Flood Groups in England: Governance arrangements and contribution to flood resilience

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Flood Groups in England: Governance arrangements and contribution to flood resilience

Steven Forrest[1], Elen-Maarja Trell[1] and Johan Woltjer[2]

Abstract

The influence and role of civil society actors has in the past decade become increasingly prominent in the 'flood risk management landscape' in several European countries, especially in England. The increasing number of 'flood groups', civil society actors that facilitate community involvement in local flood risk management, in England is an illustration of such development. However, although their role and numbers are increasing, to date not much is known about these flood groups: how they are set up, governed and, most importantly, how they are influencing community resilience to flooding. This chapter contributes to the understanding of the potential role of flood groups in influencing flood resilience at the local level in England. In order to do that, it examines the governance arrangements and activities of six flood groups in England. Flood resilience is analysed through the lens of community resilience to flooding and through examining the influence of flood groups on 'community capacity', which comprises four capitals: social, natural/built environment, human, and economic. The findings indicate that flood groups in England can potentially contribute to community resilience to flooding, especially in terms of enhancing social and natural/built environment capitals. At the same time, the chapter reveals issues regarding the representativeness of the 'community' in flood groups, of potential exclusion, and of marginalisation. These issues need to be addressed when aiming to better understand the role of flood groups in making places more resilient to flooding.

Keywords: Flood Resilience, Community Resilience to Flooding, Civil Society, Flood Groups, England

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Introduction

Flooding is a very real and present threat in European countries, which experienced 215 coastal, river and flash flood events from 2004 to 2014 causing 1,021 deaths (Guha-Sapir et al., 2015). This has affected over 5.8 million people and resulted in over €45 billion in damages (Guha-Sapir et al., 2015). Climate change is also expected to lead to an increase in the frequency and intensity of future flooding and flood related damage in Europe (Alfieri et al., 2015; EEA, 2012).

In light of the above, it is clear that flooding is an issue that requires immediate attention, especially in countries that have recently suffered severe flooding and are expected to face worse floods in the future, such as England (EA, 2009). Flooding has become a more prominent issue in England since severe floods in Boscastle (2004), Carlisle (2005), Hull (2007), Cumbria (2009) and the more recent 'Winter floods' (2013/2014 and 2015). The impact of these recent flood events has raised the profile of flooding and led to a greater scrutiny of the work of flood authorities and the funding allocated to flood risk management by the government (Thorne, 2014; Priestley and Allen, 2016). Research into these recent flood events has challenged existing beliefs about flood risk management in England, including the current national governance systems for floods and the use of "large-scale flood defences as the most effective intervention approach" (White, 2013:107).

At the same time there has been an ongoing paradigm shift in flood risk management from *resistance* and 'keeping water out' towards 'living with water' and the idea of increasing flood *resilience* through "more strategic, holistic and long-term" approaches (Scott, 2013:103). This shift towards flood resilience is evident in England through the *Making Space for Water* strategy (Defra, 2005), which emphasises an attempt to live with water (Johnson and Priest, 2008; Meijerink and Dicke, 2008). In disaster management literature, resilience is traditionally understood as the ability of social systems to absorb/resist shocks without losing their ability to function and then to recover and 'bounce-back', although more recent interpretations are increasingly including the ability of social systems to adapt and transform (i.e. 'bounce-forward') (Davoudi, 2012; Masterson et al., 2014; Restemeyer et al., 2015; Tierney, 2014). Thus, while the *resistance* approach focuses on flood hazard control measures, the *resilience* approach also acknowledges the possibility of a flood to occur and the need to address that possibility through policy measures throughout different levels of government.

Alongside the transition in flood risk management from resistance to resilience is a change in the roles and responsibilities between the state, market and civil society. There is a greater emphasis on increasing public participation and local input in flood risk management in order to transform members of the public into "active risk managers" who take a greater role in solving flooding issues and contributing to flood resilience (Kuhlicke and Steinführer, 2013:115; Johnson and Priest, 2008). In England this emphasis is highlighted in documents such as the *Making Space for Water* strategy (Defra, 2005), the *Pitt Review* (Pitt, 2008), and the *Water and Flood Risk Management Act* (UK Government, 2010). Importantly, recent national efforts to increase community level resilience to

flooding in England include the *Flood Resilience Community Pathfinder Scheme 2013-2015* by the UK Department for Environment, Food and Rural Affairs (Defra) (Twigger-Ross et al., 2014). This scheme emphasised civil society's role in flood resilience and specifically supported interventions to increase community resilience to flooding (ibid). It also functioned as a driver for the creation of flood groups (ibid). The evidence suggests that due to climate change the communities will indeed need to "become better prepared and more resilient to flood events" in the future (O'Brien et al., 2014:8). This is seen in 'resilience-building' grey literature in the UK, which repeatedly advocates increasing levels of self-reliance in communities (Davoudi, 2012). These increases in self-reliance can be perceived as constructive as officials are supporting "stewardship of lay people" (Schelfaut et al., 2011:831) and this could enable communities to become better prepared and more flood resilient. However, the focus on self-reliance can be accompanied by a corresponding decline in the role of the government (Davoudi, 2012) with responsibilities passed on to community and voluntary (flood) groups. Therefore, the increasing focus on *resilience* within flood risk management practice/policy-making necessitates a better understanding about the capacities of communities on a local level.

As illustrated above, some attention has been given to involving the community in flood risk management. However, the role that civil society can play within flood resilience and the actual capacities of a community to take on such a role are not well documented (Van der Vaart et al., 2015). In order to contribute to the understanding of the role of civil society in flood risk management and in community resilience to flooding, this chapter focuses on exploring flood groups. These are becoming more common and established in England: in the past decade the number of flood groups has increased from "more than 50" (Defra, 2004:99) to over 221 in England (NFF internal database, 2015). This rise in prominence indicates a shift in the flood risk management landscape. Despite this, there is no concrete definition of what constitutes a 'flood group'. Existing academic literature and government documentation considers all forms of community groups working on flood issues as 'flood groups', which makes comparisons, generalisations and pinpointing the potential role of flood groups a challenge. In addition, the mere existence of flood groups may not by definition mean that they have an impact on flood resilience, although previous research suggests that they make a contribution towards it (see Geaves and Penning-Rowsell, 2015). This chapter argues that in order to make valid statements regarding the potential role of flood groups in community flood resilience, more needs to be known about their formation, membership, position in the local flood risk management landscape, and activities.

By focusing on developing a working definition of flood groups in England, and by analysing their governance arrangements, this research aims to shed light on their potential influence on community resilience to flooding. The chapter first discusses resilience in relation to flooding at a local level and develops a framework to analyse the influence of flood groups on community resilience to flooding. Second, it provides information on England's current flood risk management landscape. Third, the research methodology is introduced. Fourth, the chapter presents and discusses the findings whilst reflecting on the influences of flood groups and offering insights into the wider implications of this research.

Flood Resilience

Over the last few decades, the policy discourse on flood risk management in many countries has been moving from a focus on large-scale engineering-based systems towards a more holistic *flood resilience* approach (Schelfaut et al., 2011; Scott, 2013). This latter approach acknowledges that floods cannot always be prevented, but their impacts can be reduced. It also understands and accepts that uncertainty is present in any flood risk management endeavour and acts on a "more integrated and precautionary basis" (White, 2013:110). Furthermore, in disaster studies, the analysis of resilience has seen the level of the local community as "an appropriate level at which to take action" (Coates, 2015:2). This focus on the community level and community resilience has also been evident at the global level (e.g. the 2009 Global Platform for Disaster Risk Reduction) and in resilience definitions by the United Nations International Strategy for Disaster Risk Reduction (Schelfaut et al., 2011).

Community Resilience to Flooding

'Community resilience to flooding' examines flood resilience at the local level and places the community and its resilience to flooding at the heart of the analysis. When placing community at the centre of the analysis, one unavoidably has to pay attention to (often romanticised) assumptions connected to the notion of 'community'. These include the power relations present on the local level as well as the connected issues of "justice and fairness", both of which may influence resilience (Coates, 2015; Davoudi, 2012:306; Fainstein, 2015). Variations in the distribution of capacities over community members are inherent to resilience-thinking. Increasing 'community' resilience may not necessarily benefit all community groups equally (Fainstein, 2015; Wilson, 2012) with certain groups potentially being excluded or affected unevenly (Davoudi, 2012). This exclusion may exist before any activities to enhance resilience are undertaken when decision-makers define the 'community' (Porter and Davoudi, 2012). Ideally the term 'community' would include and represent all social groups affected by flooding. However, in practice, the representativeness of flood groups is likely to selectively influence whether the flood groups are improving community resilience for everybody or only for those included in the flood group and its decision-making processes. Therefore, this research incorporated issues of representativeness and inclusion into the analysis of the flood groups.

In the disaster-related literature, community resilience is often conceptualised as a network of different capacities that can be accessed and harnessed by communities (e.g. Cutter et al., 2008; Cutter et al., 2010; Forrest et al., 2014; Masterson et al., 2014; Norris et al., 2008). Such conceptualisations suggest that communities can become more resilient by developing and increasing these capacities. Norris et al. (2008) proposed four central capacities for community resilience to disasters in general: community competence, social capital, information and communication, and economic development. Cutter et al. (2008) developed a place-based model for resilience to 'natural' disasters and propose six indicator categories of community resilience: social, institutional, community competence, ecological, infrastructure, and economic. The framework by Cutter et al. (2008) has recently been used to measure community resilience to flooding in England as part of Defra's *Flood Resilience*

Community Pathfinder Scheme 2013-2015 (Forrest et al., 2014). Masterson et al. (2014) used four capitals (social, physical, human and economic) that together describe what they term 'community capacity' to deal with disasters.

There are common elements within the above frameworks, such as the community's internal social capital and external social connectedness and capabilities, the condition of the natural/built environment (i.e. ecological capital, infrastructure capital and physical capital), the characteristics of individuals in the communities (i.e. human capital and community competence), and the economic resources accessible to the community (i.e. economic development and economic capital). This chapter adapts and builds upon these common elements to analyse how flood groups in England have influenced community resilience to flooding in terms of 'community capacity' as defined by four capitals: social, natural/built environment, human, and economic. These capitals relate to the ways that the community is resilient to (i.e. prepares for, withstands, responds to, recovers from, adapts to, and transforms in response to) flooding.

Understanding Community Capacity

Community capacity is understood in this chapter as the "sum of the individual and organisational capacities within a community" and their collective ability to achieve "community goals" (Masterson et al., 2014:36). In this context, the focus is on how the flood groups affect these capacities, within the four capitals, to influence community resilience to flooding. Therefore, to understand community capacity it is relevant to explore the four constituent capitals and the ways these capitals are operationalised for this chapter in more detail (see Table 1).

Capital	In this chapter
Social	Focuses on how individuals within a community interact with one another and how the community interacts with local flood actors in relation to flood issues
Natural/Built Environment	Focuses on temporary and permanent changes to the local physical landscape and on rules imposed on changing the landscape (spatial planning) in relation to flood issues
Human	Focuses on the individual's ability to engage with flood issues
Economic	Focuses on the economic resources available for individuals and the community to better engage with flood issues

Table 1: Understanding and specifying community capacity in terms of the four capitals.

Social capital expresses the extent to which individuals interact with one another within a community and how the community's internal social networks and structures, as well as external formal/informal institutional structures and support, influence how individuals engage with flooding (Cutter et al., 2008; Masterson et al., 2014). The relationships between the community and local flood authorities, such as "emergency planners, voluntary sector and local responders" (Twigger-Ross et al., 2014:11), and the institutional structures that exist in the community are important for flood resilience. Individuals and communities with highly developed social networks and institutional structures may have greater access to support and resources to increase flood resilience. The information and communication

capacity of a community is important in the case of emergencies (Norris et al., 2008) and informal social networks can act in collaboration with official flood warning systems (Parker and Handmer, 1998). The ability of a community to organise itself, access information and work together (i.e. their community competence) is also important to consider as it will affect their ability to engage with flood issues (Norris et al., 2008).

Natural and built environment capital describes the level to which the spatial planning policies and physical characteristics of the local context support the community's resilience to flooding. Natural environment measures already taken at the catchment level can include upstream land management that supports flood risk mitigation, such as the use of wetlands as a natural flood buffer and woodland for flood attenuation (UK NEA, 2014). The built environment 'indicator' includes the amount of pervious structures within a community, land zoning policies for flood risk, and the resilience of critical facilities (Cutter et al., 2008; Masterson et al., 2014). The built environment also describes permanent and temporary physical flood measures that reduce and manage flood risk such as embankments, river widening and dredging, and temporary barriers.

The key difference between human and social capital as operationalised in this chapter is the explicit focus of human capital on the *individuals* and their current and potential capability to individually engage with flooding. When evaluating community resilience to flooding it is relevant to pay attention to the general health and wellbeing on the individual level (Masterson et al., 2014) as individuals with ill-health or disabilities may be less resilient to flooding than the overall community. The level of education, knowledge and skills of the individuals within a community are further characteristics differentiating the flood resilience of individuals within a community and should be considered, especially when aiming to understand vulnerabilities within a community (Cutter et al., 2008; Masterson et al., 2014).

Economic capital refers to economic resources (Masterson et al., 2014) of both the individual and community, such as homeownership, employment rate (Cutter et al., 2014) and community funds. Additional influential economic indicators include the equitable distribution of wealth (Cutter et al., 2008; Norris et al, 2008) and the uptake of flood insurance as a means of spreading the risk (Botzen and van den Bergh, 2008). These resources can influence the extent to which they are able to be resilient to flooding, especially in terms of preparing for floods and for post-flood recovery.

England's Flood Risk Management Landscape

According to the House of Commons (2015) approximately 2.4 million properties in England are at risk from fluvial flooding, 3 million from pluvial flooding and 600,000 are at risk from both. In order to deal with the risks, several actors, sectors and policy documents interact and intersect with each other in what this chapter terms the *'flood risk management landscape'*. In the context of England, Defra is responsible for national and strategic emergency planning for flooding, whilst the Environment Agency (EA) is responsible for implementing flood risk management works and issuing flood warnings (i.e. the 'boots on the ground'). Additional primary flood actors in England include water and sewerage

companies, highway authorities, the Met Office, the Flood Forecasting Centre, the National Flood Forum (NFF), Public Health England, Regional Flood and Coastal Committees, Internal Drainage Boards, coastal erosion risk management authorities, Lead Local Flood Authorities (LLFAs), local resilience forums and local councils.

Meijerink and Dicke (2008) found a general shift towards decentralisation in flood risk management in many countries with governments seeking to share flood risks with other actors. It is particularly true in England's flood risk management landscape where an ongoing trend towards local level involvement/action and the sharing of flood risk between multiple non-state actors, such as the local communities, can be detected. England's *Making Space for Water* strategy (Defra, 2004) highlights the importance of people at risk of flooding being involved in flood issues in their area through 'flood action groups'. The strategy also places greater responsibility on the public to "manage their own flood risk" (Johnson and Priest, 2008:520) and envisions them being more aware of flood risks and "empowered to take suitable actions themselves where appropriate" (Defra, 2004; Defra, 2005:14).

The *Pitt Review* (Pitt, 2008), an independent review into the management of the 2007 floods in England, also encourages connecting local groups with local organisations. The review included input from several flood groups, which shows that flood groups were consulted and contributed to this influential document. The *Flood and Water Management Act* (UK Government, 2010) named LLFAs as responsible for local flood risk management. These LLFAs are encouraged to involve and consult the local community on local flood risk management issues (Local Government Association, 2012). The *National Flood and Coastal Erosion Risk Management Strategy for England* (EA and Defra, 2011), created as a requirement of the *Flood and Water Management Act*, also focuses on increasing the involvement of the community in flood risk management. Overall, the shift towards flood resilience in England seems to have been accompanied by a decentralisation in flood risk management and an increased focus on the local level, especially on citizen involvement and responsibility.

Methodology

In order to understand the governance arrangements and potential influence of flood groups on the four capitals presented in Table 1, data were collected from national actors working with local flood groups and associated local actors. Semi-structured interviews were held with national actors in Defra (2 interviewees), the EA (1), the NFF (1) and the Association of Drainage Authorities (1) to gain their perspectives on local flood groups.

An online survey provided data on the governance arrangements of flood groups and their influence on community resilience to flooding. It was distributed to 221 flood groups across England and completed by 40 groups; a further inspection of the low response rate found that the flood groups were being inundated by data requests from academics (and other bodies) and had to prioritise which ones to respond to. The NFF provided additional

legitimacy to the research and functioned as a 'gatekeeper' to access and distribute the surveys to the flood groups. However, it meant that the survey missed flood groups with no links to the NFF.

The survey data and recommendations by national level interviewees were used to identify six flood groups for further research. These groups were selected based on following considerations: It was important that the selected flood groups had existed over a sufficient time period (> 1 year) for governance arrangements to have developed and for activities to have been undertaken. Since the research focused on public involvement it was also important to select flood groups that consisted primarily of members of the public with an interest in flooding but without a paid position with a formal flood actor. The position of these flood groups in the local flood risk management landscape was important to understand in order to identify where they were influencing community resilience to flooding and how they were affecting existing local flood actors, especially local flood authorities. Therefore, the flood groups needed to have links with local flood authorities (i.e. local government) and other local actors. These considerations resulted in the following criteria being applied to the survey data to identify appropriate flood groups that: i) were established over 1 year ago, ii) had a membership consisting of more than 75 per cent members of the public, iii) worked with other local actors and iv) worked with the local council . The six groups selected are represented in Table 2.

Flood group	i) Date established	ii) Public membership	iv) Local actors that they work with
Hebden Bridge Flood Action Group	2012	100%	Local Council; EA; Other flood groups
Mytholmroyd Flood Group	2014	100%	Local Council; EA; Other flood groups
Garforth Flood Support Group	2013	94%	Local Council; EA; Other flood groups; Water company
Bodenham Flood Protection Group	2008	100%	Local Council; EA; Other flood groups
Todmorden Flood Group	2000-2003; 2012*	80%	Local Council; EA; Other flood groups; Local community groups
Much Wenlock Flood Action Group	2007/2008	100%	Local Council; EA; Other flood groups; NFF; Water company; Emergency services

Table 2: Details of the selected flood groups. *The Todmorden group operated from 2000-2003 before reconvening in 2012.

A number of semi-structured interviews were undertaken with representatives of these six flood groups and, in the latter two cases, with the local council and the EA representatives that worked with the flood groups. The national interviewee for the EA also represented the Cornwall Community Flood Forum (CCFF) and was also interviewed about this non-NFF flood group. These interviewees were also asked to map the stakeholders that they worked with and to describe their relationships with them. Several also provided additional

documentation (e.g. community flood plans) from their flood groups. All interviews were transcribed and coded thematically. The interview data were supplemented by an analysis of the flood groups' documentation provided by interviewees and from desk-based research.

Findings and Discussion

Flood Groups: a working definition

This research identified 221 flood groups currently active in England. These groups ranged from community flood 'forums', 'committees' and 'action groups' that exclusively focus on flooding to groups that focus on flooding in addition to wider community issues, such as parish councils and residents' associations.

All of the flood groups interviewed aimed to build flood-related community capacity, with the majority also aiming for self-sufficiency (similar to findings by Waylen et al., 2011; Harries, 2009).

The flood groups interviewed in this research made varying contributions to flood risk management and resilience. The survey and interview data showed that several flood groups were action-orientated and focused on measures to reduce flood risk (e.g. clearing out ditches in Bodenham and creating temporary water storage areas in Garforth). Some of these flood groups also focused on actions to reduce the consequences of flooding (e.g. flood stores in Todmorden and Hebden Bridge) and to support flood recovery (as similarly found by Andrew, 2012; Twigger-Ross et al., 2011). Flood groups were also found to be involved with advocacy activities that ranged from discussing local flood issues (e.g. Bodenham, Todmorden, Hebden Bridge and Mytholmroyd) to actively pressuring and seeking to influence (i.e. lobby) authorities on local flood issues (e.g. the development of flood attenuation ponds in Much Wenlock and planning application objections in the majority of interviewed flood groups). This supports previous research that identified flood groups lobbying for local flood defence schemes (Thaler and Priest, 2014) and campaigning for local flood issues (Geaves and Penning-Rowsell, 2015; Neill and Neill, 2012; Thaler and Priest, 2014;Twigger-Ross et al., 2011). Despite previous research indicating their contribution towards the independent scrutiny of previous local flood events (McCarthy and Tunstall, 2008), this was not identified in this research.

It is important to note that the activities of flood groups are flexible and groups may change over time (interview EA, 2015). These changes may be expressed in the activities conducted, with flood groups moving from action to advocacy or vice-versa, and in the types of local flood actors that they work with.

Interview data with some input from literature was used to create a working definition of a 'flood group' that forms a starting point for data analysis in this chapter:

A flood group is primarily made up of a group of individuals with a personal interest in local flood issues who frequently meet with one another in specific flood group meetings to discuss flood-related issues in a specific geographical area. In addition to meeting, a flood group is often involved in action and/or advocacy on flood-related issues in their local area. Importantly, the individuals comprising a flood group form a shared identity that arises from having been affected by a shared flood event, by having a shared local flood source and/or a shared local geographical area at risk of flooding.

Formation and Membership

All the flood groups interviewed were formed after flood events, which is a common narrative in England (O'Brien et al., 2014). The scale of flood disturbance also influenced whether a flood group was formed or not (Geaves and Penning-Rowsell, 2015). In addition to recent flood experiences, interviews reported a variety of drivers that supported the formation of the interviewed flood groups, such as support from the local parish council (e.g. Bodenham), local referendums and from local politicians (e.g. Much Wenlock). Interviews with flood groups and local flood authorities indicated that it was necessary to have a community demand and interest in having a flood group. Thus flood group formation was typically a bottom-up process which cannot be forced onto communities in a solely top-down manner. However, the findings indicated that flood authorities could encourage the formation of flood groups by providing stimuli such as financial support (e.g. The Defra *Flood Resilience Community Pathfinder Scheme* in Todmorden, Hebden Bridge, Mytholmroyd and CCFF).

All the flood groups interviewed were comprised of volunteers who could be classified into permanent or convergent volunteers based on the frequency of their volunteering. Permanent volunteers were part of the flood group throughout the year and involved themselves in the ongoing organisation and activities of the group. Conversely, convergent volunteers may have had no previous links to local flood risk management, but volunteered during flood emergencies (interview EA, 2015). Some flood groups had access to large numbers of convergent volunteers that signed up to the flood group or to other community groups.

The role and emergence of so-called 'local leaders' and other influential individuals has been found to be important in the formation and activities of civil society groups in a range of settings (Salemink and Strijker, 2015; Terluin, 2003; Twigger-Ross et al., 2011;). The flood groups were also found to have such 'key members': influential residents, who were prepared or able to put time and effort into organising the flood group. Similarly to the interviewee quoted below, all of the interviewed flood groups acknowledged that without their key members they would have been unlikely to have formed and developed to their current levels (cf. O'Brien et al., 2014; Salemink and Strijker, 2015):

"Flood groups that are successful, there's usually a nucleus, someone who really cares and has respect in that community, and I think that you get luck [in] finding that person and you can't appoint someone to this position...as authorities we can't find these people,

but if you provide the right stimulus then you'll have these people appear" – Defra *interviewee, 2015*

However, key members could also have a negative impact upon flood groups. In one flood group, personal disputes between key members and partner organisations dictated the relationship between the whole flood group and the 'external' organisation. In another flood group, such disputes resulted in the deliberate exclusion of individuals from the group. Findings by Coates (2015) provide a similar warning that flood groups centred on key members may deter other individuals in the wider community from joining and not be representative of the wider community.

Representation, Exclusion and Potential Marginalisation

Power relations need to be examined when researching into resilience (Davoudi, 2012), especially community resilience, and the associated issues of "resilience from what, to what, and *who gets to decide"* (Porter and Davoudi, 2012:331, emphasis added). The last part of 'who gets to decide' is important as those involved in the decision-making are able to define the boundaries of their 'resilience work' and outline the priorities, which may lead to the exclusion of other perspectives (Davoudi, 2012). In the flood groups interviewed, the permanent members decided on the activities to be undertaken and defined the desired outcomes. Therefore, the representativeness of the permanent members is important to ensure decisions accurately reflected the community.

Several national interviewees suggested that the flood groups were *always* 'representative' of the community as those who want to join are able to join. However, this representativeness should not be taken for granted as there may be individuals that are excluded (Davoudi, 2012), if not purposefully then perhaps inadvertently. Some flood groups interviewed attempted to be representative of the community by creating elected area representatives (e.g. Bodenham) and street wardens (e.g. Todmorden).

At the same time, members of the community were excluded by some of the flood groups interviewed. Interviewees argued that some individuals became excluded because of differences of opinion during meetings with flood groups and local flood authorities. These differences were in how permanent flood group members interacted with local flood officials. For example, in the aftermath of the 2013/14 UK floods, public criticism was directed towards the government and EA for a lack of river maintenance and farmers for inappropriate land management techniques (Thorne, 2014). It was evident from the interviews that, in a similar vein, some individuals in the flood groups blamed the government and local flood officials for failures in dealing with past flood events whilst others did not. These differences led to tensions within the flood groups and made consensus-building difficult. The sharp criticism from these individuals at flood group meetings was also perceived as straining the relations with local flood officials. Furthermore, in two flood groups interviewed the individuals were excluded through personal decisions to leave the flood group and no longer attend flood group meetings as they did not agree with the direction that the flood group was taking in working with their

local flood officials. Although this exclusion was beneficial for consensus-building within the flood group and collaboration efforts with local flood officials, it did marginalise certain individuals at risk from flooding.

Inadvertent exclusion may also occur due to the voluntary nature of flood groups. They are formed of volunteers and this introduces a selective aspect to their membership, which has implications for their representativeness. Recent research found that flood and coastal risk management volunteers in England tended to be older (i.e. above 50 years old) individuals, with few volunteers from poorer backgrounds and with little ethnic diversity (Edwards et al., 2015). Whilst this research did not explore individual background and ethnic diversity, it did support findings about volunteer age. For example, certain flood groups (e.g. Bodenham and Garforth) were predominantly formed of older people and retirees with younger residents being too busy with their families or too tired to attend meetings after work (interview Bodenham, 2015). There was recognition of the need for younger residents to be involved in these groups in order to sustain them. However, this type of inadvertent exclusion and potential marginalisation was considered to be outside the control of flood groups. Several reported experiencing difficulties in recruiting new members and keeping them engaged due to widespread public apathy towards flooding, residents purposely avoiding dealing with flood risk or not wanting to admit having been flooded due to fears about the negative impacts on property prices and flood insurance policies. Such factors could be barriers to community-led schemes in achieving community resilience to flooding.

Flood Groups in the Local Flood Risk Management Landscape

The emergence of flood groups adds a "new element" to the existing governance arrangements for flood risk management at the local level (Geaves and Penning-Rowsell, 2015:1). The flood groups interviewed worked with a range of actors in the local flood risk management landscape (see Figure 1). These actors shared resources with the flood groups: physical resources (e.g. meeting rooms, staff members), financial resources, and knowledge and ideas. Knowledge and ideas were the most common resource shared, especially by the County Council, Local/Parish Council and the EA, whilst financial resources were rarely shared. However, financial support was given in the form of small loans (e.g. Bodenham) and through local community funds (e.g. Garforth). The ability of flood groups to access community funds that were not available to local flood authorities is an example of how they add value to the local flood risk management landscape.

The flood groups were also found to have opportunities to influence other actors in the local flood risk management landscape: they were often asked to consult on the plans/documents of the County Council (13 groups), Local/Parish Council (15) and the EA (15), and to support the designing and drafting of their documents (see Figure 1). The fact that these important actors interacted with the flood groups in these ways suggests that the groups were established and visible enough in the local context to contribute on flood-related issues. The flood groups also worked with the Emergency Services (police, fire and ambulance service), flood consultants, landowners, village magazines, internal drainage boards, other community groups, universities, Network Rail and Defra ('Others' category).

This shows that the flood groups interacted with a broad range of actors and included other specific local organisations, but that these interactions varied considerably across the flood groups.
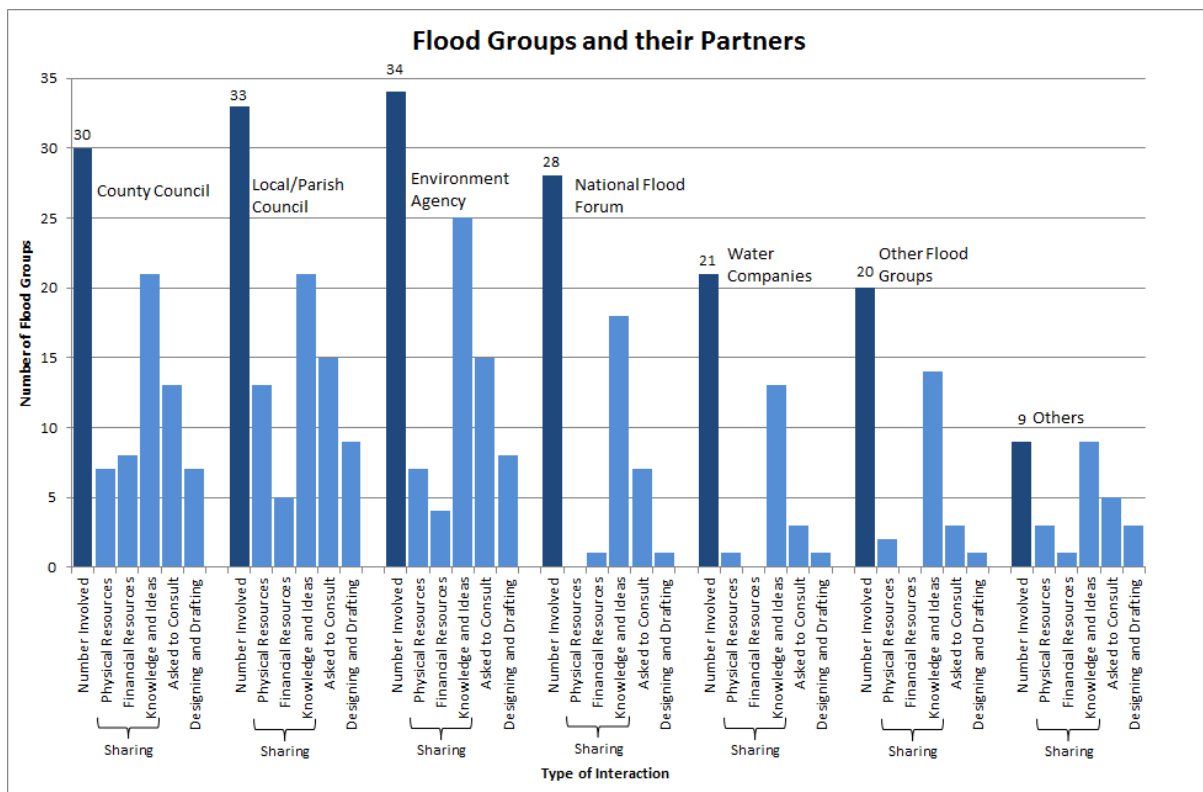

Figure 1: Flood groups and their relationships with other local actors (first column represents the number of flood groups working with the named local actor; some groups had several types of interaction with each local actor; n=36).

The roles and responsibilities of the state/local flood authorities and civil society/the flood groups were important to understand further especially in light of research suggesting that civil society involvement could lead to a decline in state support (Davoudi, 2012). Many of the flood groups saw themselves as intermediaries between the community and the local flood authorities. National interviewees also viewed the flood groups in this way and as a conveyer of local knowledge. The flood groups did not see themselves as replacing or taking responsibilities from existing actors. There was evidence of local flood officials, from the EA and LLFAs, going beyond their assigned duties by attending extra meetings and providing expertise to support the flood groups interviewed.

Interviews found that flood groups offered added value within the local 'flood risk management landscape' in the form of information resources embedded in local knowledge, experiences and engagement. They contributed by sharing local knowledge on their local area and, for example, its drainage system (interview Much Wenlock, 2015), past flood and rainfall data, and river and road ownership (interview Todmorden, 2015). Their inputs were able to correct EA data on previous flooding and help fill existing knowledge gaps. It was also reported by flood group members and national interviewees that residents

were more willing to talk to, and respect, key members in local flood groups than local officials:

"People will talk to us because they know us, they recognise our faces, we've been to school with them - people come to talk to us because we're not the council, we're not the EA and that's how we find out more things" – Todmorden flood group interviewee, 2015

However, in some cases actors also withheld from interacting with flood groups, despite appeals by the flood groups themselves (e.g. Yorkshire Water in Todmorden). Reasons for not interacting with the flood groups included the perception that there were better avenues for engaging with local flood risk management.

Influence of Flood Groups on Community Resilience to Flooding

Based on findings from empirical data, Table 3 below presents an overview of activities through which the flood groups influenced community capacity and resilience to flooding. Not all of the activities can be solely classified under one category and there are also hybrid links between some categories.

Community Capacity	Activity	
Social Capital	Shared knowledge with neighbouring communities Supplied data for local council flood models Provided knowledge on which drains and 'pinch points' to watch during heavy rainfall Created community flood plans Created and supported flood warning systems Reported river blockages and conducted village sewer surveys Installed and tested flood sirens with flood authorities Developed more coordinated approaches and partnership plans across different flood actors Conducted joint flood exercises with local councils and the EA Provided flood recovery support to neighbours	Community Resilience to Flooding
Natural/Built Environment Capital	Objected (and forced changes) to new building developments that would increase flood risk Integrated flood risk management and spatial planning Encouraged flood risk management to appear in land use plans Cleared and maintained ditches and watercourses Erected flood walls and barriers (property-level protection) Operated flood pumps Developed temporary water storage areas Created community flood stores with post-flood equipment Led catchment based approaches	
Human Capital	Aimed to increase flood knowledge and risk awareness in general Started education initiatives on current and future flood risk for citizens and schools Formed community support networks to help vulnerable people	

	during and after flooding Aimed to reduce deprivation and increase health and well-being in communities	
Economic Capital	Provided flood insurance help and advice Undertook community fundraising for flood mitigation and recovery measures Attracted funding for property level protection measures and early warning systems Accessed local community funds	

Table 3: Flood group activities (authors' own; interview and survey data)

Social Capital

The findings indicate that flood groups influenced the social capital of these communities in terms of their internal social networks and structures, community competence, information and communication, and external institutional structures and support.

Interviews suggested that flood groups maintained and created new social connections by organising social events in the community (interview Bodenham, 2015; interview Garforth, 2015). Internal communication structures were created to support the dissemination of flood warnings (e.g. telephone trees in Much Wenlock and Hebden Bridge) and new governance structures to connect residents and flood groups (e.g. the area representative system in Bodenham). These were examples of community competence (Norris et al., 2008). Interviews suggested that flood groups created and developed links between the community and external institutions such as the EA.

Natural/Built Environment Capital

According to our survey, flood groups were found to influence natural and built environment capital through maintenance measures, temporary physical measures and through spatial planning. For example, the Bodenham flood group maintained and improved the efficiency of water infrastructure by cleaning out watercourses and blocked culverts, in effect replicating the tasks of authorities. Whilst this example shows flood groups taking action to solve flood risk problems themselves, it also raises wider questions about flood risk management responsibilities. The flood group, in carrying out this maintenance, showed signs of an expanding civil society and community involvement in owning their flood risk. However, it could also be seen as an indication of local government/authorities 'reallocating' their duties to maintain watercourses to unpaid members of the public (see also Geaves and Penning-Rowsell, 2015).

Temporary physical measures such as demountable barriers, flood stores containing post-flood recovery equipment (e.g. Garforth, Hebden Bridge, Mytholmroyd and Todmorden) and water-sacks are examples of flood group actions taken to increase both local flood resistance and resilience. These demountable barriers and water-sacks focus on withstanding and resisting flooding and occur at the neighbourhood and individual property level respectively. However, the creation of flood stores represents an acknowledgement

that some flooding is inevitable and illustrates a focus on reducing the consequences of flooding.

Flood groups also influenced spatial planning in their communities from both a physical and policy-making level. For instance, at the physical level the Garforth flood group raised a bund around a playing field and secured agreement for its use as a temporary water storage area when flooding was predicted. In terms of policy-making, flood groups (e.g. Much Wenlock) were able to influence the content of their local 'neighbourhood plan', a statutory document that strongly influences local planning, to include certain local flood issues in future developments. This influence may alter the perception that future policy-makers have of local flood issues and affects the type of developments that can be undertaken in the future. The flood groups also maintained a critical eye on local planning applications for new developments and raised flood-related concerns with local councils and the EA (e.g. Much Wenlock, Garforth, Bodenham and Todmorden). In some cases they have managed to force changes to new developments, but in others their views have been taken into account but outweighed by other concerns.

Human Capital

Flood groups influenced human capital through their impacts on individual flood awareness and in supporting those deemed more vulnerable to flooding. They also provided emotional support to flood victims and acted *"as a shoulder to cry on"* (interview Bodenham, 2015), which is important as flood events can have a significant impact on the mental health and wellbeing of those affected (Tapsell and Tunstall, 2008).

It is difficult to specifically estimate the extent to which flood awareness and knowledge increased as a direct result of the flood groups' activities. However, it is possible to state that flood groups maintained awareness of local flood issues by handing out leaflets, publishing in newspapers, producing YouTube videos, and providing personalised flood plans with contact information. Further efforts to increase local flood knowledge were made through the use of flood group websites, an online training module and by working in schools (e.g. CCFF). Such efforts can also be argued to influence the community as a whole and to increase social capital. The existence of the flood groups also served as a reminder to local people of past flooding and of the current flood risk.

Flood groups also supported the more vulnerable, described by the groups interviewed as the elderly, infirm, those with young children, new residents to the area, and residents that are away during a flood and cannot protect their homes. The flood groups organised equipment and helped erect property-level protection measures for these groups of people, with Bodenham having a 'buddy system' that paired residents together so that they can support one another during flood events (related to internal social networks and structures as part of social capital).

Economic Capital

The flood groups interviewed attempted to influence economic capital by lobbying decision-makers and organisations to invest money into their communities to protect them against flooding (interview EA, 2015). Interviewees reported that fundraising (by member subscriptions or from accessing community grants) by flood groups also increased the economic capital available for local flood risk management activities (i.e. community funds). Flood group members without fundraising skills could potentially become marginalised (Geaves and Penning-Rowsell, 2015), although at least one flood group interviewed was aware of this and included individually-tailored tasks to avoid this form of exclusion.

Flood groups were found to both positively and negative influence availability and cost of flood insurance in the community. On the positive side, flood groups were able to act as an official voice and talk directly to insurance companies when residents had been refused flood insurance cover, which was successful in several cases. Key members were also able to use their strong personal relationships with influential individuals to gain access to heads of insurance companies and insurance brokers, and lists of potential flood insurers to distribute to their residents.

Homeowners can have difficulty in obtaining flood risk insurance or face increases in the premiums associated with such policies if they are perceived to be at flood risk (Lamond et al., 2009). Flood insurance premiums are determined by flood risk maps, but these maps are not always reliable in areas where data on previous flooding is incomplete. On the negative side, in one flood group (name withheld), it was reported that several insurance agencies noticed that some properties were at risk of flooding based on the flood group's work and this led to an increase in insurance policy prices. Such outcome represents a common fear of residents, affecting their willingness to acknowledge their own flood risk and in some cases discouraging them from installing visible property-level protection measures.

Community Capacity and Flood Groups

The influence of the flood groups interviewed is typically based on the expansion of existing social capital, following flooding events, through networks of volunteers and facilitated by institutional support. Interventions are focused to a large extent on knowledge exchange, on the local area or on gaining financial support, and interactions around small-scale maintenance-oriented activities.

The influence of flood groups on natural/built environment capital was primarily restricted to smaller, less resource-intensive maintenance and local building protection activities as opposed to larger scale, more resource-intensive activities such as greening of the landscape and the implementation of water-sensitive urban design. The focus on smaller activities is due, in part, to the fact that they are comprised of volunteers and run as voluntary groups with limited resources. However, a few groups interviewed also carried out more extensive activities such as an attempt to change the local landscape by

developing temporary water storage areas and another to influence future urban planning by contributing to long-term strategic development plans.

Human capital influences were typically focused on increasing public flood risk awareness and supporting those that are identified as vulnerable by the flood group. The perceptions of 'who is vulnerable and why' are influenced by local flood authorities and the flood group membership, which increases the importance attached to issues of representativeness and inclusion within the flood groups themselves. The flood groups are also influencing economic capital, albeit to a lesser extent, by increasing levels of social protection through fundraising and from working to ensure insurance coverage. However, the influence of flood group activities on reducing flood insurance premiums is still low due to doubts from insurers over flood group effectiveness in increasing flood resilience and reducing potential flood losses.

Conclusions

This chapter focused on the influence and potential role of civil society, through flood groups, on community resilience to flooding in England. While flood groups in England are increasing in number and carrying out a diverse range of activities, there is limited research available on the nature of such flood groups and their potential influence on community resilience to flooding. The goal of this research was to provide a working definition for flood groups, introduce their governance arrangements and explore the ways the groups might influence community resilience to flooding. A survey with 40 flood groups and semi-structured interviews with national actors and six selected flood groups provided a basis for reaching these goals.

The flood groups interviewed were all formed in response to a flood event and were predominantly made up of members of the public living in the affected areas with an interest in flooding but without a paid position with a formal flood actor. The flood groups were found to actively interact with other formal flood risk management actors. This chapter discussed the role of these flood groups on community resilience to flooding via their influence on: the community's social connectedness (social capital), the spatial planning and physical characteristics in the community (natural/built environment capital), the capabilities of individuals (human capital), and the economic resources available in communities (economic capital).

The flood groups interviewed were predominantly contributing to expanding communities' social capital and connections with institutions as well as supporting vulnerable individuals and raising flood risk awareness (human capital). The research suggests a focus on knowledge exchange by the flood groups interviewed. Their influence on natural/built environment capitals was restricted to smaller, less resource-intensive activities, which were strongly dependent on the local context and limited by resource availability. More extensive flood resilience activities such as greening of urban areas or advancing water-sensitive urban design were relatively ignored by the flood groups interviewed and surveyed.

However, some more strategic activities such as the development of temporary water storage areas and contributing to long-term strategic plans were undertaken by some flood groups. The influence of the flood groups on economic resilience was limited to fundraising and supporting citizens in gaining flood insurance.

When discussing the contribution of flood groups to community resilience to flooding, the findings of this research highlight that it is important to be critical towards the extent to which a community can be fully represented by community groups (Coates, 2015; Wilson 2012). Flood groups were indeed found to not always represent the full community they intended to represent. Some of the flood groups interviewed included mainly older individuals and retirees, partly due to the voluntary nature of the groups. Community members without the time to volunteer or individuals with different perspectives were excluded. However, some flood groups seemed to be aware of these issues and some were attempting to ensure broader representation and maximising representativeness.

The increasing importance of the concept of resilience in flood risk management alongside the increasing emphasis on self-reliance of communities, via flood groups among others things, in government policies raises questions about whether the state is retreating from its existing responsibilities and reallocating accountability (Davoudi, 2012; Geaves and Penning-Rowsell, 2015). This research found indications of local government retreating (e.g. in relying on voluntary flood groups to maintain local watercourses), but also of the local state going beyond their assigned duties (e.g. by providing additional time and expertise to support the flood groups).

To conclude, this chapter has found that there is value in being receptive to flood groups within the local flood risk management landscape. The following summarises the ways that flood groups were successful in adding value to the local flood actors, the community itself and the individuals within the community: Firstly, they acted as an important local knowledge resource and provided information that local flood actors would not have otherwise been able to access. Secondly, they allowed the community to have a role in the prioritisation and decision-making processes relating to local flood risk management activities. Thirdly, the flood groups played an important role in activating local individuals and creating active flood risk managers, either by being members of or interacting with the flood groups. Fourthly, their existence also acts as an informal reminder of current local flood risk. This influence on flood risk awareness could be especially useful for countries with high flood risk but relatively low public flood risk awareness, such as in the Netherlands. These four ways in which the flood groups added value can also be useful to other countries that are exploring approaches to increase citizen involvement in local flood risk management to support the transition from technocratic, top-down governance approaches to more bottom-up, citizen supported approaches to flood resilience.

Acknowledgements

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