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## **Flood Groups in England: Governance arrangements and contributions to flood resilience**

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### **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 which facilitate community involvement in local flood risk management, is an illustration of such developments. 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 or potentially can influence 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. Flood resilience is analysed through the lens of community resilience to flooding and 'community capacity', which comprises four capitals: social, natural/ built environment, human, and economic. The findings indicate that flood groups in England have the ability to increase community resilience to flooding, especially in terms of social capital (e.g., knowledge about flood risks, social events) and natural/built environment capital (e.g., maintaining watercourses, temporary barriers). At the same time, the chapter reveals issues regarding representativeness of the 'community', of potential exclusion and marginalisation when considering the potential role of flood groups in making places more resilient to flooding.

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

### **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, affecting over 5.8 million people and resulting in over €45 billion in damages (Guha-Sapir et al., 2015a). European countries have experienced several severe floods in recent years and climate change is expected to lead to an increase in the frequency of flood events in Europe in the future (Alfieri et al., 2015; EEA, 2012).

It is clear that flooding is an issue that requires immediate attention, especially in areas that seem to be prone to severe flooding such as England. 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 professionals and the funding allocated to flood risk management. 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 from ‘keeping water out’ towards ‘living with water’ and the idea of increasing flood resilience through “more strategic, holistic and long-term” approaches in the literature and in practice (Scott, 2013:103). This has been evident in England with a change towards making space for water (Johnson and Priest, 2008). Alongside this change in approach 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 flooding issues and flood resilience.

However, there are different conceptualisations of ‘resilience’ in the literature, ranging from technical engineering approaches to interpretations based on collaborative policy development. This research defines it as the ability of a local community to prepare for, withstand/resist, respond to, recover from, and adapt to flooding events. This research focuses on community resilience to flooding, which is understood to contribute to and influence flood resilience. The term ‘community’ refers to a social group in a certain area and may be defined by the flood groups themselves. Evidence suggests that communities will have to “become better prepared and more resilient to flood events” in the future (O’Brien et al., 2014:8). The role that civil society can play within flood resilience is not well documented (Van der Vaart et al., 2015), but it may become more important in the future.

Previous research indicates that the potential for the government to retreat from public duties for flood management needs to be addressed when researching into resilience (Van der Vaart et al., 2015). ‘Resilience-building’ grey literature in the UK repeatedly advocates increasing levels of self-reliance in communities (Davoudi, 2012). These increases in self-reliance can be constructive as officials are creating “stewardship of lay people” (Schelfaut et al., 2011:831). However, they can be accompanied by a corresponding retreat in the role of the government (Davoudi, 2012) with responsibilities passed on to community and voluntary groups (such as flood groups).

In England, the concept of flood resilience and the idea of an increased flood risk management role for members of the public and communities have been present in important documents such as the *Making Space for Water* strategy (Defra, 2004), the *Pitt Review* (Pitt, 2008), and the *Water and Flood Risk Management Act* (UK Government, 2010). There have also been efforts to increase community level resilience to flooding, such as the recent *Flood Resilience Community Pathfinder Scheme* run by the UK Department for Environment, Food and Rural Affairs (Defra) (Twigger-Ross et al., 2014). This scheme focuses on interventions to increase community resilience to flooding and includes the creation and development of flood groups (Twigger-Ross et al., 2014).

Flood groups are becoming more common and established in the UK, especially in England. Understanding more about their potentially important role in flood risk management and flood resilience in England could also benefit other countries. There has certainly been an increase in the number of flood groups from “more than 50” (Defra, 2004:99) to over 234 in England and Wales (this research) within the last decade. Their emergence adds a “new element” to the existing governance arrangements for flood risk management at the local level (Geaves and Penning-Rowell, 2015:1). However, although flood groups are increasing in number there is no concrete definition of what constitutes a ‘flood group’. Based on discussions in existing academic literature and government documentation, flood groups can include all forms of community groups working on flood issues, which makes flood group comparisons and generalisations more challenging. It is also important to acknowledge that the existence of flood groups does not in itself mean that they have an impact on flood resilience and flood

risk management. 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 through the use of four capitals: social, natural/built environment, human and economic. Second, it provides information on England's current flood risk management landscape. Third, the chapter outlines the methodology used. Fourth, it presents and discusses the findings reflecting on influences of flood groups and offering insights into the wider implications of this research beyond England.

## **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 centred upon flood risk 'certainty' towards a more holistic flood resilience approach acknowledging that floods cannot always be prevented, but their impacts can be reduced (Scott, 2013; Schelfaut et al., 2011). This latter approach understands and accepts that uncertainty is present in flood risk management and acts on a "more integrated and precautionary basis" (White, 2013:110).

### *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 analysis, one unavoidably has to pay attention to assumptions connected to the notion of 'community', the power relations present on the local level, as well as the connected issues of "justice and fairness", which may influence resilience (Davoudi, 2012:306; Fainstein, 2015; Coates, 2015). Variations in the distribution of capacity over community members are inherent to resilience-thinking. Increasing 'community' resilience may not necessarily benefit all community groups equally (Wilson, 2012; Fainstein, 2015) with certain groups potentially being excluded or affected unevenly (Davoudi, 2012). This exclusion may exist before any resilience activities are undertaken (Porter and Davoudi, 2012). In this research, the representativeness of flood group membership, which is the voice of the 'community', may influence whether the flood groups are delivering community resilience for everybody or only for those included in the flood group and its decision-making processes. Therefore, the 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. Norris et al., 2008; Cutter et al., 2008; Cutter et al., 2010; Forrest et al., 2014; Masterson et al., 2014). Such conceptualisations propose 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. This last 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 that together describe 'community capacity' to deal with disasters: social capital, physical capital, human capital, and economic capital.

There are common elements within these 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 builds upon these common elements and analyses how flood groups in England have influenced community resilience to flooding in terms of 'community capacity' through the four adapted capitals: social, natural/built environment, human, and economic capital. These capitals relate to the ways that the community is resilient to (i.e. prepares for, withstands, responds to, recovers from, and adapts to) flooding.

### *Understanding community capacity*

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

1) Social capital focuses on 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. Individuals and communities with highly developed social networks and institutional structures may have greater access to support and resources to strengthen flood resilience. The information and communication capacity of a community is important in 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 to solve a flood problem, i.e. their community competence, is also important to consider (Norris et al., 2008).

2) Natural and built environment capital describes the level to which spatial and physical characteristics of a community provide capacities in relation to flood risk. Natural environment measures 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 includes the amount of pervious structures within a community, land zoning policies for flood risk, and the resilience of critical facilities (Masterson et al., 2014; Cutter et al., 2008). 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 demountable barriers.

3) Human capital is based on the current and potential capability of individuals to individually engage with flooding within a community. The general health and wellbeing of individuals is

important to consider (Masterson et al., 2014) as it can affect their ability to be resilient to flooding (i.e. those of ill-health, with disabilities, or low wellbeing may be less resilient to flooding). Even small, localised flooding events can negatively impact the physical and mental health of residents (Tapsell and Tunstall, 2008). The level of education, knowledge and skills of the individuals within a community also affects how flood resilient individuals are (Cutter et al., 2008; Masterson et al., 2014).

4) 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 elements include the equitable distribution of wealth (Norris et al., 2008; Cutter et al., 2008) and the uptake of flood insurance as a means of risk spreading (Botzen and van den Bergh, 2008).

Capital	Specific flood resilience focus
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 and 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 capability to engage with flood issues
Economic	Focuses on the economic resources available for the community to better engage with flood issues

Table XX: Understanding and specifying Community capacity in terms of the four capitals.

### England's Flood Risk Management Landscape

Estimations indicate that 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 (House of Commons, 2015). 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 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'. It 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) also encourages connecting local groups with local organisations and the review included input from several flood groups. The *Flood and Water Management Act* (UK Government, 2010) named LLFAs as responsible for local flood risk management. These LLFAs have a significant impact at the local level as they have the power to call multi-agency meetings and bring local actors together to plan and deliver flood risk management actions. They are also 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.

## Methods

In order to understand the governance arrangements and operations of flood groups, data were collected from national actors working with flood groups, 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 250 flood groups across England and completed by 40 groups. The NFF functioned as a 'gatekeeper' to access the flood groups and distribute the surveys to them. They also provided additional legitimacy to our research, which is important as further inspection of the low response rate found that the flood groups are currently being inundated by data requests from academics (and other bodies) and have to prioritise which ones to respond to. However, it means 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. It was important that the selected flood groups had existed over a sufficient time period for governance arrangements to have developed and for activities to have been undertaken. In order to make such a selection, the existence of a group for at least one year was used as a criteria. Since the research focused on public involvement it was also important to select flood groups that consisted primarily of members of the public living in the areas 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 and the flood groups needed to have links with their local flood authorities (i.e. local government). 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 >75% members of the public, iii) worked with the local council and iv) worked with other local actors.

As a result, the Hebden Bridge Flood Group, Mytholmroyd Flood Group, Garforth Flood Support Group, Bodenham Flood Protection Group, Todmorden Flood Group and Much Wenlock Flood Group were selected for interviews (see Table 2). These semi-structured interviews were undertaken with representatives of the 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.

Flood group	i) Date established	ii) Members of the public	iv) Local actors
<b>Hebden Bridge</b>	2012	100%	Local Council; EA; Other Flood Groups
<b>Mytholmroyd Flood Group</b>	2014	100%	Local Council; EA; Other Flood Groups
<b>Garforth Flood Support Group</b>	2013	94%	Local Council; EA; Other Flood Groups; Water Company
<b>Bodenham Flood Protection Group</b>	2008	100%	Local Council; EA; Other Flood Groups
<b>Todmorden Flood Group</b>	2000-2003; 2012*	80%	Local Council; EA; NFF; Other Flood Groups; Local Community Groups
<b>Much Wenlock Flood Group</b>	2007/2008	100%	Local Council; EA; NFF; Water Company; Other Flood Groups; Emergency Services

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

All interviews were transcribed and then coded thematically by either governance arrangements or the relevant community resilience to flooding capital(s). These were supplemented by an analysis of the flood groups' documentation (provided by interviewees and from desk-based research) according to these codes.

## Findings and Discussion

### *Flood Groups: a working definition*

The research identified 234 flood groups currently working in England and Wales. . 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.

Flood groups were found to exist in a variety of different forms with varying aims and objectives in the literature. There was evidence of their use in the UK to independently scrutinise previous local flood events (McCarthy & Tunstall, 2008), as a mechanism to support flood risk communication (McCarthy & Tunstall, 2008; Scott Wilson Kirkpatrick and Co Ltd et al., 2003), to build community capacity (Waylen et al., 2011) and self-sufficiency (Harries, 2009), to campaign for community interests (Neill & Neill, 2012; Twigger-Ross et al., 2011; Geaves and Penning-Rowell, 2015), to support flood recovery (Andrew, 2012; Twigger-Ross et al., 2011) and to promote flood resilience (Geaves and Penning-Rowell, 2015). The flood groups interviewed contributed to all of these points apart from the independent scrutiny of previous flood events.

The evidence shows that flood groups were involved with elements of both action and advocacy. Several flood groups were action-orientated and focused on preparation measures to reduce flood risk (e.g. clearing out ditches in Bodenham and creating temporary water storage areas in Garforth). Other flood groups focused on actions to reduce the consequences

of flooding (e.g. flood stores in Todmorden and Hebden Bridge). Advocacy activities ranged from discussing local flood issues (e.g. Bodenham, Todmorden, Hebden Bridge, Mytholmroyd) to actively pressuring and seeking to influence authorities on flood issues (e.g. the development of flood attenuation ponds in Much Wenlock and planning applications in the majority of interviewed flood groups). This lobbying role by flood groups was also found by Thaler and Priest (2014).

All the flood groups interviewed aimed to increase flood risk awareness and community involvement in flooding. Additionally, 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 advocacy to action or vice-versa, and in the types of local flood actors that they work with.

Interview data was used to create a working definition of a 'flood group' that acts more as a starting point for this chapter as well as for further research rather than a universal definition:

*A flood group is 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 has also been found to influence whether a flood group is 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 the local parish council (e.g. Bodenham), local referendums and support from local politicians (e.g. Much Wenlock). Interviews with flood groups and local flood authorities found that flood group formation typically is a bottom-up process and cannot not be forced onto communities in a solely top-down manner. However, the findings indicate that local flood authorities could encourage the formation of flood groups by providing stimuli such as financial funding (e.g. The Defra *Flood Resilience Community Pathfinder Scheme* in Todmorden, Hebden Bridge, Mytholmroyd and CCFF). Financial support was important for the creation and development of flood groups interviewed (i.e. for administration and supporting their activities).

All the flood groups interviewed for this research were made of volunteers who could be classified into permanent or convergent volunteers based on the frequency of their volunteering. Permanent volunteers were part of the group throughout the year and worked on flood group planning. Conversely, convergent volunteers had no previous link 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 (e.g. the Todmorden group had access to approximately 200 convergent volunteers).

The role and emergence of local leaders and influential individuals has been found to be important in informal groups in a range of settings (Terluin, 2003; Salemink and Strijker, 2015) and in supporting community resilience actions (Twigger-Ross et al., 2011). The flood groups were also found to have 'key members' (residents with local influence, who were prepared or able to put time and effort into organising the flood group) that were crucial for the formation and working of the flood groups (cf. O'Brien et al., 2014; Salemink and Strijker, 2015). 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:

*"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 were also found to negatively impact upon flood groups. In one flood group, it was found that personal disputes between key members and other organisations dictated the relationship between the whole flood group and the 'external' organisation. In another group, these disputes resulted in the deliberate exclusion of individuals. This is similar to findings by Coates (2015) 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), in particular community resilience and especially in terms of "resilience from what, to what, and *who gets to decide*" (Porter and Davoudi, 2012:331, emphasis added). Those involved in decision-making are able to define the boundaries of their resilience work and outline the priorities, which may lead to the exclusion of certain perspectives (Davoudi, 2012). In the flood groups interviewed, the permanent members decided on resilience activities and defined 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, some flood groups inadvertently excluded parts of the community. 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 a recognition of the need for younger residents to be involved in these groups in order to sustain them. This type of inadvertent exclusion and potential marginalisation was found 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 their flood risk, and residents not wanting to admit having been flooded due to fears about the negative impacts on property prices and flood insurance policies. These factors could be barriers to community-led schemes in achieving community resilience to flooding.

Interviewees found that some individuals were excluded because of differences of opinion during meetings with flood groups and local flood authorities. These differences were in how permanent flood group members wanted to interact with local flood officials. 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 held for this research 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 group and made consensus-building difficult. The constant criticism at these meetings was also perceived as straining relations with local flood officials. 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 these 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.

#### *Flood Groups in the Local Flood Risk Management Landscape*

The flood groups 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 found 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 was another example of how they added value to the local flood risk management landscape.

An indicator of the influence of flood groups was that 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 Emergency Services (police, fire and ambulance service), flood consultants, landowners, village magazines, internal drainage boards, other community groups, universities, Network Rail and Defra also worked with the flood groups ('Others' category). The interactions and relationships with this broad range of actors varied amongst the flood groups and included other specific local organisations.

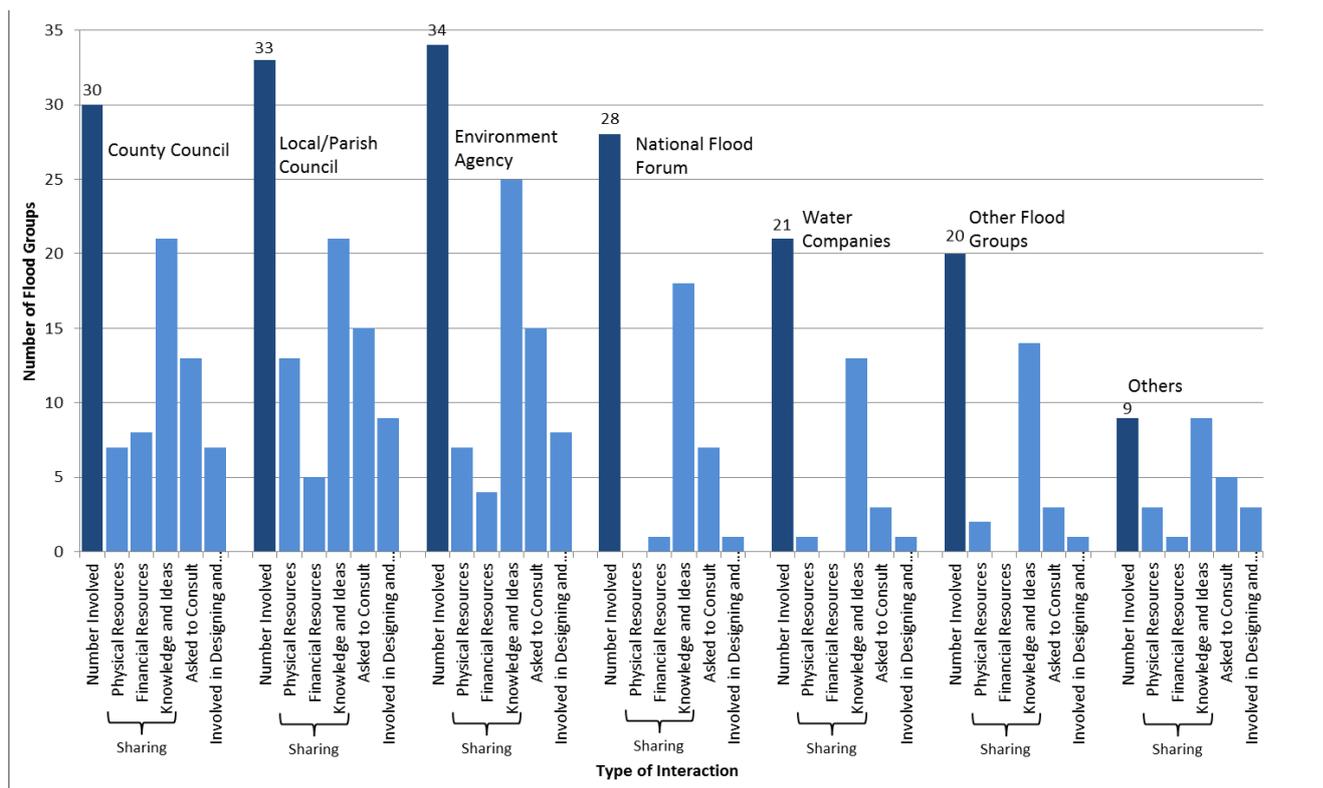


Figure 1: Flood groups and their relationships with other local actors (survey data, 2015; first column represents the number of flood groups working with the named local actor; n=36).

Many of the flood groups saw themselves as intermediaries between the community and the local flood authorities, but not as replacing or taking responsibilities from existing actors. There was evidence of local flood officials, such as the EA and LLFAs, going beyond their assigned duties by attending extra meetings and providing expertise to support the flood groups interviewed. National interviewees also viewed the flood groups in this way with some preferring the flood group to act as a collective voice as opposed to being inundated by multiple individual voices. Residents reported flood issues to the flood group, sometimes through their websites, and the flood group (e.g. Todmorden, Hebden Bridge and Mytholmroyd) reported these issues to external formal institutions such as the local flood authorities.

Flood groups were found to offer 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, river and road ownership (interview Todmorden, 2015). Their inputs were able to correct EA data on previous flooding and help fill a knowledge gap and the associated loss of knowledge. 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 were also found to withhold 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 them to engage with local flood risk management.

### **Influence of Flood Groups on Community Resilience to Flooding**

#### *Community Capacity*

The flood groups were found to influence ‘community capacity’ through their contributions to social, natural/built environment, human and economic capitals (see Table 3). These four capitals were useful in enabling both social and technical contributions of the flood groups to be included in the analysis of community resilience to flooding.

	<b>Activity</b>
<b>Social Capital</b>	<ul style="list-style-type: none"> <li>- Supplied data for local council flood models</li> <li>- Shared knowledge with neighbouring communities</li> <li>- Created community flood plans</li> <li>- Created and supported flood warning systems</li> <li>- Installed flood sirens</li> <li>- Reported river blockages</li> <li>- Conducted village sewer surveys</li> <li>- Cleared and maintained ditches and watercourses</li> <li>- Developed more coordinated approaches and partnership plans across flood actors</li> <li>- Conducted joint flood exercises with local councils and the EA</li> <li>- Provided flood recovery support</li> <li>- Created community flood stores with post-flood equipment</li> </ul>
<b>Natural and Built Environment Capital</b>	<ul style="list-style-type: none"> <li>- Objected (and forced changes) to new building developments that would increase flood risk</li> <li>- Integrated flood risk management and spatial planning</li> <li>- Encouraged flood risk management to appear in land use plans</li> <li>- Erected flood walls and barriers</li> <li>- Operated flood pumps</li> <li>- Led catchment based approaches</li> </ul>
<b>Human Capital</b>	<ul style="list-style-type: none"> <li>- Provided knowledge on which drains and ‘pinch points’ to watch during heavy rainfall</li> <li>- Started education initiatives on current and future flood risk for citizens and schools</li> <li>- Formed community support networks to help vulnerable people during and after flooding</li> <li>- Aimed to reduce deprivation and increase health and well-being in communities</li> </ul>
<b>Economic Capital</b>	<ul style="list-style-type: none"> <li>- Provided flood insurance help and advice</li> </ul>

	<ul style="list-style-type: none"> <li>- Undertook community fundraising for flood mitigation and recovery measures</li> <li>- Attracted funding for property level protection measures and early warning systems</li> <li>- Accessed funding through local government</li> </ul>
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Table 3: Flood group activities (authors' own; interview and survey data)

### *Social Capital*

Based on the results of this research, flood groups appeared to influence social capital in terms of 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 through the organisation of 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 strong links between the community and external institutions such as the EA.

### *Natural/Built Environment*

Flood groups were found to influence natural and built environment capital through environmental measures, infrastructure resilience, temporary physical measures and through spatial planning (survey, 2015).

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 is an example of flood groups taking action to solve flood risk problems themselves, it also raises wider questions on flood risk management responsibilities. The flood group, in carrying this maintenance out, showed signs of an expanding civil society and community involvement in owning their flood risk. However, it also shows suggestions of local government/authorities 'reallocating' their duties to maintain the watercourses for the public as unpaid workers (similarly found by Geaves and Penning-Rowell, 2015).

Temporary physical measures such as demountable barriers, flood stores containing post-flood recovery equipment (e.g. Garforth, Hebden Bridge, Mytholmroyd and Todmorden) and watersacks, were flood group actions designed to increase their flood resilience. These actions show a focus on withstanding/resisting flooding and returning to the status quo by flood groups as part of their understanding of flood resilience.

Flood groups influenced spatial planning in their communities from a practical and policy 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 is predicted. Flood groups were able to influence the content of 'neighbourhood plans', a statutory document that strongly influences local planning, to consider certain local flood issues in new developments (e.g. Much

Wenlock). This influence may alter the perception that future planners 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 these developments, but in others their views have been taken into account but outweighed by other concerns.

### *Human Capital*

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

Individual flood awareness and knowledge of local flooding in the community was influenced by flood groups. It is difficult to accurately say whether flood awareness and knowledge increased, but it is possible to say that the flood groups maintained awareness of local flood issues by handing out leaflets, writing in newspapers, producing YouTube videos, and providing personalised flood plans with contact information. Efforts to increase local flood knowledge were made through the use of flood group websites, an online training module and working in schools (e.g. CCFF). These efforts would have also influenced the community as a whole and increased social capital. The continued existence of the flood groups interviewed were also reminders to local people of past flooding and of the current flood risk.

Flood groups also supported the more vulnerable, described by them 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 types of people, with Bodenham having a ‘buddy system’ for those away or vulnerable (related to internal social networks and structures as part of social capital).

### *Economic Capital*

Flood groups were found to influence economic capital influencing decision-makers and organisations to put money into their communities (interview EA, 2015). Interviewees reported that fundraising (by members or from accessing community grants) by flood groups also increased the economic capital available for local flood risk management activities (i.e. community funds). There was also the potential that flood group members without fundraising skills could become marginalised (Geaves and Penning-Rowse, 2015), although at least one flood group interviewed was aware of this and included tailored tasks to avoid this form of exclusion.

Flood groups were found to both positively and negatively influence availability and cost of flood insurance in the community. They 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. In one flood group (name withheld), it was reported that several insurance agencies noticed that some properties were at risk of flooding from the flood group's work and this led to an increase in their insurance policy prices. This outcome is a fear held by many residents, acknowledged by the flood groups, that affects their own willingness to accept their own flood risk and in some cases discourages them from installing visible property-level protection measures.

## **Conclusions**

This chapter focused on the influence and potential role of civil society, specifically 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 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

Based on this research, there is a role for civil society in local flood risk management and the flood groups interviewed were found to influence community resilience to flooding. The use of the four capitals captured the influences of flood groups on the community's social connectedness (social capital), the spatial planning and physical characteristics in the community (natural/environment capital), the current and potential capability of individuals (human capital), and the economic resources available in the community (economic capital).

The chapter has found that there is value in being receptive to community groups/flood groups within the local flood risk management landscape. In addressing and interacting with a wide variety of actors the flood groups were successful in adding value four ways to the local flood actors, the community itself and the individuals within the community in the following ways. 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

institutionalised 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 awareness, such as in the Netherlands.

These four ways in which they added value can be useful for other countries that are exploring approaches to increase citizen involvement in local flood risk management. Increasing their involvement can support the transition from technocratic, top-down governance approaches to more bottom-up, citizen supported approaches to flood resilience.

The idea of 'community' can be romanticised and there are sometimes assumptions that it can be fully represented by community groups (Coates, 2015; Wilson 2012). This research found that flood group membership was not always representative of the community it intended to represent with examples of potential exclusion and potential marginalisation identified. However, there was also evidence that the flood groups were reflexive and aware of these issues.

Previous literature suggests that the state is allowed to retreat from its existing responsibilities and reallocate accountability through the use of resilience (Davoudi, 2012) and the presence of flood groups (Geaves and Penning-Rowsell, 2015). This chapter found examples of local state retreat (e.g. in maintaining local water infrastructure), but also of the local state going beyond their assigned duties (e.g. by providing additional time and expertise to support the flood groups).

From a practical perspective it should include efforts to ensure broader representation of the local community/communities in flood groups and to work on ways to reduce exclusion of certain types of people. The risk of overburdening flood groups, comprised solely of volunteers, is another concern that needs to be addressed in order to support the long-term sustainability of the flood groups. These issues could be improved upon by accessing existing community groups and incorporating local flood issues into their agendas: a move that could lead to more representative and perhaps more sustainable local civil society action to flooding.

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