Watson.

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Contents

Definitions

Community: "*The definition of community ... combines three elements of community: the spatial element; social relations and structures such as networks; and cognitive or psychological elements such as local or group identities and the creation of belonging/exclusion.*"[1]

Community participation: "*Community participation concerns the engagement of individuals and communities in decisions* [or actions] *about things that affect their lives. … Community participation means that communities are playing an active part and have a significant degree of power and influence.*"[2]

Resilience: "*The capacity of an individual, community or system to adapt in order to sustain an acceptable level of function, structure, and identity.*"[3]

Community resilience: "*Communities (social, spatial, cognitive) working with local resources (information, social capital, economic development, and community competence) alongside local expertise (e.g. local emergency planners, voluntary sector, local responders) to help themselves and others to prepare and respond to, and to recover from emergencies, in ways that sustain an acceptable level of community functioning.*"1

Community-led flood risk management is considered to be equivalent to community resilience, but limited to the context of flooding.

Abbreviations

CSO	Civil society organisation
FCERM	Flood and coastal risk management
LLFA	Lead Local Flood Authorities
NGO	Non-governmental organisation
PLP	Property-level protection
RRC	Rapid response catchment

[1] Twigger-Ross, *et al*. (2011) Community Resilience Research: Final Report on Theoretical Research and analysis of Case Studies report to the Cabinet Office and Defence Science and Technology Laboratory. Collingwood Environmental Planning Ltd, London

[2] Burns, *et al.* (2010) Making community participation meaningful: A handbook for development and assessment [www.jrf.org.uk/sites/files/jrf/jr163-community-participation-development.pdf]

[3] Cabinet Office (2011) Strategic National Framework for Community Resilience

Executive summary

The current context for flood risk management in the UK is one of a transition away from a centrally funded and coordinated model, to a multi-level process of governance involving a wider range of public and private organisations and groups, and individuals. At the same time, the flood insurance system in the UK is also in the process of undergoing a significant change, with the previous 'Statement of Principles' coming to an end and a new system currently being discussed by the insurance industry and the Government.

Given the new emphasis on shared responsibility and action, understanding individuals' attitudes and behaviours, and the capabilities and constraints which shape community responses to flooding, is of critical importance to the development of the new, more collaborative model of flood risk management. *Synthesis of flood social science evidence for policy decision and delivery improvement* aimed to collate, assess and synthesise available flood social science evidence from a range of sources, and to identify gaps in existing knowledge, so as to inform policy makers' considerations on this model. Key elements of the approach included:

- The project was a synthesis of multiple strands of evidence, in an iterative approach, following guidance provided in the Magenta Book[4].
- The project team worked collaboratively with the project Steering Group and other stakeholders to formulate problems and solutions jointly, and encourage learning from the research process.
- Sources of evidence were diverse, including: literature, insights from experts, workshop participants and case studies, as well as the expertise and input of the project team and the Steering Group.
- The approach had the significant advantage that it allowed the perspectives of various practitioners to be synthesised alongside formal academic evidence.

For a full description of the methodology see 'Aims, objectives and approach'. Due to the wide range of issues and questions associated with flood risk management, and the limited set of evidence to be reviewed, two themes were selected to focus the work.

Theme 1: How can government departments and agencies encourage and nurture community and inter-organisational relationships to promote local Flood and Coastal Risk Management interventions and actions?

The theme was broad, covering many issues, and there was a large volume of detailed information in the literature reviewed; there has been a significant amount of research conducted, particularly since the 2007 floods, assessing the impacts of flooding and the performance of the various actors involved in flood risk management across the flood

[4] www.gov.uk/government/publications/the-magenta-book

cycle. Some of this learning has been used to inform guidance on engagement of communities in flood risk management.

When considering flood risk management at a location and approaches to engage a community, the evidence shows that it is important that institutions are aware not only of the flood risk (e.g. geographical factors that may lead to rapid-onset flooding) but also have a good understanding of the social characteristics of people within communities in order to understand who is at greatest risk and the likely response to engagement. 'Real life' stories of communities that have fared well during flood incidents, for example due to their establishment of emergency flood plans prior to a flood event, can be used to help stimulate action in neighbouring communities. A key institutional role in the transition to community-led flood risk management is supporting the development of capacity and capabilities at the local level. The experiences of the localism agenda and activity in Cumbria suggest that town and parish councils have an increasingly important role at local level and can be effective structures to provide local leadership on flood risk management as they provide continuity for actions such as emergency plans. In the context of increasingly limited resources available to local authorities, county councils and the Environment Agency, this approach also provides opportunities for operational efficiencies. However, potential risks of a shift to community-led flood risk management are also identified, including narrowing of interest to the point where decisions may not be optimal for the wider interest, diffusion of accountability and loss of pressures to secure value for money, geographical variation in service provision and loss of economies of scale.

Experience in Cumbria has also shown that there is an important coordination role to be played by local authorities to liaise with communities, emergency responders and individuals representing NGOs/CSOs (who may be providing support and assistance to communities and emergency response teams during flooding and recovery stages) when flooding emergencies occur.

There is potential to improve dissemination of lessons learned and better signpost existing good practice guidance.

Theme 2: What actions do individuals take to reduce their flood risk before and after a flood, what are their motivations and drivers, and how does access to insurance affect these?

Overall, there was a lack of evidence available in response to theme 2. For example, the review found no evidence regarding the attitudes and behaviours of self-employed individuals or micro-businesses to insurance.

For the majority of individuals, flood insurance (as part of household contents insurance) is the primary, if not the sole, source of mitigation against flood risk. However, there is currently no link between access to insurance and individuals attitudes and behaviours in relation to property-level protection.

Evidence related directly to the impacts of financial exclusion on attitudes and behaviours was limited; so, as well as attempting to draw out anything of direct relevance, other points

of interest to the question have also been explored. It is generally well established that the take up of other types of insurance – such as contents insurance – is significantly lower amongst low-income households. There is recognition that increasing insurance costs experienced by those who are flooded may lead to further exclusion on financial and affordability grounds. There is also an assumption that, for obvious reasons, those on low incomes will be most likely to feel a high impact from increasing insurance costs.

The Bodenham case study highlighted actions and issues of interest:

- Compilation of a list of recommended insurers in response to difficulty encountered by some individuals in gaining insurance
- A lack of recognition by insurers (e.g. discount/reduction in their premium or excess) of any of the flood risk mitigation work undertaken
- The suggestion that insurance reductions are not a key motivating factor for individuals' participation in the group
- Lack of understanding around flood insurance and risk
- Ignoring or denial of flood risk by many individuals and other actors

Other issues raised during the synthesis not directly related to the research questions which may be of interest to FCERM policy makers are set out in 'Other emerging issues'.

The 'Discussion' section highlights issues of importance for flood risk management social science, and knowledge gaps and evidence needs. In summary, social science research has an important role to play in better understanding local communities before engagement, providing methods to test flood risk management approaches, such as the provision of flood warnings, and help during evaluation of flood risk management process to improve understanding of their effectiveness and best practice for flood risk management actors. Social science can complement other forms of information under an interdisciplinary approach to support flood risk management decision-making.

Evidence gaps identified suggest that future social science could focus on understanding:

- Communities' and individuals' attitudes and behaviours, and the effect of experiencing flooding on these.
- Attitudes and behaviours of businesses to flood risk management.
- How best to present or communicate knowledge to different audiences, such as probabilistic information which could for example help increase warning lead times.
- The responses of individuals to different incentives, and the effect of current and future potential insurance market mechanisms for flood insurance.

Lastly, 'Opportunities for action' are proposed, including questions that social science research can help to answer and actions that may help to improve flood risk management outcomes. These are based on an understanding of the new emphasis on shared responsibility and action to manage flood risk, the findings of this evidence synthesis, and

the issues and evidence needs raised in ‘Discussion’ section. Social science research can help to address the evidence needs and complement other forms of information under an interdisciplinary approach to support flood risk management decision-making and development, investigating questions such as:

- What are individuals’ motivations for and barriers to taking action on flood risk management?
- How do attitudes vary in regards to being given agency to act on flood risk management?
- What is the effect of experiencing flooding on individuals’ attitudes and behaviours?
- At what point after (or before) a flood could individuals be most effectively engaged (i.e. is there a suitable ‘moment of change’ to target)?
- What are the attitudes and behaviours of businesses to flood risk management?
- What are individuals’ and businesses’ reactions to (different forms of) incentives?
- How do individuals’ experiences of dealing with insurance claims following flooding affect attitudes and behaviours in relation to insurance?

Flood social science research could also help during evaluation of flood risk management processes, answering questions such as ‘What are the institutional forms that work best at different geographical levels?’, ‘Who should disseminate ‘good practice’?’ and ‘How should this be done?’

In regards to flood risk management roles, the finding suggest that institutional support could be used to better share, at a national level, lessons learned during experiences of flooding and engagement efforts. Institutional support may also assist in reducing post-flood impacts, for example through assessing the quality of service of insurance providers or building works, or providing support or assistance to communities to take on this role and support each other.

Context

There are complexities and uncertainties associated with different types of flooding[5]. Flood risk management can be described as a complex 'socio-technical system' that links physical elements (e.g. flood risk infrastructure) with a range of actors operating at a variety of spatial and temporal scales (e.g. government, private utility companies, communities), rules (e.g. acceptable flood risk standards) and norms (e.g. appropriate action in emergencies) in order to provide a particular function (i.e. prevention of flooding itself, limitation of flood impacts, and/or recovery from the physical, economic, social and emotional effects of flooding).[6]

The current context is one of a transition away from a centrally funded and coordinated model of flood risk management, to a multi-level process of governance involving a wider range of public and private organisations and groups, and individuals. There has been a shift in responsibility for Flood and Coastal Risk Management (FCERM) to the local level through a number of governance mechanisms that have been implemented since the Pitt Review in 2007 as a result of the Floods and Water Management Act 2010 in England and Wales.[7] A key change associated with this was the creation of Lead Local Flood Authorities (LLFA) who are now tasked with the lead responsibility for managing the risk of flooding and development of strategy for flood risk management in their areas. At the same time, the flood insurance system in the UK is also in the process of undergoing a significant change, with the previous 'statement of principles' coming to an end and a new system currently being discussed by the insurance industry and the Government.

Given this new emphasis on shared responsibility and action, understanding individuals' attitudes and behaviours, and the capabilities and constraints which shape community responses to flooding is of critical importance to the development of the new, more collaborative model of flood risk management. This document reports on a research exercise designed to support policy makers as they work to develop this model.

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[5] Types of flooding include: river, coastal, surface water, sewer, groundwater and reservoir. Descriptions of these are available at: www.environment-agency.gov.uk/homeandleisure/floods/31652.aspx

[6] This definition draws on Geels, F.W. (2004) From sectoral systems of innovation to socio-technical systems: Insights about dynamics and change from sociology and institutional theory, Research Policy, 33, 897–920, and Gersonius, B., Ashley, R and Zevenbergen, C (2012) The identity approach for assessing socio-technical resilience to climate change: example of flood risk management for the Island of Dordrecht. Natural Hazards Earth System Science, 12: 2139–2146

[7] Pitt, M (2007) Learning lessons from the 2007 floods: An independent review

Aims, objectives and approach

Synthesis of flood social science evidence for policy decision and delivery improvement (FD2671) aimed to collate, assess and, most crucially, synthesise available flood social science evidence from a variety of sources. The project also sought to identify gaps in existing knowledge. The overall objective was to inform policy makers' considerations on the transition to a model of flood risk management where communities and individuals play a greater role in managing risk and taking action to respond to the impacts of flooding.

The research was conducted by Brook Lyndhurst, who brought their deep understanding of social science, extensive experience in behaviour change research and a long track-record of working with Defra. Specific expertise and advice on flooding and flood risk management was provided by Collingwood Environmental Planning and Dr Nigel Watson at Lancaster University, who acted as sub-contracts to Brook Lyndhurst. Brook Lyndhurst was responsible for synthesising the evidence, drawing out and discussing the findings, identifying opportunities for action and for this report.

The project objectives were to:

- build capacity and understanding of current evidence and practice among policy colleagues;
- set a vision for locally-owned and managed flood risk management, which is grounded in social science evidence;
- synthesise findings from current evidence to understand the challenges associated achieving this vision; and
- assess knowledge gaps in current evidence and prioritise future research needs for FCERM policy.

The project was a synthesis of multiple strands of evidence, in an iterative approach, following guidance provided in the Magenta Book[8]. The strands upon which the synthesis is based are:

- a selective review of relevant literature (30 documents)
- contributions from participants (~50 practitioners, policy makers and other experts) at two workshops
- six in-depth interviews with relevant experts

[8] www.gov.uk/government/publications/the-magenta-book

- the project team's background experience in social science, behaviour change and flood risk management

- input from the project's Steering Group

The project was not intended as a systematic review; the review of relevant literature did not therefore use formal inclusion/exclusion criteria. The methodology and reporting were designed with the policy maker audience in mind. **A key element of the methodology was its deliberative approach**, working collaboratively with the project Steering Group and other stakeholders to formulate problems and solutions jointly, and encourage learning from the research process.

Sources of evidence included academic and grey literature, as well as insights from experts, workshop participants and case studies. The expertise of Brook Lyndhurst, our project partners, and comments and input from other stakeholders such as the Steering Group also fed into the synthesis. Some of the evidence was based on individual experience (i.e. potentially subjective and difficult to verify, or lacking in detail, but nevertheless potentially valuable: practitioner input can be especially important at times of rapid change, since there can be a lag before formal literature becomes available). Expert consultees interviewed were on-record but have been kept anonymous. **The approach had the significant advantage that it allowed the perspectives of various practitioners to be synthesised alongside formal academic evidence**. The parallels and differences between these various sources of evidence are drawn out in the 'Findings' section.

The project was delivered in six phases.

Phase 1: A scoping and visualisation workshop, attended by key policy makers, was held to develop a description of the type of behaviours and actions individuals/communities would need to adopt in an "ideal world" of FCERM, and produce a set of questions and policy challenges.

Phase 2: The long list of questions and policy challenges that were drawn out of the scoping workshop were considered by the project team in consultation with the Steering Group. Due to the wide range of issues and questions associated with flood risk management, and the limited set of evidence to be reviewed, the scope of the work was focused through selection of two themes:

- Theme 1: How can government departments and agencies encourage and nurture community and inter-organisational relationships to promote local FCERM interventions and actions?

- Theme 2: What actions do individuals take to reduce their flood risk before and after a flood, what are their motivations and drivers, and how does access to insurance affect these?

An overarching research question, to clearly define the scope of the literature search, and four sub-questions or sub-headings, against which to map the evidence, were also agreed for each of the two themes:

- Theme 1: What do we already know about what the institutional role is, and the role of other organisations, groups and individuals, in promoting effective community level action to manage flood risk, particularly in areas where the greatest challenges are; such as low-certainty, rapid-onset flooding and vulnerable or transient communities?
    - What actions are taken to promote community participation in FCERM in the UK and other countries?
    - How do the social and geographical characteristics affect the type and choices of actions available?
    - How are the actions promoted?
    - What are the most effective roles of the different actors in achieving community participation?
- Theme 2: What do we already know about relationships between insurance and its effects on attitudes and behaviours in relation to flood risk management?
    - Attitudes and behaviours around insurance
    - Attitudes and behaviours around property-level protection
    - The impact of financial exclusion on attitudes and behaviours in relation to flood risk management
    - Attitudes and behaviours towards insurance for self-employed individuals / micro-businesses

A research framework, set up as a database, was developed to provide a structure for the evidence synthesis. The framework incorporates the research outputs as well as information such as the search terms and the long list of questions raised during the scoping workshop.

The literature review was limited to UK based literature, and material published since 2005. An online search, using OneSearch, was performed to gather relevant academic literature. Due to the desire to locate evidence specific to the research questions, detailed search strings were developed (please see annex 2 for details of the keywords and search strings used). The online search generated approximately 100 results, and this list was supplemented with a few additional sources (which mainly constituted review papers and published Defra/EA reports) suggested by the project partners and Steering Group. The literature long list was then shortlisted based on a keywords search of titles. The resulting

shortlist was commented on by the project partners and Steering Group, and these comments fed into the selection of the thirty documents to be reviewed.

Six consultees from Government and academia were interviewed to draw upon emerging findings and policy implications from a selection of on-going projects and to probe whether there might be evidence in other fields relevant to the research questions.

The evidence synthesis also included investigation of two case studies[9], selected in agreement with the Steering Group. The case studies were not in-depth, aiming only to provide an overview and some practitioner insight; they did not include analytical or comparative assessments.

Phase 3: Two themed workshops, attended by key stakeholders from relevant stakeholder groups (including policymakers, operations managers, Local Authority representatives, academics and NGOs), were held to reflect critically on the findings of the evidence synthesis, discuss the issues and questions arising from that synthesis, identify and clarify gaps in the evidence, and consider what might constitute useful case studies. Briefing papers summarising the findings of the synthesis to date were sent to participants for review prior to the workshops. Other aims of the workshops were to identify issues such as whether there was common understanding and language amongst participants, the extent to which good practice was disseminated, and to help share learning. Summary notes of the discussions at each workshop were distributed to workshop participants, as well as others that had expressed interest but had been unable to attend.

Phase 4: Incorporating the findings from phase 3 into the overall synthesis, and producing a summary of the synthesis findings in a short report for policy makers.

Phase 5: Final Steering Group meeting to discuss the findings.

Phase 6: Dissemination event to discuss the findings with the target audience of policy, strategy and evidence colleagues in Defra and the Environment Agency.

[9] Theme 1 on actions taken to engage communities and promote participation in FCERM in Cumbria and Theme 2 on the activities and interactions with insurance providers of the Bodenham Flood Action Group

Findings

This section sets out the findings drawn from the evidence synthesis for theme 1 and theme 2, including summaries of the case studies, and highlights other issues indirectly related to the research questions which may be of interest to policy makers.

There are important points to reiterate and highlight in regards to the findings:

- The thirty documents comprising the literature reviewed (see Bibliography for details) were selected via a combination of an online literature search, expert advice from project partners and discussion with the project Steering Group.
- The literature review was not exhaustive, although the multi-method approach does provide an effective overview of the situation, and this report is thus complementary to other parallel work being undertaken by Defra and the Environment Agency.
- There is a risk that gaps in knowledge identified by the research may be gaps arising from the research methodology, rather than actual gaps in knowledge. The deliberative means by which the various research methods were brought together acted as a triangulation mechanism, thereby minimising this risk.

Theme 1: How can government departments and agencies encourage and nurture community and inter-organisational relationships to promote local FCERM interventions and actions?

The shift to increased participation and leadership by communities in flood risk management has raised the questions on what roles flood risk management actors are 'best' placed to take. The overarching research question for theme 1 was:

What do we already know about what the institutional role is, and the role of other organisations, groups and individuals, in promoting effective community level action to manage flood risk, particularly in areas where the greatest challenges are; such as low-certainty, rapid-onset flooding and vulnerable or transient communities?

The theme was broad, covering many issues, and there was a large volume of detailed information in the literature reviewed; there has been a significant amount of research conducted, particularly since the 2007 floods, assessing the impacts of flooding and the performance of the various actors involved across the flood cycle. Some of this learning has been used to inform guidance on engagement of communities in flood risk management, as discussed in the following sections.

Detailed findings are presented under the four theme 1 research sub-questions.

1. What actions are taken to promote community participation in FCERM in the UK and other countries?

The roles and responsibilities of public bodies in flood risk management have been adjusted under the Floods and Water Management Act 2010.[10] Actions taken to promote community participation (see 'Definitions') in flood risk management occur at the different stages of the flood cycle:

- **Before a flood** – awareness-raising and engagement, through:
    - flood defence schemes (i.e. partnership funding approach[11]); and
    - Community Flood Emergency Plans or Community Emergency Plans[12] (under which flood might be included in the risk register), and Flood Action Groups.
- **During a flood event** – flood warnings and incident management.
- **After a flood** – recovery and engagement (including debrief and learning). The engagement process at this stage is cyclical, merging back into 'Before a flood'.

The Environment Agency engages communities on a range of issues related to flood risk management, including planning and developing structural and non-structural flood defences, awareness raising and incident management. Local authorities have responsibility for surface water flooding, recovery from floods, emergency planning and community resilience to emergencies, and therefore also have a role in engaging communities. Engagement is achieved through various activities, such as public meetings, focus groups, flood fairs/product demonstrations and an annual national flood awareness campaign. Information is disseminated through various media, including social media, and flood alerts via public broadcasting or telephone messages.

Guidance on good practice for promoting community participation in flood risk management includes Harvatt, *et al*. (2011), which states *"Community ownership of issues can lead to innovative solutions and significant improvements have been made to schemes through engaging local people"* and suggests approaches for establishing and delivering coastal flood defence infrastructure schemes based on evidence from several case studies; for example:

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[10] For detailed explanation of these see: www.local.gov.uk/local-flood-risk-management

[11] www.environment-agency.gov.uk/research/planning/118129.aspx

[12] Activities at the local level are complemented by the structures set up to manage emergency planning, including Regional and Local Resilience Fora put in place by the Civil Contingencies Act 2004.

- *"... spend time defining absolute and desirable objectives for a project and/or the locality* [e.g. local development objectives] *... understand each other's reasons why these objectives are important and being pursued.*

- *The language used in communication activities should be appropriate for the audience and not vague or misleading ... Face to face communication, one-to-one contact to inform local communities about schemes and progress was often critical to scheme success ... Local community groups such as the Coastal Concern Action Group proved to be locally trusted communicators.*

- *All meetings and events involving partners should be planned to inspire confidence, trust and openness in and between partners and between the partnership and wider stakeholder interests.*

- *Provide opportunities to engage local communities and local stakeholders as early as possible in project planning and actively seek solutions and ideas for scheme improvement from the outset. ... Encourage local communities and stakeholders to take ownership of issues and specific aspects of a project. This should be part of a wider risk sharing approach."*

Colbourne (2009a), based on evidence gathered during interviews, meetings, workshops, literature review and web searches, suggests that there is room for improving the way that the Environment Agency collaborates with professional partners and communities on flood and coastal erosion risk management; examples of recommendations include:

- *"The Environment Agency should promote and support the development of community emergency/incident plans (and their practicing/updating), by the parish council (or equivalent). The various templates for community emergency/incident plans should be combined into a 'good practice' template which includes options for tailoring to particular circumstances such as the type of flooding, the type of organisations/their activity/presence in an area and so on. These templates should be made widely available*

- *The Environment Agency should NOT attempt to actively develop new community groups or flood wardens to work on flooding issues alone, but should support and work through other initiatives and with other organisations (local authorities) to build on existing or emerging groupings, including community wardens."*

Colbourne (2009a) also suggests that, of the three levels of change to improve the approach to collaboration by the Environment Agency and other partners it has identified, "*Level 2: Improving collaboration through the development of more accessible, actionable information and relationships*" is most appropriate to "*enable the Environment Agency, professional partners, communities and individuals to manage the complexity and urgency of flood and coastal erosion*", and provides actions to achieve this, such as "*Equipping staff with the permission and skills to collaborate with professional partners and communities as a core part of their work.*"

Cotton (2012) reviews flood incident management processes, and ideas under development, in eight countries[13] with comparable geographies and levels of economic development to the UK; examples of community participation in flood risk management and activities that may help to encourage it include:

- Local community and volunteer flood management planning evaluated and co-ordinated at the regional and national levels; large numbers of trained volunteers can activated at short notice to assist in flood response (Italy)

- Citizen responsibility to make their homes and gardens flood friendly, for example by building 'fascines' (areas within a garden of improved water absorption) and storm-gardens (an area designed to become a pond with heavy rainfall) (Denmark)

- 'Stormready' (i.e. branded) programme which assists volunteer groups in planning and increasing resilience to natural disasters (USA)

Groenendaal and Scanlon (2013), reviewing practice in other areas of public hazard emergency response, indicate that coordinating emergency response with local action can have benefits; for example a Fire Department in the Netherlands has developed a five-phase model for co-operating with citizens which assumes that victims and bystanders will start providing help before emergency personnel arrive, and integrates this assistance into a control process:

"*Special attention is paid to cooperation with emergent groups. First, professional responders are expected to "merge" onto existing social structures. If a group of people spontaneously begins to help the victims or emergency agencies, this group should be allowed to do so. The internal organisation of the group is not to be taken over by the professional emergency agencies since "reorganisation" during a crisis is often counterproductive. Professional responders are expected to legitimize those activists. This can be done by providing them access to the disaster area, give them special clothing so it is visible to others that they are approved volunteers, keeping them informed about the emergency work, and so on. Finally, professional responders are expected to find the natural leaders within the group and work with them, for instance by making arrangements only with these leaders of the group or inviting them to meetings about the progress of the emergency response.*"

These examples highlight areas where the UK could learn from flood risk management practice elsewhere.

[13] Australia, Belgium, Denmark, France, Germany, Italy, the Netherlands and the USA.

2. How do the social and geographical characteristics affect the type and choices of actions available?

When considering flood risk management at a location and approaches to engage a community, the evidence shows that it is important that institutions are aware not only of the flood risk (e.g. geographical factors that may lead to rapid-onset flooding) but also have a good understanding of the social characteristics of people within communities in order to understand who is at greatest risk and the likely response to engagement (Colbourne (2009a); Colbourne (2009b); Orr and Twigger-Ross (2009); Twigger-Ross et al (2011); Whatmore and Landstrom (2011); Whittle, *et al*. (2010)). This finding was supported by comments made during the theme 1 workshop (see annex 7) and Cumbria case study research (see annex 9). Efforts to engage communities in flood risk management should therefore take into account social characteristics such as:

- Perceptions
    - Experience of flooding can influence local perceptions, motivating action to mitigate risks.
    - Previous interactions with institutions – if these have not been positive, people may perceive the institution as ineffective.
    - Some communities perceive themselves as able to cope with flooding and may resent what they consider to be interference from institutions.
- Vulnerability profiles
    - Groups such as the elderly or disabled, for example, who may have limited mobility, may have more limited scope to act during a flood and therefore will be at greater risk of experiencing flood impacts and effects.
    - After a flood, some individuals are likely to be more vulnerable to financial and psychological stresses (e.g. downturn in local economy, the financial burdens of repairs or having to rent in a market of sudden high demand).

Other key variables include:

- Geographical characteristics determine the type and extent of flooding that a location is liable to, and the nature of the flooding influences factors such as warning lead time (e.g. Rapid Response Catchments), speed of flood water and actions that communities can feasibly take. The Cumbria case study suggests that rural communities, who may get cut off during flooding, have in particular been engaged in emergency planning and coordinating with neighbouring communities on mutual support during emergencies.

- Availability of timely and accurate warnings. Flood warnings are currently deterministic ('flood warning', 'severe flood warning', etc.). Orr and Twigger-Ross (2009) identify studies[14] that highlight a need to improve flood forecasting and warnings for locations that experience rapid-onset flooding (such as RRCs and urban areas protected by flood defences where a breach, although of low probability, could have particularly damaging consequences). One method of providing greater lead times could be the use of probabilistic warnings (e.g. '60% chance of flooding'); Orr and Twigger-Ross (2009) state "*One of the potential benefits of probabilistic flood warnings perceived by Environment Agency staff and professional partners is the possibility of giving earlier warnings. These could be of particular benefit to certain groups of people and emergency responders who may need more time to make preparations for flooding.*" Vulnerable social groups, for example, would benefit from more time to evacuate.

- Responsiveness to flood risk information and warnings. A range of variables affect responses to flood warning, including characteristics of the warning message, individual factors and social factors (Orr and Twigger-Ross (2009); Parker, *et al.* (2007); Twigger-Ross, *et al*. (2011)). The Environment Agency is currently conducting research on the presentation of flood risk information to the public.

3. How are the actions promoted?

The process of engaging communities and supporting the development of resilience is iterative, and has been described in the literature as an ongoing process; in designing engagement strategies aimed at increasing flood resilience organisations need to consider community characteristics and how these characteristics can change over time (Colbourne (2009a); Colbourne (2009b); DCLG (2011); Harvatt, *et al*. (2011); Kuhlicke, *et al*. (2012); Orr and Twigger-Ross (2009); Twigger-Ross, *et al*. (2011); Whatmore and Landstrom (2011); Whittle, *et al*. (2010); Elster Jones and Darnton (2012)). The literature highlights factors that are important for successful engagement of communities in flood risk management:

- A trusted individual is likely to be more effective in engaging a community than a 'formal' organisational approach.

- Partnership working among stakeholders during the conception of flood risk management – and, if flood defences are selected as the best option, the design, construction and management of the infrastructure – can help engage the

[14] Shaw, J., *et al*. (2005) Improving flood warning awareness in low probability and medium-high consequence flood zones. R&D Technical Report W5-024. Joint Defra/Environment Agency Flood and Coastal Erosion Risk Management R&D Programme. Bristol: Environment Agency; and Cave, B., *et al*. (2008) Understanding of and response to severe flash flooding. Draft. Environment Agency Science Report SC070021.

community, resolve any concerns at an early stage and, potentially, lead to cost savings and improved outcomes through, for example, alignment of varied local objectives (not all of which will necessarily be flood-related).

- Building on existing community structures/networks.

In addition, there were factors for successful engagement raised in the literature which were also identified and confirmed by statements made at the theme 1 workshop:

- Local knowledge should be taken into account to engage communities and allow them to question/add to the evidence put forward during the decision-making process for flood defence options. There is some evidence that this can lead to innovation through local people 'challenging the science'. Social science methods, such as facilitated focus groups, have been found to provide effective frameworks for integrating local knowledge into the design of local flood defence options.

- The language used during engagement is important, and it is especially important to avoid the use of technical terminology.

- The individual(s) responsible for leading the engagement with the community are important (e.g. they need to have 'people skills').

- Engagement is a long-term process and communities can lose interest if engagement efforts drop off for a period of time.

The literature included examples of guidance on decision-making for different scenarios of engagement with communities on flood risk management. For example, Colbourne (2009b) suggests the use of a "*Decision-type analysis tool*" (a sheet allowing selection of the most appropriate words to complete standard sentences in order to describe the characteristics of a situation) to help staff decide on the most appropriate amount and type of collaboration for a given situation.

The experiences shared by an interviewee with expertise in localism in other areas of policy (see annex 3) provide insights for community-led flood risk management:

- Encouraging community participation in new local decision-making opportunities is not an easy task; it requires sustained effort (i.e. investing time and other resources).

- It is often effective to make use of the 'power of the story'; this can help to contextualise the benefits (or losses) of inaction through use of real-life examples. The findings of the Cumbria case study support this, indicating that community participation in flood risk management can be stimulated by seeing other communities which have established emergency flood plans fare better during flood incidents.

- It is important to pinpoint influential individuals to lead local actions.

- Town and parish councils provide the structure and durability that can help provide leadership at the local level and are likely to have increased influence under the localism agenda.

The experiences of the localism agenda and activity in Cumbria suggest that town and parish councils have an increasingly important role at local level and can be effective structures to provide local leadership on flood risk management as they provide continuity for actions such as emergency plans.

Comments at the theme 1 workshop and during research on the Cumbria case study suggest that there is potential to improve dissemination of the sorts of 'lessons learned' detailed above and to provide better signposts to good practice guidance, whether between national and local level, or from local-to-local level.

4. What are the most effective roles of the different actors in achieving community participation?

Much of the evidence on what is 'best' for achieving community participation in flood risk management is qualitative.

A key institutional role in the transition to community-led flood risk management is supporting the development of capacity and capabilities at the local level. In terms of emergency response during a flood event, local people may be the first to take action during a flood, and community flood response action plans may help to raise awareness and reduce vulnerability.

Experience in Cumbria has shown that there is an important coordination role to be played by local authorities for emergency response, through the establishment of local operational centres called 'Operational Coordinating Groups'[15], which liaise with communities, emergency responders and individuals representing NGOs/CSOs (who may be providing support and assistance to communities and emergency response teams during flooding and recovery stages) when flooding emergencies occur. Whittle, *et al*. (2010) note that in some cases professional emergency response can be perceived as ignoring or belittling community plans/actions to prepare for a flooding event; however in Cumbria the Flood Centres now communicate with communities as they would their professional emergency response partners.

There is also some analysis of cost-effectiveness of engagement and partnership approaches in the literature:

[15] These are equivalent to a 'Bronze' command and control level. For further details see: www.cumbria.gov.uk/eLibrary/Content/Internet/535/600/4145711938.pdf

- Straw and Colbourne (2009) find that the highest engagement benefit:cost ratio is achieved by making the right decision about how much to engage, and doing engagement well and efficiently (see ‘How are the actions promoted?’ section).

- Defra (2012) evaluated the Coastal Change Pathfinder Programme and found that the projects funded demonstrated good value for money and delivered a wide range of benefits (to individuals, communities, local authorities and partner organisations).

DCLG (2011) raises potential risks of actions such as the shift to a community-led flood risk management, including narrowing of interest to the point where decisions may not be optimal for the wider interest, diffusion of accountability and loss of pressures to secure value for money, limits to provider expertise available at the local scale, geographical variation in service provision (also discussed at the theme 1 workshop), and loss of economies of scale and greater administrative costs.

Cumbria 2009 floods case study

Method

The work involved two interviews with contacts in the Environment Agency, and the review of a number of documents provided by the project Steering Group and interviewees in support of or reference to their interview responses. The decision to investigate Cumbria was based on a desire to conduct a case study at a location within the UK that had taken new approaches to engaging communities in flood risk management following two recent episodes of severe flooding (in particular the 2009 floods). The interviews took the form of open, exploratory questioning around the engaging communities in flood risk management. For further detail, see annex 9.

History

Carlisle, Appleby, Cockermouth and Keswick in Cumbria experienced severe flooding in 2005. In November 2009 Cumbria again experienced severe flooding, more widespread than that of 2005. Before the floods of 2005, the Environment Agency focused on public awareness campaigns at a general level (e.g. posters and newspaper adverts). After the 2005 floods the Environment Agency Flood Resilience Team decided to actively engage communities instead of continuing the ad-hoc approach; this was successful in bringing together community leaders and, importantly, creating a single point of contact with the communities. The 2009 floods tested the emergency plans developed post-2005, and communities with these in place fared relatively well.

Lessons learned during the 2009 floods

The emergency response struggled to efficiently manage such widespread flooding; a large proportion of resources were sent to Cockermouth due to the severity of the flooding there, which led to a duplication of effort between professional responders and volunteers’ support. A database of volunteers and their skills is being considered to better manage this resource in the event of another flood.

An important factor in effective emergency response to the flooding was the setting up of local 'Operational Coordinating Groups' providing information and coordination services to emergency partners, as well as community groups who had connected into the emergency response communications network.

The events of 2009 encouraged some communities to look at those who fared better during the floods and consider taking similar action to develop emergency plans.

Current Environment Agency practice in Cumbria

Prioritisation of communities at risk is based on risk mapping. Communities at risk are approached to discuss their situation, flood defence options, property-level protection (PLP), funding approaches, and/or flood warnings and what expertise/resources are needed for an effective emergency plan. When raising funds, community groups can make the most convincing argument for the need to act, and be more effective than the Environment Agency in encouraging donations. In respect to coordination before and during emergencies, communities are treated on the same level as professional partners.

It is helpful when communities approach the Environment Agency to propose schemes, but the schemes need to 'make sense'. There have been examples of communities who have commissioned infrastructure acting alone (without assurance from the Environment Agency) that have led to problems, such as a ruptured gas main; in these instances it is the contractor's responsibility to ensure health and safety measures are in place.

Emergency plans

Guidance, in the form of a 10-step process[16], has been developed to assist communities in Cumbria establish their emergency plans. The plans are also of benefit to the Environment Agency, as they provide information on what each community will do and how they will link to the communities during an incident. In particular, rural communities who may get cut off have been working on the plans and often coordinate with neighbouring communities on mutual emergency support systems. Communications is considered to be a key factor in the success of emergency plans; the community communications network needs to be in place and in touch with the correct professional flood response contacts.

Collaboration and engagement through existing governance structures

Post-flood recovery requires a large amount of effort and resources, particularly in the first year, and can last 3-4 years. In the context of increasingly limited resources available to local authorities, county councils and the Environment Agency, there was a need to work in a more efficient way in order to effectively support communities on flood risk management. A new approach focuses on engaging communities through existing

[16] ACTion with Communities in Cumbria (2012) *"How would my community survive the first 48 hours of a serious emergency?" Be prepared! 10 steps to complete you community emergency plan*

governance structures and systems of local representation, such as town and parish councils, and community forums, giving communities the ability to express their preferences. This also provides the Environment Agency and Cumbria County Council with opportunities for operational efficiencies.

Working with parish councils has been found to be easier, as they have smaller, very local networks. Larger, urban districts and towns are more difficult, due to issues such as local politics. In addition, people involved in community groups usually want to step back their responsibilities after a period of time while, in contrast, parish or town councils provide an ongoing formal structure within which emergency plans can be maintained.

Learning lessons and sharing good practice

Under the Cumbria Local Resilience Forum, a Community Resilience Network group was developed in Cumbria, providing opportunities to share good practice and find operational efficiencies. There appears to be lack of collation and dissemination of learning and best practice in this field at a national level; for example, Cumbria has useful insight on managing volunteer resources. In terms of guidance for the recovery stage, Cumbria Resilience (2011) highlights that there is no formal guidance at the national level for recording lessons learned. There are continuous improvement groups within the Environment Agency sharing good practice. For example, the Partnership Funding Continuous Improvement Group regularly shares case studies and lessons learned.

However, ‘one size fits all’ does not work well and there may be a need to work out the best way of developing community plans for different locations. Further to this, in terms of engaging communities, knowledge of the ‘best’ ways to approach this is part of the learning experiences of the officers conducting the engagement.

Provision of a central source of reference (such as a flowchart or roadmap) could be of help, signposting users to the various existing pieces of guidance.

Theme 2: What actions do individuals take to reduce their flood risk before and after a flood, what are their motivations and drivers, and how does access to insurance affect these?

The flood insurance system in the UK is in the process of undergoing a significant change, with a new system being discussed by the insurance industry and the Government. At the time of writing the Water Bill, of which the Flood Re proposal is a component, was at the committee stage in the House of Lords. Further information on the proposal and the

passage of the Water Bill can be found online[17].The overarching research question for theme 2 was:

What do we already know about relationships between insurance and its effects on attitudes and behaviours in relation to flood risk management?

It is worth noting that insurance could potentially affect behaviour during different phases of the flood risk cycle – prevention before, impact reduction during, and recovery after a flood.

Flooding causes significant psychological impacts, and there is evidence suggesting that these can be greater than financial impacts (see Theme 1 or Whittle*, et al*., "After the Floods"). The options to mitigate risks for a household at risk of flooding include insurance cover, where any damage due to flooding is 'made good' by an insurer, or PLP measures to prevent the flood damaging the household (or possessions) and avoiding the need for repairs. The context within which the vast majority of individuals have approached their flood risk is one in which flood insurance is effectively a 'default position' (Lamond, Proverbs & Hammond, 2009; Treby, Clark & Priest, 2006; Wamsler & Lawson, 2011). Under the Statement of Principles insurance companies provided flood insurance as part of standard domestic insurance to all but the most at-risk properties, and for these properties insurers were encouraged to work with consumers to maintain cover, rather than simply refusing cover. This means that for the majority of individuals it has been possible to gain flood cover, and that for a significant majority this cover is not even explicit: it is, rather, 'bundled up' in their standard domestic cover.

The caveat to this point is the context within which this evidence synthesis has taken place – namely that the Statement of Principles has officially ended, and that the Government and the Association of British Insurers (ABI) are currently engaged in working out an agreement that will replace this. There is therefore a possibility that evidence produced which refers to the situation under the Statement of Principles is, or may be, less valid when the new agreement takes over; the contextual points made above may no longer hold true. However, the evidence may point to limitations in the previous arrangement which can be addressed and improved in any new system.

The final point to make in relation to the following findings and the evidence reviewed is that in fact very little literature was discovered which directly addressed the research question outlined above.

Detailed findings are presented under the four theme 2 research sub-questions.

[17] See www.gov.uk/government/policies/reforming-the-water-industry-to-increase-competition-and-protect-the-environment/supporting-pages/reform-of-the-water-market-the-new-water-bill for more information on the proposal and services.parliament.uk/bills/2013-14/water.html for information on the passage of the Bill.

1. Attitudes and behaviours around insurance

The main result of the context presented above, and the overarching finding from the evidence synthesis relevant to this question, for the majority of individuals, flood insurance (as part of household contents insurance) is the primary, if not the sole, source of mitigation against flood risk. In this way the UK is considered unusual, at least in the European context, in that flood risk management actions at the individual and household scales rely on commercial market-based insurance (Treby, 2006).

There is a persistent perception that insurers will continue to pay for like-for-like repairs to property in the event of a flood, and thus the incentive for individuals to improve the resilience or resistance of their property to flooding is removed (ABI, 2011). It is suggested in the literature that one result of this context of insurance as a 'default position' is that it may encourage in individuals a form of 'moral hazard' (Lamond, 2009; Harries, 2012). Moral hazard is defined as a situation in which individuals or organisations do not bear the costs of a particular risk, and hence lack incentives to change behaviour to reduce that risk. In the case of flood insurance, moral hazard could be said to operate by removing either the financial burden of flooding by paying for repairs in the event of a flood, or the psychological or emotional burden by giving individuals a feeling of security against flooding, or indeed both. In this way individuals may be disincentivised from taking further, or more comprehensive, action to mitigate their flood risk. Harries also argues that "the desire to *feel* secure can sometimes deter people from taking actions that would reduce the actual physical damage of a hazardous natural event" (Harries, 2008).

Whilst this idea of moral hazard is suggested in the literature, it is worth noting that it is by no means established unequivocally, and it is also unclear whether individuals themselves make any distinction between the financial and the psychological elements outlined above. The psychological or emotional harms that flooding can cause are arguably worse than the financial in the long term, but it is unclear whether individuals see this as mitigated or not by the presence of insurance. These uncertainties may well present key avenues of enquiry for future research.

It is worth noting that some attendees at the theme 2 workshop challenged the idea that widespread flood insurance creates a situation of moral hazard. It was also suggested that under new insurance arrangements currently being discussed more households may have difficulty gaining flood insurance, and therefore may be encouraged to seek alternative risk mitigation measures.

Another key point raised is that the current situation in flood insurance is, for a number of reasons, no longer viable in the long term. Firstly, there is widespread recognition that a likely effect of climate change will be an increase in both the frequency and the intensity of flooding events. Secondly, given the first point, the insurance industry has argued that it can no longer afford to continue to bear the burden for flood risk. It is against this backdrop therefore that the current discussion around a new arrangement to supersede the Statement of Principles is being conducted. It is also pointed out, therefore, that insurance as a primary means of addressing flood risk for individuals is becoming less and less

effective (Wamsler & Lawson, 2011). Some attendees at the workshop highlighted the difficulties experienced by some individuals in obtaining flood insurance, such as high excesses or premiums. This point is echoed in the Morpeth Flood Action Group Insurance Survey, which found that residents who had been flooded were seeing increases in their premiums of 71% on average (Morpeth FAG, 2011).

Given that insurance as a primary – if not sole – means of risk mitigation is claimed to be increasingly unfeasible, there are suggestions in the evidence that insurers both can and should play a greater role in encouraging individuals to take further mitigation actions (Treby, 2006). This will be explored further in the 'Attitudes and behaviours around property-level protection' section; however, elsewhere it is argued that one means that the insurance industry might use – financial incentives – may not be the most effective method.

There is both qualitative and quantitative evidence which points to the fact that individuals do not respond as strongly, or find as motivating, messages or incentives which are financially focused. Instead it seems that individuals respond better to messages or incentives which are psychologically or emotionally focused. So, for example, when promoting resilient repairs (those which increase the ability of a property to recover following a flood, or decrease the time it takes to repair a property) to property, individuals perceived the idea of getting back into your home in less time as more motivating than saving money (ABI, 2011). This point was reflected by participants at the workshop, a number of whom suggested there was a strong need to address the psychological/emotional aspect of flooding before constructive conversations could be had about mitigation measures beyond insurance. The other important point which casts doubt, or should at least suspend judgement, on the effectiveness of financial incentives is that our research encountered no evidence of insurers actually testing these methods. More importantly, there was no evidence as to *why* insurers seem not to have chosen to test the effectiveness of financial incentives in flood insurance markets.

The evidence encountered in relation to this question raised some interesting and relevant questions which may provide useful avenues of enquiry for the future. At the workshop questions were raised about the experience of individuals in dealing with insurance claims following flooding, and in gaining insurance in the first place in the face of barriers such as rising premiums and excesses. Also raised was the question of the 'fairness' of flood insurance, given such issues as the differentiation of and responsibility for risk and the possibility of financial exclusion. A list of questions which social science may be of use in addressing is presented in 'Opportunities for action'.

2. Attitudes and behaviours around property-level protection

The key overarching finding in relation to this question seems to be that there is currently no real link between access to insurance and individuals' attitudes and behaviours in relation to PLP.

There is recognition in the literature that the insurance system or insurers have the potential to encourage individuals to take further actions – beyond simply gaining flood insurance cover – to mitigate their flood risk (Treby, 2006). Market incentives are often considered the most effective (Treby, 2006), and insurers could be utilising market incentives by offering discounts on premiums and excesses to individuals who elect to reduce their flood risk by taking actions beyond simply gaining insurance cover, such as installing PLP devices. Insurers could also play a role in educating individuals both about their own flood risk and alternative methods for mitigating this risk. As the previous section established however, there is some disagreement over the effectiveness of financial – market-based – incentives to act as motivation for individuals to take additional steps to mitigate their flood risk. There is also doubt over the role that insurance could play in educating people, given that competition in the market means that there is a prevalence for people to switch providers, and thus not engage with a single insurer for a longer period (Lamond, 2009).

The other barrier to establishing whether financial incentives could be effective in establishing take up of PLP and other mitigation actions is the fact that we have encountered almost no evidence of insurers making a connection between individuals' mitigation actions and their insurance premium/excess. Several studies (Cobbing & Miller, NFF, 2012; Morpeth FAG, 2011) have indicated that individuals who install PLP are not seeing that reduced level of risk reflected in the price of their insurance. This finding has been echoed in the theme 2 workshop, and in the case study interviews.

Another important finding that emerged from the evidence is that the effect of experiencing flooding on an individual's attitudes and behaviours, in particular in reference to PLP, is unclear (Soane, *et al*. 2010). This can be seen as a response to the idea that experiencing flooding could act as a 'touch point' to encourage the take up of PLP – perhaps by insurance companies dealing with claims (ABI, 2011). On the one hand, there is evidence (Harries, 2012; ABI, 2011) which suggests:

- that individuals who have experienced a flood are more likely to take additional mitigation actions, such as the purchase of PLP;
- people's faith in insurance can be shaken by a flooding event;
- that people are more open to the idea of resistant/resilient repairs or alterations in the aftermath of a flooding event; and
- that multiple experiences of flooding may cause people to alter their behaviour and make them more likely to consider PLP.

On the other hand, whilst there is indeed a higher incidence of PLP measures among those who have been flooded, the numbers are still low; the Wamsler & Lawson study found, for example, that one year after the flooding event, only 27% of those affected had installed or were installing some form of mitigation measure. A majority of individuals *do not* purchase flood protection following a flood (Wamsler & Lawson, 2011), and by comparing a number of previous empirical studies of perceptions of, and responses to

floods, Soane, *et al*. summarise that "*an individual's experience of flooding and his or her purchase of domestic flood-protection devices are not necessarily linked... flooding is neither a necessary, nor sufficient, incentive for domestic flood protection*" (Soane, 2010).

3. The impact of financial exclusion on attitudes and behaviours in relation to flood risk management

Evidence related directly to the impacts of financial exclusion on attitudes and behaviours was limited; so, as well as attempting to draw out anything of direct relevance, other points of interest to the question have also been explored.

Firstly, it is generally well established (by the Pitt Review in particular) that the take up of other types of insurance – such as contents insurance – is significantly lower amongst low-income households. The Pitt review notes that "*Of people in low and very low-income households, one-third of all UK households, 69 per cent are in social housing. Of this 29 per cent have no insurance at all and 50 per cent do not have home contents insurance as opposed to 1 in 5 of those on average income*" (JRF, 2012). Whilst this point is not directly related to the question of attitudes and behaviours and the effect of financial exclusion, it does offer some context to the question of financial exclusion and suggest that those on low incomes are likely to face greater exposure to the risk of flooding, and indeed be less able to take responsibility for their own flood risk.

Alongside this, there is also recognition that increasing insurance costs experienced by those who are flooded may lead to further exclusion on financial and affordability grounds. The *Morpeth Flood Action Group Insurance Survey* found average increases in buildings and contents insurance premiums for flooded households of 71%, and an average increase in premiums for contents insurance of 59% for flooded properties.

There is also an assumption that, for obvious reasons, those on low incomes will be most likely to feel a high impact from increasing insurance costs. Low income households are, as mentioned above, statistically least likely to be insured, and as a result of this and of being a low-income household are considered least able to recover from the financial impact of flooding. It is argued then that access to affordable insurance is a key element of resilience to flooding (Deeming, Whittle & Medd, 2010) and is a 'gateway social good' (JRF, 2012), and therefore that financial exclusion from insurance could be extremely detrimental to individuals and households that are already less able to recover from the effects of flooding.

4. Attitudes and behaviours towards insurance for self-employed individuals / micro-businesses

The review found no evidence regarding the attitudes and behaviours of self-employed individuals or micro-businesses to insurance.

Bodenham Flood Protection Group case study

Method

The work involved three interviews with key individuals involved with the Bodenham Flood Protection Group (BFPG) in Herefordshire, and the review of a number of documents provided by those individuals in support of or reference to their interview responses. Bodenham was chosen as a case study by the project Steering Group as particularly active and not having been the subject of any official research to date. This means that the methodology was necessarily constrained – there were no published academic papers or reports to review, and the interviews took the form of open, exploratory questioning around the issue of insurance. The common issues drawn out from the interviews are presented below. For further detail, see annex 10.

History

Bodenham FPG was formed in 2008, after Bodenham experienced heavy and easily preventable flooding in July 2007. The BFPG undertake a range of activities, such as regular working party sessions, fundraising activities and providing advice to other flood protection groups. Further information on the group, such as its history, events and meetings, can be found at: www.bodenhamparish.org.uk/bfpg-home.asp.

Common issues

1. List of recommended insurers

The key element of BFPG's activities concerning insurance is to provide members (and others in the wider community) with a list of recommended insurers to approach for insurance that will cover flooding. This is in response to difficulty encountered by some individuals in gaining insurance following the 2007 flooding, who felt they were being refused "*based on their postcode*", and it gives individuals a 'tried and tested' route to market. As far as the interviewees were aware, no-one using the list has been refused insurance.

2. Recognition of BFPG's work by insurers

There is, at present, no clear evidence of anyone in the BFPG or the wider village (that the interviewees are aware of) receiving explicit recognition of any of the flood risk mitigation work – either carried out by the BFPG or otherwise – by their insurers, in the form of a discount/reduction in their premium or excess.

3. Group membership has remained stable

Despite the apparent lack of recognition of the Group's work by insurers, particularly through reduced premiums/excesses, group membership and attendance at working sessions has remained relatively stable over time. This may suggest that insurance reductions are not a key motivating factor for individual engagement with the group's activities.

4. Lack of understanding around flood insurance and risk

A lack of understanding concerning how to access flood insurance, and the nature of flood risk is a problem for individuals generally, and this was reflected by interviewees. This is partly why the list mentioned above is so useful to individuals who may have been refused insurance across the board using alternative routes to market, such as price comparison sites.

5. 'Ostrich behaviour'

This is the idea that there is significant ignoring or denial of flood risk by many individuals and other actors. In the case of BFPG, it was felt by the interviewees that the fact that some local people refused to admit that they had been flooded was an example of this kind of behaviour. Some individuals in the village had also suggested that the existence of the FPG drew unnecessary attention to Bodenham's flood risk, which could have detrimental effects on access to insurance or house prices, which interviewees again saw as a manifestation of this 'ostrich behaviour.'

Other emerging issues

This section sets out some of the issues and questions raised during the evidence synthesis which are not directly related to the research questions, but which may be of interest to FCERM policy makers.

There was contradictory anecdotal evidence on how 'the market' treats flood risk at the workshops. At the theme 2 workshop participants discussed how actors in the housing market, including government, local authorities and individuals in the general public, seem to be in denial about flood risk or, following flooding, 'forget' about it after a period of time (e.g. it was suggested in the workshop that house prices seem to recover after three years). However, at the theme 1 workshop participants suggested that the market is beginning to take more notice of flood risk; for example, there are increased numbers of people living in areas of high flood risk who cannot sell their home, solicitors are now checking flood risk on a more regular basis, and there is increased awareness of flood risk within the Council of Mortgage Lenders. There was general agreement that there a lack of clarity on the distribution of responsibility (e.g. during housing development) or on which actor (e.g. developers, surveyors, mortgage lenders, estate agents) should be raising the issue with those searching for a household.

Whittle, *et al*. (2010), and Whatmore and Landstrom (2011), found that post-flood impacts are significant. The main difficulties individuals experience are not during the flood itself but occur after the event, due to the psychological stresses of complexities such as having to sort out insurance claims, organising builders to make repairs to the homes, or having to move house during a period of high demand. In some cases vulnerabilities may be exacerbated by alternate accommodation being of poor quality or individuals having to commute further.

A barrier to engaging businesses identified by Defra (2012) is the fact that landlords may already have secured a return on investment on the properties at risk and be reluctant to spend time engaging in flood risk management or investing mitigation measures. Another barrier, highlighted during a workshop, is that investment in PLP is currently treated as revenue expenditure (i.e. not capital expenditure) and is therefore not eligible for tax relief.

An issue raised by many sources feeding into the evidence synthesis was FCERM funding. Funding and staff cuts at the Environment Agency were viewed by workshop participants as posing a challenge to effective flood risk management, as were cuts to funding of local authorities and communities; there are few resources available for maintaining local capacity and capabilities to ensure that community leadership of flood risk management is durable.

Discussion

This section provides a summary overview of the findings of the synthesis and sets out issues of importance for flood social science. Finally, knowledge gaps and evidence needs raised during the evidence synthesis which may be of interest to FCERM policy makers are discussed.

Summary of findings

Theme 1: How can government departments and agencies encourage and nurture community and inter-organisational relationships to promote local Flood and Coastal Risk Management interventions and actions?

The theme was broad, covering many issues, and there was a large volume of detailed information in the literature reviewed; there has been a significant amount of research conducted, particularly since the 2007 floods, assessing the impacts of flooding and the performance of the various actors involved in flood risk management across the flood cycle. Some of this learning has been used to inform guidance on engagement of communities in flood risk management.

When considering flood risk management at a location and approaches to engage a community, the evidence shows that it is important that institutions are aware not only of the flood risk (e.g. geographical factors that may lead to rapid-onset flooding) but also have a good understanding of the social characteristics of people within communities in order to understand who is at greatest risk and the likely response to engagement. The experiences of the localism agenda and activity in Cumbria suggest that real-life examples of neighbouring communities which have fared well during flood incidents through establishment of emergency flood plans can stimulate community participation in flood risk management.

A key institutional role in the transition to community-led flood risk management is supporting the development of capacity and capabilities at the local level. The experiences of the localism agenda and activity in Cumbria suggest that town and parish councils have an increasingly important role at local level and can be effective structures to provide local leadership on flood risk management as they provide continuity for actions such as emergency plans. In the context of increasingly limited resources available to local authorities, county councils and the Environment Agency, this approach also provides opportunities for operational efficiencies. However, potential risks of a shift to community-led flood risk management are also identified, including narrowing of interest to the point where decisions may not be optimal for the wider interest, diffusion of accountability and loss of pressures to secure value for money, geographical variation in service provision and loss of economies of scale.

Experience in Cumbria has also shown that there is an important coordination role to be played by local authorities to liaise with communities, emergency responders and

individuals representing NGOs/CSOs (who may be providing support and assistance to communities and emergency response teams during flooding and recovery stages) when flooding emergencies occur.

There is potential to improve dissemination of lessons learned and better signpost existing good practice guidance.

Theme 2: What actions do individuals take to reduce their flood risk before and after a flood, what are their motivations and drivers, and how does access to insurance affect these?

Overall, there was a lack of evidence available in response to theme 2. For example, the review found no evidence regarding the attitudes and behaviours of self-employed individuals or micro-businesses to insurance.

For the majority of individuals, flood insurance (as part of household contents insurance) is the primary, if not the sole, source of mitigation against flood risk. However, there is currently no link between access to insurance and individuals' attitudes and behaviours in relation to PLP.

Evidence related directly to the impacts of financial exclusion on attitudes and behaviours was limited; so, as well as attempting to draw out anything of direct relevance, other points of interest to the question have also been explored. It is generally well established that the take up of other types of insurance – such as contents insurance – is significantly lower amongst low-income households. There is recognition that increasing insurance costs experienced by those who are flooded may lead to further exclusion on financial and affordability grounds. There is also an assumption that, for obvious reasons, those on low incomes will be most likely to be impacted by these increasing insurance costs.

The Bodenham case study highlighted actions and issues of interest:

- Compilation of a list of recommended insurers in response to difficulty encountered by some individuals in gaining insurance
- A lack of recognition by insurers (e.g. discount/reduction in their premium or excess) of any flood risk mitigation work undertaken
- The suggestion that insurance reductions are not a key motivating factor for individuals' participation in the group
- Lack of understanding around flood insurance and risk
- Ignoring or denial of flood risk by many individuals and other actors

Other issues

Issues raised during the evidence synthesis which are not directly related to the research questions, but which may be of interest to FCERM policy makers, include:

- Contradictory anecdotal evidence on how the housing market treats flood risk, with some evidence suggesting actors in the housing market, including government,

local authorities and individuals in the general public, seem to be in denial about flood risk, while other evidence suggests that the housing market is in fact beginning to take more notice of flood risk.
- The significance of post-flood impacts, due to the psychological stresses of complexities such as having to sort out insurance claims, organising builders to make repairs to the homes, or having to move house during a period of high demand.
- Barriers to businesses taking action on FCERM, including the fact that landlords may have met their return on investment on properties at risk, and that investment is currently treated as revenue expenditure (i.e. not capital expenditure) and is not eligible for tax relief.
- Funding and staff cuts posing a challenge to effective FCERM; there are few resources available for maintaining local capacity and capabilities to ensure that community leadership of FCERM is durable.

Issues of importance for social science

Based on the findings, internal brainstorming sessions at Brook Lyndhurst following the evidence synthesis and discussions with the project Steering Group, the following issues of importance for flood social science were drawn out.

The transition away from a centrally funded and coordinated model of flood risk management to responsibility for flood risk management at the local level, and ongoing discussions on proposal for a new flood insurance system, place a new emphasis on shared responsibility and action, as described in the 'Context' section.

Understanding individuals' attitudes and behaviours, and the capabilities and constraints which shape community responses to flooding is of critical importance to the development of the new, more collaborative model of flood risk management. However:

- there has been limited research into many issues raised and there are significant knowledge gaps, as discussed in the next section 'Knowledge gaps and evidence needs';
- evidence may be location-specific and of limited value to analysis of a different location or context; and
- the current changes (e.g. to the flood insurance system in the UK) and shift in approach to flood risk management mean that some evidence may be, for want of a better phrase, 'out of date', or that gaps identified may have been, or be in the process of being, addressed.

The evidence synthesis suggests that social science research has an important role to play in supporting actors in the distributed flood risk management system, such as providing better understanding of local communities before engagement and providing methods to test flood risk management approaches such as types of flood warnings.

In addition, the roles of the various actors in engaging communities in flood risk management are under development, with lessons being learned from recent flooding incidents. Social science research could help during evaluation of flood risk management processes to improve understanding of their effectiveness and to identify 'best' roles for flood risk management actors.

In these ways, social science can complement other forms of information under an interdisciplinary approach to support flood risk management decision-making and development.

There is a need for a better (i.e. long-term) funding approach for core programmes of interdisciplinary research, to help improve the flood risk management evidence base; this long-term approach would require some adjustments to the current system where projects tend to be individually commissioned.

Knowledge gaps and evidence needs

The synthesis of literature, practitioner experience and project team knowledge has highlighted knowledge gaps and areas where there is a need for evidence. As highlighted in the 'Context' and 'Findings' sections, it is important to recall that gaps in knowledge identified may be gaps arising from the research methodology, though the deliberative approach and the triangulation of methods minimises this risk.

The effect of experiencing flooding on individuals' behaviours and attitudes is unclear, and the attitudes and behaviours of businesses are not well understood.

There is some evidence on how to present or communicate knowledge to different audiences, but there are still uncertainties such as whether probabilistic information, which could for example help increase warning lead times in RRCs, is understood by individuals.

There is limited research on flood risk management behaviour change or responses of individuals to different incentives, and there may be value in analysing the effect of current and future potential insurance market mechanisms for flood insurance.

Better understanding of communities' and individuals' levels of motivation to engage in flood risk management would help identify whether there is a 'moment of change', a point at which institutions are better able to engage with an individual or community on flood risk management; the evidence suggests that perceptions change most significantly after a flood and people are more open to an engagement approach, although it is not clear at which specific point in time during the post-flood phase or, alternatively, there may be effective points for engagement before a flood (e.g. during purchase of house or purchase of insurance). This understanding may also help propose ways of holding on to the 'flood memory' to maintain awareness (Warren, Tindle and Whalley (2011)).

Opportunities for action

Based on an understanding of the new emphasis on shared responsibility and action to manage flood risk, the findings of this evidence synthesis, and the issues and evidence needs raised in 'Discussion' section, this section proposes: questions that social science research can help to answer; and actions that may help to improve flood risk management outcomes.

Flood risk management social science research

The shift to a more collaborative model of flood risk management, with greater responsibility and action at the local level, places critical importance on understanding individuals' attitudes and behaviours, and the capabilities and constraints which shape community responses to flooding. However, this evidence synthesis suggests that there has been limited research into some of the questions raised and has highlighted significant gaps in knowledge.

Social science research can help to address the evidence needs and complement other forms of information under an interdisciplinary approach to support flood risk management decision-making and development.

In particular, social science research could help to improve understanding of attitudes and behaviours around flood risk management, answering questions raised during this research such as:

- What are individuals' motivations for and barriers to taking action on flood risk management?
- How do attitudes vary in regards to being given agency to act on flood risk management?
- What is the effect of experiencing flooding on individuals' attitudes and behaviours?
- At what point after (or before) a flood could individuals be most effectively engaged (i.e. is there a suitable 'moment of change' to target)?
- What are the attitudes and behaviours of businesses to flood risk management?
- What are individuals' and businesses' reactions to (different forms of) incentives?
- How do individuals' experiences of dealing with insurance claims following flooding affect attitudes and behaviours in relation to insurance?

Flood social science research could also help during evaluation of flood risk management processes, answering questions such as 'What are the institutional forms that work best at

different geographical levels?', 'Who should disseminate 'good practice'?' and 'How should this be done?'

Flood risk management practice

When discussing the transition to community-led flood risk management, it is important to bear in mind that public bodies (such as the Environment Agency) still have a key role both at the national and local levels. At the national level, this includes assessing risk, publishing risk maps, allocating funding and raising awareness. At the local level this can include providing warnings, supporting development of resilience (through provision of funding, venues, facilitation, etc.) and providing emergency response and coordination.

Comments made during the workshops and findings from the Cumbria case study research raise the issue that lessons learned during experiences of flooding and engagement efforts could be better shared at a national level, and that existing good practice guidance could be better signposted.

The 'Other emerging issues' section also notes that the greatest impacts to individuals have been shown to occur after a flood event, due to the psychological stresses of complexities such as having to sort out insurance claims, organising builders to make repairs to the homes, or having to move house during a period of high demand. There may be a role for institutional support in reducing post-flood impacts, or providing support or assistance to communities to take on this role and support each other.

Effectiveness of the research

The table below sets out the research achievements against the project objectives.

Project objectives	Research achievements
Build capacity and understanding of current evidence and practice among policy colleagues	Generated a long list of policy questions and challenges, and provided regular consultation and collaborative decision-making with the Steering Group; the research process itself provided learning. Held three workshops with participation of approximately 40 individuals from a wide range of stakeholder groups in flood risk management, and consulted an additional 11 stakeholders through interview.
Set a vision for locally owned and managed flood risk management, which is grounded in social science evidence	More challenging than anticipated; although no clear 'vision' was developed, the scoping and visualisation workshop succeeded in drawing together a long list of policy challenges and questions.
Synthesise findings from current evidence to understand the challenges associated achieving this vision	Synthesised evidence on specific questions key to the two themes – this was done against two themes to provide a focus for the research rather than linked to a 'vision'. The varied sources of evidence should be kept in mind; robustness of this evidence is variable and there may be limits to its generalizability (e.g. lessons learned from specific county council best practice), particularly in context of the finding that due to variable social and geographical characteristics, approaches to engagement need to be tailored to each location. The mix of participants involved sought to cover the wide range of actors in flood risk management but it cannot be assumed that the views expressed are representative. Feedback from a theme 1 workshop participant included the suggestion that the research might have gained benefit through inclusion of individuals who have experienced flooding and/or involvement in flood risk management (the 'victims'/'customers'). The research helped to highlight areas of difference and agreement among participants.
Assess knowledge gaps in current evidence and prioritise future research needs for FCERM policy	Successful in identifying a number of gaps and raising many questions for consideration in future research; gaps in knowledge identified may be gaps arising from the research methodology, rather than gaps in the knowledge of participants in the project.

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Theme 1

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Appendix

The following are provided as annexes to this document.

1. Scoping and visualisation workshop note
2. Online search terms
3. Theme 1 consultee interview notes
4. Theme 2 consultee interview notes
5. Theme 1 workshop Briefing Paper
6. Theme 2 workshop Briefing Paper
7. Theme 1 workshop note
8. Theme 2 workshop note
9. Cumbria 2009 floods case study
10. Bodenham Flood Protection Group case study