Exploring opportunities for social learning in community response to natural hazards

A case study of Morpeth Flood Action Group, northwest of England

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Abstract

Social learning has had a growing recognition in the environmental debate and is argued to increase resilience. However, recent literature has spurred a discussion on shortcomings of the use of the concept. This study aims to add more empirical understanding to social learning by using a case study of flood hazards in Morpeth, England, as a critical lens. Moreover, there has been a call for more community involvement in disaster mitigation as well as increased understanding of long-term learning dimension. Therefore this research has focused on a self-organised community group, Morpeth Flood Action Group, triggered by a community response to a flood hazard. The findings, based on qualitative interviews and participatory observations, suggest various elements of, and opportunities for social learning in the organisational viability and the everyday operation of the studied community group. The findings indicate that social network over scales, institutional development by a bottom up processes and long-term possibilities for learning are instrumental.

This study has identified enabling key factors for local learning process to happen and to be sustainable, which can be instructive for future development for local response capacity in disaster risk reduction and resilience. The study concludes that this type of spontaneously, “real-world” approach to social learning for can be a suitable study object for future empirical research.

Key Words: Social learning, Resilience, Disaster Risk Reduction, Flood Hazards
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**Acronyms**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ABI</td>
<td>Association of British Insurance</td>
</tr>
<tr>
<td>DEFRA</td>
<td>Department for Environment Food and Rural Affairs</td>
</tr>
<tr>
<td>EA</td>
<td>Environment Agency</td>
</tr>
<tr>
<td>MFAG</td>
<td>Morpeth Flood Action Group</td>
</tr>
<tr>
<td>NCC</td>
<td>Northumbria County Council</td>
</tr>
<tr>
<td>NFAG</td>
<td>Northern Flood Action Group</td>
</tr>
<tr>
<td>NWL</td>
<td>Northumbria Water Limited</td>
</tr>
<tr>
<td>SES</td>
<td>Social-ecological systems</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>UNISDR</td>
<td>United Offices for Disaster Risk Reduction</td>
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**1. Introduction**
In light of global environmental problems, resilience thinking can offer insights into the debate of sustainable development. The complexity of human and natural systems in response to changes, sometimes abrupt, implies challenges for societies and requires creative strategies and new approaches for problem solving. By adding understanding of the capacity of social-ecological systems to deal with disturbances, resilience thinking is of importance for the future, which is likely to contain more uncertainties (Walker et al. 2006, Walker and Salt 2006). Shocks and crises can also be seen as opportunities and triggers for social mobilisation and learning through recombining experience and knowledge, which can foster innovation and new ways for adaptability or transformation (Folke et al. 2010).

Social learning theory has recently gained recognition in the environmental debate and is argued to increase resilience (Gunderson 2010) and to be crucial for governing SES in the phase of abrupt change (Folke et al. 2005, Pahl-Wostl et al. 2007). Social learning can improved decision making, change values and norms and result in collective action (e.g. Olsson et al. 2004, Armitage et al. 2008) However, there is still a general lack of empirical evidence of social learning and its possible outcomes in the sustainability sphere (Schusler et al. 2003, Muro and Jeffrey 2008, Cundill and Rodela 2012).

This study will address this gap in research by contribute to the discourse through deepening the empirical understanding of social learning in building capacity to deal with change and surprise. In so doing, it uses a case study of community response to disasters in general and flood risks in particular. Flooding is becoming one of the most threatening natural hazards in Europe in terms of frequency and impact (Barrdo 2007, IPCC, 2007). In the focus area of this research, England, United Kingdom (UK), where flood risks are expected to increase because of both future development pressure (Environment Agency 2009) and climate change, causing changed weather patterns, increased occurrences of extreme precipitation, and other extreme weather events (IPCC 2007, Pall et al. 2011). In recent years, several severe flood events have affected England and this has triggered a debate about the vulnerability and lack of preparedness in many communities (e.g. Pitt 2008, Environment Agency 2007). Today, around one in six properties are at risk of flooding in England (Environment Agency 2009).
Parallel to this development, there is a growing consensus on the importance of community involvement and participation in decision-making and disaster mitigation and management (Twigg, 2004, Pelling et al. 2008). The United Offices for Disaster Risk Reduction (UNISDR) argues that “both communities and local authorities should be empowered to manage and reduce disaster risk by having access to the necessary information, resources and authority to implement actions” (ISDR 2010:8). The current debate on the importance of decentralisation for Disaster Risk Reduction including delegated responsibility, authority, funding and capacity to make many of decisions at local level to simply make things work better (De Vries 200). Moreover, there has also been a specific call for integrating local knowledge in the context of flood risk management (e.g. Pitt 2008, Whatmore 2009, McEwen et al 2012:). Flood risk management is generally divided into three main focus areas: 1) flood abatement that aims to prevent peak flows, for example by enhancing the water holding capacity of the catchment 2) flood control with the aim to avoid flood with structural measures, like embankments and 3) flood alleviation that aims to reduce impacts from floods with non-structural measurements such as flood-proofed buildings, hazards zoning and flood adapted spatial planning, early warning systems, insurance, and awareness campaigns to increase the preparedness of people at risk as well as training (De Bruijn 2005, Parker 2000 in Petrow et al. 2006).

Against this backdrop, the study will investigate community response to flooding by using a case study in Morpeth, northeast England with focus on a community group. Much of the empirical work in the field of social learning has been based on planned experimental approaches, as designed participatory research (e.g. Schusler et al. 2003, Mostert et al. 2007, André et al. 2012). In contrast, this case study observes a situation in a “real world context” in order to gain more empirical evidence of how learning takes place in natural settings and evolves over the longer term and how it contributes to building adaptive capacity to cope with natural hazards. The importance of exploring the temporal dimension of learning has been articulated in the recent literature (Haas 2004, Gerger Swartling et al. 2011). Moreover, planned participatory platforms for encouraging social learning can be both time-consuming and costly (Rist et al. 2006, 2007, Mosert et al. 2007). Johannessen and Hahn (2012) have adopted a similar empirical approach arguing that it may be a more effective
strategy to support spontaneous learning compared to externally facilitated approaches. By using community level response to natural hazards as a critical lens, this study aims to add an example of a self-organised approach assessing existing processes and social networks as a potential opportunity for social learning.

1.2 Aim of the thesis

By using a case of flood disasters in England as a critical lens, this study aims to explore potential opportunities for social learning at community level in response to natural hazards. The research questions of the study are:

1) *What are the enabling factors for social learning in the case study?*

2) *Who are the key stakeholders involved in the social network and how do they shape a potential learning platform*

2. Theoretical framework

Resilience thinking is built on the assumption that social and ecological systems (SES) are interlinked. They are complex adaptive systems, which means that they are
nonlinear and it is crucial to understand that uncertainties and crises are part of SES (Walker and Salt 2006). Resilience thinking includes three key elements: resilience, adaptability and transformability. The first concept refers to the capacity of a system to maintain the same function, structure and feedbacks, while undergoing rapid change. Adaptability, or adaptive capacity, is “the capacity of actors to influence the resilience”. (Folke et al. 2010). A system with high adaptive capacity is for example argued to have management or governance structures that include flexibility, innovation and learning (Diduck 2010). Transformation is the capacity to transform the system to become a different one with changed ecological, economic and social structures (Folke et al. 2010).

In the recent years, social learning has been recognised as a way to build resilience and adaptive capacity (e.g. Armitage et al 2008, Pahl-Wostl et al. 200, Pelling et al. forthcoming 2013). Pelling et al. (forthcoming 2013) argue that the approach rests on the idea that “through facilitated social learning, knowledge, values, and action competence can develop in harmony to increase a group’s capacity to build disaster resilience”. There are different notions of the meaning of social learning. However, Cundill and Rodela (2012) conclude that key outcomes of social learning are often argued to be improved decision making strengthened by increased understanding of social-ecological interactions, improved relationships, and enhanced capacities for problem solving among participants. There is also an emerging consensus that continued interaction between stakeholders, on-going deliberation, and knowledge exchange in a trusting environment are processes supporting social learning (Cundill and Rodela 2012).

The depth of critical reflection in a learning process, which can also be referred to as learning outcomes is often expressed and distinguished by the theory of loop-learning (Argyris and Schon 1978, 1996) The outcomes are divided into three types of loops: 1) single-loop learning refers to improvements of existing action strategies, 2) double-loop learning refers to reframing of assumptions (e.g. about cause-effect relationships) and 3) triple-loop learning is changes in values, beliefs and the reconsideration of a world view which can transform management or governance regime (e.g. Keen et al. 2005, Armitage et al. 2008, Pahl-Wostl 2009, Diduck 2010,)
Recent literature on social learning in the context of natural resource management has spurred a discussion on shortcomings of the social learning approach (Wals and van der Leij 2007). For example, Armitage et al. (2008) point out that “[d]espite the widespread support of learning as a normative goal and process, core concepts, assumptions and approaches to learning have been applied in vague and sometimes uncritical ways”. Reed et al (2010) develop this critique and identify three problems with the concept of social learning. Firstly, social learning as a theoretical concept is at times not clearly separated from conditions that can facilitate it (such as stakeholder participation). Secondly, the concept is frequently mixed up with the potential outcomes (such as pro-environmental behaviour). Thirdly, there is often no clear distinction between social learning and other types of learning (e.g. individual learning).

In light of the limits of the social learning approach, this study applies Reed et al. (2010) definition: social learning is “a change in understanding that goes beyond the individual to become situated within wider social units or communities of practice through social interactions between actors within social networks”. The definition allows for interpretation that social learning does not necessarily lead to better outcomes, such as higher adaptive capacity or capacity for sustainability (Reed et al. 2010).

In order to overcome the apparent challenge of assessing learning, in particular social learning, Pelling et al. (forthcoming, 2013) have developed a framework with factors enabling an environment for social learning (Figure 1). The strength of the framework approach lies in the potential in getting a deeper understanding of institutional arrangement that supports social learning in the SES (Pelling et al. forthcoming 2013). This study represents the first empirical application of the framework (Pelling, pers. Comm. 2013.March) and will be used to identify and analyse an environment for potential opportunities for social learning in a case study context. Here, the framework is applied to a case study of the Morpeth Flood Action Group and the social network connected to the group.

The factors and the essential components that can boost learning to go beyond individuals into a social network and utilising social learning for resilience are
summarised in Table 1. Learning appears on different levels; therefore factors specific for each scale are identified. Some factors are cross-scale and some are typical for the society at large and appears on all levels. Potentials at one scale do not determine those on other scales, “they produce the condition for one another through the ongoing emergence of institutions” (Pelling et al. forthcoming 2013).

Table 1. Enabling factors for creating an environment for social learning (Pelling et al. forthcoming 2013).

<table>
<thead>
<tr>
<th>Level</th>
<th>Factors</th>
<th>Essential components to foster social learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>Openness</td>
<td>Openness and willingness to listen to other opinions and ideas</td>
</tr>
<tr>
<td>Level</td>
<td>Reflectivity</td>
<td>Reflection of ourselves, relationships to others, our knowledge</td>
</tr>
<tr>
<td>Diversity</td>
<td>Learning capacity and creative powers will be greater.</td>
<td></td>
</tr>
<tr>
<td><strong>Community Level</strong></td>
<td><strong>Organisational Level</strong></td>
<td><strong>Global Level</strong></td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td><strong>Vibrant networks of relationship</strong></td>
<td><strong>Leadership</strong></td>
<td><strong>Network of communications</strong></td>
</tr>
<tr>
<td>Participation</td>
<td>Manage conflicts and create conditions for new structures. Can be shared.</td>
<td>“Building up and nurturing a network of communications”.</td>
</tr>
<tr>
<td><strong>Opinion leaders</strong></td>
<td>Ongoing dialogue within and between organisations, which enables shared information and sphere of influences, to make sure the outcomes are inline with the learning context (Humanitarian Futures Programme 2010)</td>
<td></td>
</tr>
<tr>
<td><strong>Participation</strong></td>
<td>Bridging different knowledge, experience, and thinking are vital for knowledge generation and decisions. Integration and tension of old and new knowledge (Pelling and Manuel-Navarrete 2011).</td>
<td></td>
</tr>
<tr>
<td><strong>Opinion leaders</strong></td>
<td>Foster cross-scale knowledge, by transferring knowledge from e.g. local groups</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Across Levels</strong></th>
<th><strong>At all levels</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Negotiation</strong></td>
<td><strong>Innovation</strong></td>
</tr>
<tr>
<td>Trust</td>
<td>Includes scientific knowledge and local innovation, and, preferably, an integrated approach. There is a need for new technology, practice and information. Social learning can spread these ideas and encourage innovation.</td>
</tr>
<tr>
<td>Feedback</td>
<td>Disagreement can encourage discussion and the exchange of ideas and knowledge.</td>
</tr>
<tr>
<td><strong>Flexibility</strong></td>
<td>Allows the system to cope with disturbances and crises that can then be triggers for social learning. Restricting norms can act as barriers.</td>
</tr>
<tr>
<td><strong>Shared belief systems</strong></td>
<td>Social learning is constrained by norms, structures and worldviews embedded in social networks and individuals. Epistemological belief systems are shared within and between groups.</td>
</tr>
</tbody>
</table>
Figure 1. Framework of factors enabling an environment for social learning, and how they operate on different scales (Pelling et al forthcoming 2013).
3. Case study context

Morpeth is located in northeast England in the county of Northumberland and is a semi-urban town with a population of around 13,800 (MICRODIS 2011). The town is the administrative centre of the county council and is one of the wealthier towns in the North East (Northumbria University 2010). See Figure 2 for map over Morpeth.

![Map of UK showing Morpeth](Figure 2 Map over UK, showing Morpeth, as well as a flood map over the town.)

Throughout history people have settled along rivers as the flood plains provide fertile farmland, resource for economic development, drinking water and transport (Smith and Ward 1998). This is also true for Morpeth, its physical forms were established already in medieval times and is located within the River Wansbeck catchment (MICRODIS 2011). The river flows together with three small tributaries throughout the town, which is largely situated on a flood plain. Consequently, the area has a long history of flooding (JBA 2008). Key event for the case study context is shown in Figure 3.

In recent years, Morpeth has had three larger floods: in 1963, 2008 and 2012. In addition, parts of the town have had floods of small magnitude where none or a few houses were flooded, most notably in 1982, 1992, and in 2000 (JBA 2008). Extreme
rainfall, snowmelt and an ageing municipal drainage network have been argued to be the contributory factors driving these flood events (Northumbria University 2010).

After the flood in 1963, in which over 500 properties were affected, flood defences were built to protect the area from future floods of the same scale, as the flood was considered to be of unusual magnitude. However, the flood in 2008 was of a greater size, and the river overtopped the defences (JBA 2008). This was the largest flood recorded, around 1000 properties were flooded, including both residential houses, businesses and public properties (like the library, sport centre and schools). More than 400 residents were evacuated from their homes. Because of errors in the flood warning system, 200 properties did not receive any warning. There were also delays in the evacuation, because roads and evacuation routes had been flooded and the risk for death or injury increased among residents and rescue workers (MICRODIS 2011).

The hazard event in 2008 was caused by intensive rainfall. An equivalent of one month of rainfall fell in 24 hours, and since the ground was already saturated from earlier rainfalls the end result was a one in 115 years flood (JBA 2009, Parkin 2010). Morpeth was flooded not only by the river, some areas were first flooded by surface water as the drainage system could not cope with the amount of water. Given that, the area is affected from both fluvial and pluvial flooding (MICRODIS 2011). In September 2012, around 50 properties were flooded following heavy rainfall. Most affected were houses near the lower part of the town as well as houses near one of the small steams, Coutting Burn, as it overtopped its banks. Houses were also flooded due to surface water because of blocked culverts (Environmental Agency 2013).

3.1 Structural governmental changes

In 2008, Castel Morpeth Borough Council, a district council, was in charge of the flood recovery. However, this has changed due to structural changes to local government in 2009. Northumbria County Council (NCC) became a unitary authority and the district councils were abolished (National Statistics 2013, JBA 2010). Today NCC is the lead local authority and has the lead for reducing risk from development in floodplain and the lead in the emergency planning for flooding (See Appendix 3 different organisations roles) (Northumbria County Council 2013).
3.2 Flood Alleviation Scheme

After 2008, Morpeth was guaranteed a flood alleviation scheme by the Environment Agency (EA). However, due to cutbacks in government funding in 2010 no money available to continue the process and the scheme was accordingly put on hold (Morpeth Herald 2010). Nevertheless, a new rule was introduced that allowed for so called partnership funding, which means that the national government can pay one part and other actors can take the additional cost. Consequently, NCC funded half of the scheme and a £21million scheme is progressing by the EA and the NCC in corporation. The work with the scheme started in February 2013. The scheme involves three improvements 1) an upstream storage to reduce the amount of water coming down the river 2) new and improvements on existing defences and 3) flood risk reduction measurements on the three tributaries. Exploring options for reducing surface water is an additional area for the EA and the NCC (Environment Agency 2013). Interestingly, EA prior to 2008 had two consultations (1999 and 2004) for building flood defences in one flood affected area in Morpeth. However, the suggestions presented by the EA were turned down by some neighbourhoods (pers.comm Environment Agency 2012 December.)

3.3 Flood insurance

Flood insurance is another type of adaptation to flooding. In the UK, flood insurance has recently become a pressing issue. The current agreement, The Statement of Principles, which ends in June 2013 (DEFRA 2013) has caused a discussion and expressing uncertainties about adequate insurance cover for households (e.g. The Times 2013 ). The statement is an agreement between the Government and the British insurance industry, represented by the Association of British Insurance (ABI), to assure that the industry continues to provide flood insurance for high risk areas. The agreement is unlikely to be extended, and there are national on-going negotiations that aim to result in new arrangements for flood insurance (O’Neill and O’Neill 2013). Figure 2 shows a timeline over the key event in the case study context described above.
Figure 3: Timeline for the key events in the case study context. The events are divided on three different categories: Main floods, Flood management practice and Governmental changes. The sizes of the blue boxes illustrate the magnitude of the floods.
4. Methods

4.1 Approach and selection of case

To add more empirical data into the research field and to address the complexity of social learning in form of social interactions and change in understanding as well as disaster risk reduction and flood management, a case study approach was chosen (Yin 2003). The case study site Morpeth, England, represents a case of community experience, exposure and response to fluvial and pluvial flooding, which is a growing challenge for many urban areas in Europe. The town Morpeth appears to be a particularly relevant case in point since the inhabitants have hands-on experiences from recent natural hazards and, as a consequence, they have established a Flood Action Group (MFAG) that has been active since the aftermath of a flood event in 2008 until today.

To operationalize the opportunities for social learning I have assumed that MFAG is a potential platform for social learning and thus applied the theoretical framework within this group. With this approach the focus is to understand how an environment for social learning is shaped. Hence members of the MFAG represent the core of the data collection. The study also includes a complementary mapping and brief analysis of additional stakeholders in the social network that serves as an arena for learning and collective action. By including other stakeholders that have been involved in the response, recovery, and capacity building in regards to flooding in Morpeth in the data collection, a wider understanding of the MFAG activities and influences from the outside perspective was possible to capture (see Appendix 1 for list of respondents). This was also a way enabling data triangulation (Essaiasson 2007).

Moreover, in 2008 and 2012, two major flood events affected the study site. These natural events did not have impacts of the same scale or magnitude on the surrounding communities and the biophysical environment. Nevertheless, these events can still, with advantage, be elicit to the longitudinal dimensions of learning (for example adaptive responses) in face of abrupt change.
4.2 Data collection

4.2.1 Qualitative interviews

A qualitative approach has been chosen to capture social interaction, understanding and experience (Langemar 2008), which is essential in social learning theory. To answer the research questions, the main method employed in the empirical study was qualitative semi-structured interviews. This method is effective to address the views, assumptions and actions of the people involved (Kvale 1996). To complement the interviews, participatory observations (Esaiasson et al. 2007) were carried out both before and during the interview period.

In total 28 interviews, each lasting typically between one-two hours, were conducted over a period of two months (end of October to mid December 2012). 26 of the interviews were conducted face-to-face and the remaining two were done by telephone. All of the interviews were recorded and transcribed verbatim and carried out at various locations, depending on the interviewee’s preference (participants homes, pubs, cafes, and offices). All interviews, except one, were carried out with one interviewee at a time.

An interview guide was used with specific topics or questions (see Appendix 4). This guide allowed for an adaptive reply of the respondents (Bryman 2008). In this study, the interview guide was used in a flexible way and sometimes the guide was put aside as interesting topics came up.

Complementary to the interview guide each interview included a discussion of a list of predefined stakeholders defined according to literature and expert consultation. The interviewees were asked if they had any interaction with the stakeholders in the list, if yes they were asked to specify the connection (See Appendix 2 for ‘stakeholder list’). This part of the interview was inspired from methods in Social Network Analysis literature (Tindall et al. 2012), and influenced by ego-centric network and the method “position generator”, which is a method that has been used to measure access to social capital (Lin et al. 2001) The respondent is asked to indicate the contact he or she has with persons of specific positions (usually occupation based). In this study, a network analysis has not been made since it is out of the scope of this study. Instead, it was
intended to enable further understanding of interactions and possible interdependencies among people inside and outside MFAG. The discussion of the list also gave some new energy to the interview, which helped keeping up the concentration during long qualitative interviews (Langemar 2008).

4.2.2 Selection of respondents

Participants interviewed included people who are active in and closely connected to the Morpeth Flood Action Group (15 respondents) and key stakeholders (13 respondents) in the context of flooding in Morpeth. The selection of participants was based on snowball sampling (Arber 2001). This technique appeared to be a good option as the focus of the study is on a network of people and their interactions. A disadvantage with this method is that the important people and stakeholders can be missed out if they are not recommended or not involved within the network (Arber 2002). To avoid overlooking important stakeholders, a comparison was made between people recommended in the snowball sampling and expert interviews.

4.2.3 Participant observation

Before most of the interviews, three participatory observations were carried out at different meetings (Northern Flood Action Group Conference and two Morpeth Flood Action Group meetings) between October and December 2012. This method provided insight into underlining structures within the group that can be hard to grasp at an interview. (Esaiasson et al 2007). This also enabled an understanding of how processes and discussions were constructed as well as the formal organisation of the group (Chairperson, Agenda, Minutes, etc.). Notes were taken mostly after the observations (Esaiasson et al 2009).

The first participant observation influenced the interview guide and small changes were made based on the new information and experience gained from the observation and by becoming more familiar with the case and people involved.

Moreover, follow up questions that arose during all the observations were asked during some interviews, equally interviewees sometimes brought up examples from
the meeting that I attended. Attending the meetings was also a good way to make
contacts with respondents involved and to get to know the cultural and local context
of the study site (Kvale 1996). The observations also proved to be a way of building
trust between researcher and interviewee.

4.2.4 Other complementary data

Biannual minutes of former MFAG meetings that were available were also reviewed
to understand the operation and everyday activities of MFAG. I was also added to the
MFAG’s mailing list in order to gain more insight into the internal discussions.
Lastly, I was provided access to a letter campaign organised by the MFAG from
2011. The campaign included around 70 letters from residents in Morpeth telling
their story about the flood in 2008 and was sent to politicians to lobby for a Flood
Alleviation Scheme. This gave me opportunity to get a more general understanding of
how Morpeth at large felt about the flood and the scheme. It served as a way to
triangulate the information from the interviewees (Esaiasson et al 2009).

4.3 Data analysis

The data analysis was a combination of descriptive themes from an inductive
procedure to structure the data and a more deductive way to analyse the data by the
theoretical factors from the framework by Pelling et al. (Forthcoming 2013)
(Langemar 2008). The interview transcriptions were coded into different broad
themes, mostly by organising the data into different narratives triggered by the flood
event in 2008. Three different themes emerge for the implementation of MFAG and
three different themes for the organisational viability (see Table 2 and 3 in the result).
Other themes that emerged were the different working areas for MFAG (see Table 4).
Thereafter, the theoretical factors were applied on the different empirical themes.
5. Results

MFAG is assumed to be a potential platform for learning at community level. In order to answer the two research questions, the results have been divided into three main parts: 1) Community response and implantation of MFAG; 2) Organisational viability of MFAG; and 3) Social network, main activities and outcomes by MFAG (See Figure 3 for the conceptual understanding of key results). The first and second part intend to answer RQ1; what are the enabling factors for social learning? And part three intends to answer RQ2; who are the key stakeholders involved in the social network and how do they shape a potential learning platform? To clearly demonstrate the application of the theoretical framework by Pelling et al. (forthcoming 2013), identified key factors for enabling social learning have been underlined in the text (See Figure 1 and Table 1 for the theoretical framework). The overall presentation of the result is inspired of a narrative approach, often used in the transformation illustrates social change (e.g. Olsson et al. 2004).

Figure 3: The conceptual understanding of main results. The flood (turquoise square) triggers a community response (light blue circle) that results in the formation of the MFAG (blue circle). The first grey circle illustrates the enabling environment for this response. As MFAG has had a organisational viability, the blue arrow that follows the “MFAG circle” shows the continuity of the group. The second grey circle illustrates the enabling environment for such long term process. MFAG has a broad range of outcomes in the form of flood risk management (blue triangle). The numbers show the three different parts of the result section.
5.1 Community response and implantation of MFAG

This part presents how MFAG has emerged into an actor group as a result of a community response triggered by the flood hazards in Morpeth 2008. The section is structured by three empirical themes for enabling the implementation of MFAG: Emotional triggers and motivation, Community attributes, Supporting context. Table 2 summarises the identified theoretical factors found in this section.

5.2.1 Emotional triggers and motivation

Most of the respondents expressed that there was a lot of anger among the affected residents in Morpeth after the flood in 2008. In one particular area of the town, Middle Greens, two oversights had been made by responsible organisations: flood warnings from the Environment Agency were not issued and there were delays in evacuation and emergency response: “In Middle Greens, there was no help or anything, this got a lot of us very angry.” People interviewed explained that the frustration over the flood situation and the apparent sense of lack of emergency support. This opposition (Pelling et al. forthcoming 2013) fostered a bottom up process to arrange public meetings, to meet and question responsible authorities and to share information. Many respondents felt that the “community came together” as a result of the flood and the public meetings can thus be seen as an example of community feedback and a ‘self-organisation’ in a SES as a response to the disaster (Berkes 2007, Walker and Salt 2006, Pelling et al. forthcoming 2013).

The majority of the respondents emphasised the emotional experience of the flood and its impact: “When I look back on it I personally think it was probably one of the worst traumatic events I have ever experienced. It ranges behind the death of loved ones”. People also stressed that the emotional affect is still present four years after the flood: “People talking to me say that every time it rains for a few hours or heavily they are scared that it will happen again”.
5.2.1 Community attributes

One person in particular is considered to have acted as a catalyst of the community mobilisation process behind the public meetings. This person had a well-established social network and “knew everybody needed to be known” and can be seen as an opinion leader (Keys et al 2010: Pelling et al. forthcoming 2013). The role of the meetings was also several of times highlighted as important for enabling participation by all members in the community, especially as these meetings were scheduled in the evenings, compared to some formal recovery meetings that mainly took place during the day.

At one of these public meetings, there was an additional initiative from a resident to start a “pressure group”: Morpeth Flood Action Group, which was formed in October 2008. The implantation of the group can therefore be seen as a bottom up process, led by people acting as opinion leaders. By forming this group, people who were dedicated to organise further in flood-related issues thus had a platform. One members of MFAG: “I think that community all started to pulling together and share ideas and you got a common bund with people who were flooded. Everybody relate to their experiences, what had happen to each other and as things went on we were getting ideas from the group of what we can do in the future”

Around 20-30 people signed up to the group, and interviewees explained that it was a widely perceived feeling to act “collectively rather than individually”. Both group members and other stakeholders described MFAG as a way for people to channel their common anger and frustration over the situation and do something constructive to try change and understand the situation. One of the official in the formal response in 2008 illustrates the situation: “They formed a Flood Action Group I think because they would not get support otherwise. It is such a shame, as I would like to see them form with support. I would also like to see public authorities facilitating these, and I think that would be a very beneficial thing for community resilience”
5.2.3 Supporting context

Although there was a perceived anger over authorities’ efforts in the flood response, several respondents several times argued that the formal recovery process in the community, lead by the Castle Morpeth Borough Council (no longer existing), was recognised as the “best recovery program nationally, and for “showing leadership”. The recover program included engagement with other stakeholders, as the voluntary sector, the MFAG and the public at large and transferred in that way knowledge and encouragement of the recovery process which supported MFAG to be implemented.

A broad range of stakeholders involved in the flood response and recovery supported the meetings. An organisation outside the community, The National Flood Forum, which supports flooded communities and individuals, was invited to share knowledge and experience from other previously exposed areas. Most respondents stated that this organisation was facilitating the discussion and negotiation between the public and the authorities.

Some people highlighted that Morpeth already before the flood in 2008 had a “good social infrastructure” as many people are involved in charity, churches and other organisations; this may have paved the way for MFAG.

Table 2: Empirical themes for enabling the implementation of MFAG and identified theoretical factors

<table>
<thead>
<tr>
<th>Themes for enabling the implementation of MFAG</th>
<th>Identified theoretical factors (Pelling et al. forthcoming 2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation/trigger</td>
<td>• Opposition: between the public and authorities</td>
</tr>
<tr>
<td></td>
<td>• Feedback: community response triggered by the flood</td>
</tr>
<tr>
<td>Community elements</td>
<td>• Opinion leaders: instigating public meetings and MFAG</td>
</tr>
<tr>
<td></td>
<td>• Participation: open meetings for all stakeholders</td>
</tr>
<tr>
<td>Supporting context</td>
<td>• Negotiation: to handle conflict about flood response</td>
</tr>
<tr>
<td></td>
<td>• Engagement: from different stakeholders</td>
</tr>
</tbody>
</table>
5.2 Organisational viability of MFAG

The second part of the result presents identified key components for organisational viability of MFAG. This section is presented by three empirical themes describing those components: Members of the MFAG, Stakeholder interactions and Institutional development. Table 3 summarises the identified theoretical factors found in this section.

5.2.1 Members of the MFAG

MFAG is often described as a group with an active core with around 10 members and another 10–15 people connected to this core.

“It is a brilliant team and I think that is partly the reason for success. We have such a varied group of talents working together. (...) I think we got a bunch of people who are reliable and people we trust.”

As this quotation illustrates, members in MFAG repeatedly emphasised the level of trust in the group as well as the multiple and complementary qualifications they have as a team, which can be interpreted as diversity. (Pelling et al. 2013 forthcoming).

Members emphasised that they have taken advantage of the members’ professional and personal skills and developed strategies and new knowledge within the group: “we all have different sorts of input into the group and that is very helpful”. Moreover, members of the group explain that they hold diverse political views, and that they have all agreed that they do not want to be associated with any political party. Trust within the group is also acknowledged several times in the interviews through appreciation: “everybody is valued for their contribution” and there are “no huge egos”. The above examples illustrated that the group work well, and can be interpreted as a vibrant network of relationships (Pelling et al. 2013 forthcoming).

5.2.2 Stakeholder interactions

“Because of the small bundle that we were to start with and the knowledge base that we have created we have now snowballed into, I would not say a political model, but we are an action group which has respect.”
In this way members in the MFAG explained that after four years in operating, MFAG has created social contacts with those actors they feel are important for flood related issues. As specified before, MFAG has regular meetings with other stakeholders, such as the Environment Agency, the Northumbria County Council, Northumbria Water Limited, the Police, and the Fire and rescue service to discuss and negotiate: *we have invited all the relevant agencies to our meetings*. The network around the group is also going across scales: “*We got contacts at all levels, now it is only a matter of what we want to forward*”. In line with this quotes, many respondents pointed out that they are working in *partnership* with other stakeholders in many issues, and members of MFAG felt that they have throughout developed “*good working relationship*” with many of the key stakeholders involved. As there are manly the MFAG themselves that have invited and other stakeholders, the social network around them has created spaces for and *negotiation* resulted in other actors “*opening up*” their policy for MFAG.

### 5.2.3 Institutional development

MFAG has developed informal institutional attributes to achieve collective action in the context of flood risk management. Members witness that the have “*learned the style of working*” over time. Since 2008, the group has had regular meetings fortnightly for internal discussion as well as meetings with external stakeholders which mean that the learning has been enabled though *participation*. One key characteristic is adherence to the consensus principle in decision-making: all interviewed MFAG members state that they take joint decisions and that they always discuss and agree on strategies, actions and media contacts. This was also confirmed by the participatory observations on the MFAG meetings.

Many members in the group argued that they have been able to change focus when new ideas or concerns arise, in this way MFAG exhibit evidence of *flexibility* and adaptability: “*like the water is ever changing our role is ever changing*”. Another example is that members pointed out that it is now hard to engage other residents and to organise e.g. public meetings, as it is four years after the main flood in 2008.
Respondents pointed out the group have to find other channels to contact a broader public for example through media, especially the local newspaper. However, the participatory observation showed that the flood in September 2012 triggered some new people to attend MFAG’s meeting and ask the group questions about flooding. This also show how MFAG can be knowledge generating to the community at large.

All MFAG interviewees argued that their strategies are to influence concerned actors in a “sensible and polite way”. Some external stakeholders supported this statement: One official form the EA stated that member is MFAG “are well-educated and they are proactive and have always been very positive”. However, other actors also pointed out that the relationship to MFAG can be “frustrating” and that the group sometimes “does not understand the whole picture”.

Another key element of institutional development is the role of leadership in the community level response and organisation to deal with flood risks. The views on the role of leadership in MFAG appear to be diverse across respondents both in and outside the group. Some stress that members share leadership, others stress that there are key individuals who are very critical for many of the processes in the group and are facilitating that in a good way so no conflicts arise: “you have got to be very careful about people management”. Another key attribute is distribution of responsibility across membership, to maximise the benefits of knowledge and individual skills. “You can do terrific loads of work with a committed group of our size, because we all took on different roles. It has been like a cabinet, where you have ministries for that and that. “

This wider distribution of responsibility is combined with assigned formal key positions in accordance with the constitution of the organisation, such as a chairperson, secretary and treasurer. The chairperson is being described as the front figure and face of the organisation and facilitates a lot of contacts. The fact that this person has flexible working hours and therefore has been able to devote time to attend formal meetings with, for instance, the Local Resilience Forum (LRF), ABI and the Northumbria Regional Flood and Coastal Committee has been highlighted as a critical component for MFAG.
MFAG had an advisory role in the beginning to help people recover socially and financially but the group has developed into what members refer to as a “more technical organisation”. Other stakeholders also acknowledge the level of knowledge in the group, such as an official from the EA: “We go to them sometimes to be updated and we can always go to them with more technical information rather than, the stuff we give to the public that will all look pretty”. The majority of members reasoned that they did not know anything particular about floods, but today they have new knowledge: “Nobody had specialist knowledge about flooding events. That was something that we all just tapped to put together. People may have had knowledge of certain aspects, but not the whole. We all have to learn that”. However few members indicated during interviews that they are not as active in MFAG now, as they feel that they do not have the necessary level of technical knowledge.

The majority of stakeholders argued that MFAG’s main contribution is to provide local knowledge. One official in the emergency response area said: “To have them on the ground with their local knowledge is a fantastic resource”. Moreover, MFAG working process has resulted in new ideas for flood risk management, for examples in the insurance issue and the emergency response (See table 4) and through that can be indicate as innovations, the group are by some respondents recognised to have an impact on different scales “They have not only been a community group here in Morpeth, they have also been extremely good in terms of looking at the national perspective.” Some also said that MFAG could help formal actors by doing things they cannot do such as lobbying politicians.
### Table 3: Empirical themes for organisational viability of MFAG and identified theoretical factors.

<table>
<thead>
<tr>
<th>Themes for the organisation viability of MFAG</th>
<th>Identified theoretical factors (Pelling et al. forthcoming 2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Members in the MFAG</strong></td>
<td>• Diversity: Different experience and backgrounds</td>
</tr>
<tr>
<td></td>
<td>• Trust: within MFAG</td>
</tr>
<tr>
<td></td>
<td>• Vibrant network of relationship: members are feeling it is a good working group</td>
</tr>
<tr>
<td><strong>Stakeholders interactions</strong></td>
<td>• Partnership: co-operation to gain understanding and to question the work other organisations’ work</td>
</tr>
<tr>
<td></td>
<td>• Negotiation: in almost all issues addressed by MFAG, e.g. Flood Alleviation Scheme, Insurance, Community Agreement (See table 5 for examples)</td>
</tr>
<tr>
<td><strong>Institutional development</strong></td>
<td>• Flexibility: change in activities according to issues coming up</td>
</tr>
<tr>
<td></td>
<td>• Innovation: new ideas have emerged, as the Community Agreement, new proposal on emergency response for “vulnerable groups”, the insurance model (the Morpeth Model) (See Table 4)</td>
</tr>
<tr>
<td></td>
<td>• Participation: regular meetings with MFAG and with other stakeholders</td>
</tr>
<tr>
<td></td>
<td>• Leadership: shared within the group</td>
</tr>
</tbody>
</table>

### 5.3 Social network, main activities and outcomes from MFAG

The section below presents key stakeholders involved in the social network around MFAG (See Figure 5). The interactions of stakeholders are described by the main activities that the organisation is working with. These activities illustrate everyday work by MFAG and also show how issues have changed over time, from the initial phase of an issue, to in some cases, concrete flood risk management. Identified factors for enabling social learning are also found in the activities, and illustrate how MFAG work as a learning platform. The section is organised by the main six activities: Flood Insurance; Flood Alleviation Scheme; Flood emergency response; Drainage; Urban planning; and the Northern Flood Action Group (See Table 4 for a summary)
<table>
<thead>
<tr>
<th>Issues /areas</th>
<th>Type of flood risk management <em>(De Brujin 2005, Parker 2000 in Petrow et al. 2006)</em></th>
<th>Examples of actions / strategies identified</th>
<th>Identified key stakeholders involved in the process</th>
</tr>
</thead>
</table>
| Insurance    | Reduce flood impacts          | Development of a model for flood insurance in partnership with Morpeth Town Council and Chamber of Trade. Presented and discussed at national policy level. Conducted a survey among residents in Morpeth about flood insurance. | Community level: Morpeth Chamber of Trade Town Council  
Regional level: Northern Flood Action Group  
National level: DEFRA  
ABI  
National Flood Forum |
| Flood alleviation scheme | Flood control | Awareness campaigns, e.g. lobbying letter campaign with about. 70 letters from residents, stressing the need for a scheme after the change in decision 2010, sent to national politicians. Also the Blue line project, showing the height of the water from the flood in 2008 by marking the flood level with blue lines. Organising meetings with different stakeholders. Involved in the consultation on the design. | Community level: Politicians  
Wider public  
Media  
Regional level: Politicians  
Environment Agency  
Northumbria County Council  
National level: Politicians |
| Emergency response | Reducing flood impacts | Flood wardens, a resident group developed by MFAG and EA to warn and provide information to other residents and authorities. Consultation of the Flood Action Plan developed by the Northumbria County Council. Flood emergency training Agreements with housing agencies for housing in the case of flooding. Emergency plans for vulnerable groups in the community. Bringing together organisations having a role in pre- and post flooding with the community by the so-called Community Agreement. | Community level: Flood Wardens  
Media  
Regional level: Northumbria County Council  
Environment Agency  
Northumbria Local Resilience Police  
Fire and rescue service  
Northern Flood Action Group |
| Drainage | Flood alleviation | Stress problems such as blocked drains by e.g. sending photos. Lobbying for inspections and maintenance. | Regional level: Northumbria Water Limited  
Northumbria County Council  
Environment Agency |
| Urban planning | Flood abatement | Influence planners, putting forward critiques on new building plans. | Regional level: Northumbria County Council Developers |
| Northern Flood Action Group | Flood alleviation | Northern Flood Action Group's conferences for communities and stakeholders. Sharing information, experience and knowledge. Develop new ideas, as the Community Agreement. | Media  
Keswick Flood Action Group  
Cockermouth Flood action group  
Environment agency |
Figure 5: Illustrates MFAG’s social network with different stakeholders identified from the interviews. The blue lines demonstrate the link between MFAG and the stakeholders (blue circles) and stakeholder groups (dotted circles). The thickness of the lines illustrates the degree of contact. The main issues for the contact is also specified, as well as which level the stakeholder is operating on.

5.3.1 Insurance

In 2010, MFAG created a model for a new flood insurance system, the so-called Morpeth Model. This was created as members of the MFAG felt there was a void in flood insurance policies and a rising problem for flood affected areas also for businesses in towns. The flood insurance model can be understood as an community based innovation (Pelling et al. forthcoming 2013) and was a result of a bottom up process instigated by the group which has resulted in cross scale interactions including different stakeholders.

The ongoing procedure of the Morpeth Model is by most of the respondents explained as a process in different phases. The first phase was to build up knowledge about the entire insurance market by carrying out a survey among households in Morpeth of
how the flood in 2008 had impacted the renewing and premiums of flood insurance. That understanding could be used in the development and in the negotiation of the Morpeth Model, as well as in helping individuals with insurance issues. The second phase was to gain knowledge about insurance models in other countries. During this step, a “core group” of members in the MFAG was established and that group created a “coalition” with the Morpeth Town Council and the Morpeth Chamber of Trade, which shed light to the MFAG the important role of partnership and of the social network the group had already established. Respondents explained that through revising insurance models from other countries they gained knowledge and inspiration for the Morpeth Model, the model from Spain was especially influential. The third phase implied negotiation with relevant stakeholders such as local and national politicians, the National Flood Forum (NFF), the ABI, and the government (DEFRA) (See Figure 6) and modified the model as they got feedback from the authorities. The Morpeth Model presents an alternative solution for the national insurance issue and are a shift from the marked based insurance models that were mostly discussed within the government and ABI before the Morpeth Model was presented. This third step indicated feedback across scales and the novelty of the Morpeth Model as an innovation.

With help from the “campaigning” of the model, NFF adopted it as their national policy and that gave the MFAG opportunity to have direct contact with national decision makers. Respondents in MFAG felt that this contact with other actors was a key factor in the process: *We are just a flood group from a small town in the north east of England. So you have to build a coalition of people to help you, you can’t do it on your own. (...) This is the reality in any kind of politics; you need support from people who matter.* The longer-term contact with organisations was also highlighted as key to create relationships for bridging different kind of stakeholders. For example respondents from MFAG: *And they (the ABI) were initially suspicious of a community group but the more we got involved, the more we got allies within the ABI. Particularly their policy guys have been very forthcoming with information and helpful to us.*

However, the MFAG respondents further shed light on the problems with conflicting goals among different actors and barriers for achieving an impact across the scales:
“The problem we have with flood insurance is we are not just pushing government ministers and local government officials we are pushing large financial institutions – insurance companies and banks are not as easy to push around, because they don’t have any kind of duty to towns like this. They have to consider their shareholders and their profit.”

Many respondents from MFAG felt that the insurance issue was a major achievement, even though no formal decisions have been taken to date on national flood insurance policy as a result of the Morpeth Model. The experience of working with the model has made them understand ways for local groups to influence on a national scale:
“What this experience has told me is that it is possible for small groups of local people to band together and think carefully about what they want, how to get there and putting a lot of effort into it can actually change a government’s attitude, you can change the way councils and central government think about things”

As with many other activities of MFAG, campaigning on the insurance model has raised awareness of the topic: “We got the issues, not just into the decision makers mind but also the public’s minds as well.” This indicates that the perceived feeling from people in the group is that they have spread knowledge and an understanding of the flood insurance issue.
Figure 6: The identified cross-scale network working as a cornerstone for MFAG’s activity in the insurance issue. This also illustrate how the community based innovation The Morpeth Model has been able to develop with feedback from both local and national scale.

5.3.2 Flood Alleviation Scheme

After the flood event in 2008, interviewees contended that the view from the community at large of flood alleviation schemes had changed dramatically: “The community went from ‘we don’t care about a scheme, to why don’t we have a scheme, how did we flood?’”. Respondents discussed different reasons for this change in mind set, from not wanting that type of flood risk management, to lobbying for a scheme (See case study context). Many respondents argued that people did not expect the town to flood and did not therefore evaluate that as a risk. Interviewees also reasoned that residents did not appreciate the design of the flood defences that was put in place after the 1963 flood and was therefore sceptical to additional schemes. However, respondents felt that the two major floods in 2012 and 2008 changed many people’s perception, as well as their understanding of the impacts from flooding. The flood Alleviation Scheme is now argued as an important measurement for residents in Morpeth’s emotional feeling: “After that people will have a little peace of mind (...) and will not worry all the time.”
Several respondents argued that MFAG has been a crucial actor for fostering the progression of the Flood Alleviation Scheme: *We would not have any defences now if the MFAG had not been set up*”. This can indicate that the MFAG has influenced decision-making, however few interviewees also stated that it is hard to have a clear answer about the extent to which MFAG has affected the processes. Which points to the complexity of assessing the relative importance of factors and the process behind decisionmaking. MFAG and other stakeholders argued that it was due to raised awareness of the risks of flooding in Morpeth and the impacts of the flood in 2008 the decision makers in NCC felt a need to add funding to the scheme. The group has had on going negotiation in terms of stakeholders meetings, especially with the EA and politicians to stress the importance of the flood scheme. There have been several changes in circumstances (e.g. change in government, local governmental reorganisation, denial of the flood defences), which many of the respondents point out has been a backward step in their work, but they also felt this triggered new ideas and ways of working which indicate capacity to be flexible in the organisation. By adapting different strategies many respondents argued that MFAG “kept the problem high over a long period of time”.

Today, the flood alleviation scheme is progressing, the role of MFAG has changed and focus is now on contributing to the design of the scheme. MFAG has created spaces for regular contact with people from EA and NCC who are working with the scheme. The group has contributed with new ideas and respondents from NCC which means that they have “challenged” some of the presented suggestions of the scheme with their local knowledge. This indicates that expert and local knowledge has been integrated.

MFAG also arranged several, stakeholders meetings for the key responsible authorities, EA, NCC and NWL, as members state that their objectives are to get different stakeholders working together especially for a combined approach to pluvial and fluvial flood risk management. An official from the EA confirmed this statement:

*I do think they have an important role, they make our job more easy a lot of the time. In the end of the day their goals are the same as ours. They want a scheme for Morpeth and they want all of the responding agencies to work together.*
Respondents from EA and NCC, also felt there was an unusual amount of input from the MFAG: “We have never had such interest from the public”. However, several officials also felt that the working with MFAG is time consuming: “You have to temper the enthusiasm a bit. Because dealing with them can take time and focus from the thing you need to deliver”.

5.3.3 Flood emergency response

All MFAG members and several other stakeholders pointed out that the emergency response in 2008 included mistakes from the authorities (see case study context for further explanation). Since the group was triggered from a perceived lack of support, MFAG have been engaged in meeting authorities and understand their role in a flood emergency response. The MFAG involvement in the issues has been characterised by the notion of opposition between them and the authorities responsible for the emergency response, such as the police and NCC.

They have taken on a role where they try to improve the emergency response by using their experience of the flood events. Members stress that they live in a different area of the town, which means that they have a good understanding of flooding in the town at large. In this area MFAG has been influential in the flood risk management in different ways. For example the group started, together with the EA, a group of residents called Flood Wardens, with the aim to prepare and warn other people in the community and feed local knowledge to the EA and other authorities in the case of flooding. MFAG have also been involved in consultation for the Flood Action Plan, which the NCC is responsible for.

The response of the flood hazards in 2012, was heavily discussed by all respondents. Comments from several MFAG respondents illustrate a reflective perspective on the challenge of, and need for learning for future response and capacity to deal with flood events, expressed in terms such as “it didn’t work terribly well” and that “lessons have not been learned” from the 2008 flood event. “if things go wrong this needs to be acknowledged and learned from. I think that is the difficulty with organisational learning. There is a problem in accepting the learning, that it is a good thing. It is
very much seen as something you should not admit and hope that it does not happen next time.”

Several of the respondents brought up the local governmental re-organisation in 2009 and the governmental cut in funding which have meant changes in staff and organisational structures as potential setbacks for enhanced emergency response and learning. However, comments by all interviewees indicates the process of mobilising the Morpeth residents and the process of sharing and building knowledge jointly through MFAG as a platform. This has resulted in Morpeth and individuals being more prepared and which showed in the 2012 flood: “we got more community infrastructure, you can call it, in terms of preparing, and supporting.”. This illustrates how community groups can fill a gap if formal authorities and resources are limited.

There are also signs of innovation, triggered by the 2012 flood hazards. The members in MFAG have by inviting the NCC to participate on their regular meetings with the two stakeholders, in partnership initiated new agreements and routines for the emergency response for “vulnerable groups”, as elderly or disabled that live in flood proof areas in Morpeth.

5.3.4 Drainage

The problem with drainage and surface water was constantly mentioned by most of the respondents. Interviewees often felt that it had been an increase in surface water problem: “Certainly something I have learned in the past year is that you don’t have to live next to a river to be worried about flooding.” Members in the MFAG, argued that they have a lot of knowledge about the drainage system, especially some members which have been active in the issue. “Now we understand why a lot of Morpeth floods not just from river water. (...) It is not just good to build the river out; you need to keep the sewage out from people’s homes as well. We have been active with this, and have come with suggestions on what they can do.”

By stressing the issue of maintenance and cleaning of the drainage system, especially by contacting the water authority, Northumbria Water Limited (NWL) and the NCC, people in the MFAG’s motivations are “to get the public services right”.
Several members expressed that they had a lot of contact with these actors, but they felt that NWL was not truly interested in the issue and to engage in the problems solving. Both MFAG and NWL felt that they as stakeholders have different priorities in the issue. This seems in this case to have acted as barriers for learning and example integration of local and expert knowledge to emerge.

5.3.5 Urban planning

“First of all, houses should not be built in areas which can flood.” Most of the members in the MFAG considered the continued building on flood prone area as an important measurement for decreasing the risk of flooding. MFAG has been active in showing critique in new building plans in Morpeth, but they think that the issue has not been negotiated enough. “We wrote to them [the council and the developer] before hand and said that this area floods. Sent photographs and so on, saying it is silly to build it here. But they carried on.” In this case the MFAG seems to have no longer-term relationships, or good ways of negotiate with responsible stakeholders. Among many of the respondents there was a perceived feeling that the issue of urban planning and the consequences were not dealt with: “I am not convinced myself that a lot of learning has been done on the potential flooding as a result of new buildings.” Members also reasoned that to change this pathway there must be a national level priorities.

5.3.6 The Northern Flood Action Group

The Northern Flood Action Group (NFAG) was formed as a result of collaboration between MFAG and two other Flood Action Groups in the North of England. The chairpersons in each one of the three Flood Groups got together and formed this group as they felt that small communities in the North are “isolated” but “all have the same problem.”

In addition, it was a feeling that national organisations, like the National Flood Forum, mostly operate in the South of England. Therefore, the group was set up to address the “local mantra” and to “share a voice to protect our communities”. NFAG was also aiming to get different organisations such as the Environment Agency and
insurance brokers “on board” as well as the community at large: “Not just people who had been flooded but people who are interested in pulling everyone together.”

Two conferences have been arranged with the goal to facilitate learning between stakeholders and across communities. The conferences are seen as “the best way of educating a lot of people”. However, respondents expressed that there are barriers hindering the ideas, as the conferences lacked attendance and it is difficult to get people involved. Long distances between communities as well as a weak interest from residents in the communities are discussed as main problems: “Most of the time it works like a vertical group where I have been circulating information. (…) It did not go as well we were hoping it would because I thought an awful lot more people would be more enthusiastic about it than they have been.”

However, interviewees from the NFAG felt that the conference in 2012 did create a new initiative, a so-called Community Agreement. This project aims to help communities prepare for flooding by bringing organisations with a role in pre and post flooding together with the concerned community and communicate roles and responsibilities of different stakeholders. According to NFAG, the agreement can facilitate involvement, learning and better flood management. The flood event in Morpeth 2012 triggered a deeper interest in the Community Agreement from the MFAG. MFAG have been discussing the issue with the lead local flood authority, NCC, and there is going to be a formal investigation by NCC over the opportunities for this.
<table>
<thead>
<tr>
<th>Main activities</th>
<th>General contributions</th>
<th>Opportunities</th>
<th>Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Insurance</strong></td>
<td>Identification of problem, sharing problem definition and view on solutions: new knowledge: creating a insurance model: sharing knowledge in network: new networks over scale</td>
<td>Engaged core group Partnership with knowledgeable people Social interaction across stakeholders and scales Opportunity because of the ending of a national agreement National organisation adapted the model Actors at high level willing to discuss</td>
<td>Conflicting goals Final outcomes are decisions made by the national government and insurance companies</td>
</tr>
<tr>
<td><strong>Emergency response</strong></td>
<td>Local knowledge into the Flood Action Plan: establishment of a local response group, new network: better understanding of the SES: mapping vulnerable groups: new agreements for better communication</td>
<td>Meetings with responsible stakeholders – bringing stakeholders together Ideas cross-communities Networks for negotiation Media awareness</td>
<td>Different views on responsibilities, Limited transparency within organisations Mistakes not recognised</td>
</tr>
<tr>
<td><strong>Flood alleviation Scheme</strong></td>
<td>Local knowledge incorporated in the design : increased awareness:</td>
<td>Awareness Political will and funding Actors opening consultation</td>
<td>Financial crisis Decreasing funds from government Time-consuming with participatory approaches</td>
</tr>
<tr>
<td><strong>Drainage</strong></td>
<td>Knowledge about the drainage system: mobilisation of community responsibility for the maintenance</td>
<td>Rising awareness and concern of the issues Meetings with stakeholders, identification of problem areas.</td>
<td>Different priorities among stakeholders Distrust between actors</td>
</tr>
<tr>
<td><strong>Urban planning</strong></td>
<td>Understanding of flood prone area in Morpeth :</td>
<td>Increased awareness of the issue.</td>
<td>No working relations MFAG have not been able to negotiate with the question</td>
</tr>
</tbody>
</table>
6. Discussion

Several opportunities for social learning are found in the case study and MFAG has demonstrated local level capacity in responding to change in the SES and shows the ability for communities to self organise, create learning platforms as well as improve policies, in this case flood risk management.

The use of the theoretical framework by Pelling et al. (forthcoming 2013) has resulted in numerous of specific key factors for an environment enabling MFAG as a learning platform. The enabling factors have in this case been divided into two different phases, as there have been different interactions of factors for the fostering of the platform and for the organisational viability, which has allowed a sustained long-term learning process (See Figure 4). Some of these key factors will here be discussed as well as insights of how some of the processes at local level have or have not informed decision and given input at policy level or change.

Figure 4: Identified key theoretical factors for an environment enabling the self organised process that fostered the learning platform, MFAG as well as the factors enabling the organisational viability, which gives opportunity to longer-term learning. The figure also shows some of the main activities and outcomes of MFAG (See Figure 2 for explanation of the conceptual understanding).
Firstly, opinion leaders (Pelling et al. forthcoming 2013, Keys et al. 2010) appeared to be influential for the collective response capacity in mobilising and engaging people. These individuals created opportunities for physical interaction, deliberations and negotiation as well as dialogues with different actors. The emergence of opinion leaders shows that people who do not have a formally established role, can play an important part in instigating community response and actions. However, once MFAG was established, the role of individual opinion leaders appears to have become less important and the cooperation among members and the leadership MFAG has – as a collective entity – become central.

The shared leadership, together with other numbers of social attributes have served as cornerstones in the everyday work of MFAG and the viability of the group. These can be summarised in terms of: individual members diverse knowledge and skills, engagement, time and resource commitments; trust; flexibility; innovations: partnership; and social network across governance scales. Altogether they appear to have shaped a community level arena for institutional development and collective action towards management of flood risks, which served as an enabling environment for co-production of knowledge and social learning. Evidence lies in the views and stories shared by a vast majority of interviewed MFAG members, with regards to the understanding of, and collective capacity to deal with, multiple dimensions of flood risk management. An additional key attribute found in the case study, which is less salient in the theoretical framework by Pelling et al. (forthcoming 2013), is the opportunities for social learning that are being found in the problem framing (Smits et al. 2007). The learning platform which MFAG represents illustrates the importance of group dynamic and the role of the negotiation between different stakeholders agencies present at local level. This is further demonstrated in the identified social network of MFAG that have been developed during the organisations years of operating. The result shows that MFAG has been able to engaged in a very broad range of flood risk management through this established network. The activities carried out by MFAG have resulted in potential impacts in decision-making, innovations, raised awareness and generation of local knowledge, sometimes across scales. One example is the process of the insurance issue. The Morpeth Model, facilitated by MFAG and the local coalition, could by social contacts across scales develop with feedback from national actors and function as an alternative new approach to a flood insurance
system in the UK. Key mechanisms for these types of activities have been long term perspectives in negotiation and dialogue that have been facilitated by regular participation like internal meetings, stakeholders meetings as well as the participation in national arena. MFAG activities illustrate the important role of other stakeholder agencies enabling a transformation which is needed in terms of opening up for dialogue and having the capacity to change mainstream policy discourses.

As such, opposition between MFAG and other actors appear to be a crucial source of motivation for the group to engage in some of issues, motivated by the apparent gap in desired practical outcomes and existing policy. The bottom up process and the empowerment of MFGA further indicate a potential for change in discourse among some other actors, as they have, through the interaction with the MFAG created routines and acceptance for local stakeholders involvement and input. That has facilitated a more interactive process of bottom up and top down actions as well as a combination of local and expert knowledge, which there have been a recent call for in both disaster risk reduction (Gaillard and Mercer 2012) and resilience.

However, the participation and interactions with some stakeholders have not been fruitful. For example, in the drainage issue, the water authority company where distrust appeared as MFAG felt that the authority did not have a local interest in, and context-based understanding of the issue. This sheds light of the importance of different factors, interacting at the same time such as trust and participation (Pelling et al. forthcoming 2013). Moreover, this example also supports the argument that the participation of different stakeholders does not always lead to a better outcome (Cundil et al. 2010; Reed at al. 2010; Gaillard and Mercer 2012), which is essential in current discussion about social learning and increased community involvement on how to foster such process.

Furthermore, the discussion above highlights the important to synchronise national and local processes (De Vries 2000) in a decentralisation process. The findings show that not only local processes are instrumental but there is also a need for national and regional level institutions to open up for bottom up initiatives and engagement. For examples it requires that officials in organisations have the time and resources for having contact with stakeholders like community groups such as the MFAG. Several
of the risk reduction management practises are still dependent on higher scale decision making, which means that local actors have limited power to influence from bottom up mechanisms. One example of this is the urban planning issue. Although, all respondents, especially from the MFAG, felt that urban planning was of high priority in the context of flood risk management, there seem to be no local processes influencing the current planning regime towards flood risk. The lack of preparation of disaster risk reduction in urban planning has been recognised where disaster risk reduction provisions are hard to integrate in reality (UNISDR 2013). Perhaps this is an area that requires the initiative and input from national level to be more influential.

The development of MFAG to become more technical organisation has resulted in several examples of knowledge generations, as MFAG has nurtured discussion and new ideas in the interaction with other stakeholders. This can be compared to other case studies where a smaller group with technical competence has fostered social learning processes (Mostert et al 2007, Johannessen and Hahn 2012). However, in this case study, it can also be seen as a barrier for people who are not “technically oriented” so they may not want to participate. This discussion is linked to the “self-organised” and spontaneous learning approach to create social learning. If promoting this approach and foster these local stakeholder groups, there need to be an awareness of the people involved in the group, as this might not be a good representation of the community at large nor consider the interests of all people.

In summary, MFAG represents a learning platform which was able to spread innovation across scales e.g. improve national policies, and a range of best practices in flood risk management and been able to generate awareness of the need for a more integrated flood risk management approach that includes different stakeholders and understanding of the whole SES. Through these processes, this study illustrates enabling key factors for such local process to happen and to be sustainable, which can be instructive for future development for local response capacity. As such, the findings do not only contribute to further empirical understanding of social learning but are also informative for discourses currently on going in risk management and resilience building. However, this is a case study approach, and thus the research has only studied one specific community group putting limitations in the understanding
about such a process, and how to recreate them which the debate in the social learning field has called upon (Reed et al. 2010).

Nevertheless, the elements of social learning shown in this case study have been crucial for local action and may be good to consider as key pillars to further strengthen learning, local risk reduction and resilience. This becomes especially relevant since the current political climate in the UK, influenced by a decreasing role of central government and more focus on local level contribution, opens up opportunities and an increased need for local stakeholders to be influential. The study stress the importance for the role of learning platforms and creating opportunities for social learning to get collective action for such local capacity building.
7. Conclusion

In a world with more abrupt change, more extreme weather events and, increased risk for flooding, societies need to build resilience and capacity for disaster risk reduction. Although there are a call for sustainable learning to increase capacity building, much research on social learning are often studied in short lived, within a project circle, circumstances. This study has shown that there are further possibilities to utilize long term social learning capacity by investigating already existing networks. In line with the resilience literature, this case study of flooding in Morpeth, northeast England, shows the impact of a self organised community response to natural hazards through social mobilisation and learning. The findings indicate various elements of, and opportunities for social learning in the organisational viability and the everyday operation of the studied community group, Morpeth Flood Action Group. This elements and enabling factors are shown to be important for local action and may be good to consider as key pillars to further strengthen local risk reduction and resilience. The result also suggests a need to better understand aspects of group dynamics and co production of knowledge, long term learning to meet the recent, widespread demand for greater community involvement in disaster mitigation and integration of local knowledge in flood risk management. In light of the growing recognition of social learning in the field of social-ecological systems research and environmental governance, the study concludes that the this type of non-facilitated, “real-world” approach to social learning for natural resource governance and disaster risk reduction can be an suitable study object for future empirical research on social learning and support further decentralisation processes of resilience and disaster risk reduction.
References


**Personal Communication**


Pelling, M., 2013. March
## Appendix 1: List of Respondents

<table>
<thead>
<tr>
<th>Stakeholder group</th>
<th>Number of people interviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morpeth Flood Action Group</td>
<td>13 (1 telephone, 2 persons in 1 interview)</td>
</tr>
<tr>
<td>Environment Agency</td>
<td>3</td>
</tr>
<tr>
<td>Northumbria County Council</td>
<td>2</td>
</tr>
<tr>
<td>Morpeth Town Council</td>
<td>2</td>
</tr>
<tr>
<td>Northumbria Water Limited</td>
<td>1</td>
</tr>
<tr>
<td>Northern Flood Action Group (not included in MFAG)</td>
<td>1 (telephone)</td>
</tr>
<tr>
<td>The British Red Cross</td>
<td>1</td>
</tr>
<tr>
<td>Morpeth Rotary Club</td>
<td>1</td>
</tr>
<tr>
<td>“Resident “ in Morpeth</td>
<td>2</td>
</tr>
</tbody>
</table>
Appendix 2: ‘STAKEHOLDERS LIST’

List of main stakeholders in the context to flooding in Morpeth
From local to national scale in the context of flood response, recovery and capacity building

- Environment Agency
- Flood line (Environment Agency)
- Northumbria Local Resilience Forum
- Northumberland County Council
- Morpeth Town Council
- Northumbrian Water
- Police
- Fire and Rescue service
- Morpeth Flood Action Group
- Flood Wardens
- Northern Flood Action Group
- National Flood Forum
- Voluntary organisations (e.g. British Red Cross and Lions)
- Insurance companies
- The Association of British Insurance
- Politicians
- Media (e.g. Morpeth Herald)
- the Met office
- Other utility Companies
- Environmental Health
- Mental health providers
- Faith organisations
- Friends, family and neighbours
- Other key individuals or organisations?

Stakeholders that were mentioned and note included in the list:
- Morpeth Chamber of Trade
- Land developers
### Appendix 3: Organisations’ Role in Flood Risk Management

Responsible organisations for Flood Risk Management (Adapted from Environment Agency 2009)

<table>
<thead>
<tr>
<th>Department for Environment Food and Rural Affairs (Defra)</th>
<th>Defra has national policy responsibility for flood and coastal erosion risk management and provides funding through grants to the Environment Agency.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment Agency</td>
<td>The Environment Agency is the principal flood risk management authority in England. It is responsible for forecasting and mapping flood risk, providing warnings, advising on development in the floodplain, building and keeping defences in good order and taking part in emergency planning and response. The Environment Agency manages central government grants for capital projects carried out by local authorities and internal drainage boards.</td>
</tr>
<tr>
<td>Local authorities - Northumbria County Council</td>
<td>Local authorities lead in reducing risks from development in the floodplain and management of drainage and small watercourses. They will play an increasingly important role in helping to manage the risks associated with surface water flooding. They also take the lead in emergency planning for flooding and handling the recovery of areas that have been affected by flooding. Northumberland County Council has provided a Flood Action Plan (FAP), included in Northumbria Local Resilience Multi Agency Flood Plan, which responds to severe/or widespread flooding in Northumbria Police Force. The FAP involves responding from different groups in the County Council like the Fire and Rescue Service, Resilience, Local Services, Regeneration and Public Protection, Adult and Children’s Services (Northumbria County Council 2013a).</td>
</tr>
<tr>
<td>Regional flood defence committees (RFDCs)</td>
<td>RFDCs have a duty to take an interest in all flood matters in their area. They are responsible for decisions concerning the annual programmes of improvement and maintenance work carried out by the Environment Agency.</td>
</tr>
<tr>
<td>Local resilience forums (LRFs)</td>
<td>These are the local planning forums for all emergencies, including flooding. They bring together the emergency services, Environment Agency, NHS and other bodies like water and energy companies. Together they plan for prevention, control and reducing the impact of floods on the public.</td>
</tr>
<tr>
<td><strong>Insurance industry</strong></td>
<td>The Association of British Insurers (ABI) and its members are vital in providing cover and handling claims for damages caused by a flood. Under an agreement with the Government, they have committed to continue insurance coverage for most properties, even some at significant risk, in return for action by government to identify and manage risks.</td>
</tr>
<tr>
<td><strong>National Flood Forum</strong></td>
<td>A registered charity providing advice to those at risk and campaigning for better protection from flooding.</td>
</tr>
</tbody>
</table>
Appendix 4: Interview Guide

- Introduce myself and the study (will change in order to how much they already know)

Student from Stockholm University and Stockholm Environmental Institute. I had the opportunity to write my Master’s thesis together with Northumbria University and within the emBRACE project. The EU project is called Building Resilience Amongst Communities in Europe. The overall aim of the project is to build resilience in European communities towards natural disasters. My study will focus on if, or if not, lessons have been learned with regards to floods in Morpeth. This is to provide a better understanding of how improvements take place and how individuals, groups and organisations can learn from past experience as well as from one another. I am interested in understanding how learning can be enhanced or hindered, and what the motivation behind actions taken are.

- Explain the outline of the interview

The interview is structured in three different themes. The first one is Flood experience, second, Morpeth Flood Action Group and finally general reflections and lessons learned.

- Informed consent

Give a paper to sign, with information about the study, confidentiality, and how the results will be used. Ask about recording.
<table>
<thead>
<tr>
<th>Theme</th>
<th>Main questions</th>
<th>Additional questions</th>
<th>To capture</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flood experience</strong></td>
<td>Could you tell me about your flood experience?</td>
<td>What was the most difficult thing to handle?</td>
<td>Give the opportunity for people to “tell their story”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If you compare event A and B, were there different impacts? If so, do you have an idea why?</td>
<td>Experience</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Flood impacts</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Response</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Response</td>
</tr>
<tr>
<td><strong>Help and knowledge, Networks</strong></td>
<td>If they mention more than one flood event in above section, ask them to first talk about A then B.</td>
<td></td>
<td>Social networks</td>
</tr>
<tr>
<td></td>
<td>I will now name a few actors that I have understood are important in the flood disaster recovery. Please say yes or no if you have any had contact with them.</td>
<td></td>
<td>Community organization</td>
</tr>
<tr>
<td></td>
<td>If yes; specify the actor. What kind of interaction? How often? Personal relationship? What has this contributed to?</td>
<td></td>
<td>Learning from others</td>
</tr>
<tr>
<td></td>
<td>Which actors/individuals were important for i) you ii) community at large? Both during the event and in the recovery phase?</td>
<td></td>
<td>Participation</td>
</tr>
<tr>
<td></td>
<td>What kind of help did you get? What did this individual/ these actors contribute to and what did that result in?</td>
<td></td>
<td>Partnership</td>
</tr>
<tr>
<td></td>
<td><em>(E.g. collaboration/collective action/ awareness raising/ capacity building/ visualizing effects of disaster)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Which actors, if any, were blocking the initiative/s?</td>
<td>Social Networks Actions Barriers and opportunities in the work Participation The function within the group: Leaders Conflicts Formal institutions/ personal contacts Flood risk management</td>
<td></td>
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<tr>
<td>---</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Flood action group work</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Why did you become a member of the Morpeth Flood Action Group? <em>or</em> Can you tell me why you started the Morpeth Flood Action Group?</td>
<td>Are there some people that are more engaged in the work?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please summarise the main activities and outcomes so far?</td>
<td>In what way? Why do you think some people are not members?</td>
<td></td>
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<tr>
<td>Could you describe, in brief, what has worked well, and what are/ have been the challenges in your everyday activities?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How are, and what characterises the key individuals and the organisation you are interacting with?</td>
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</tr>
<tr>
<td>In Do you think the Flood Action Group has helped non-members?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Questions for non- members:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What do you know about the MFAG?</td>
<td></td>
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</tr>
<tr>
<td>Have you thought about joining them? (Why/ Why not?)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you think the Flood Action Group has helped people who are not members?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lesson learned</strong></td>
<td>Single, double and triple loop learning (behaviour and policy changes.) Self reflection Flood risk management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Based on your experience, would you do anything differently in response to the recent floods than you did last time? What?</td>
<td></td>
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</tr>
<tr>
<td>Can you tell me about any concrete changes made from the 2008 flood event and the one in 2012? (e.g. physical, policy, social, ecological). Why do you think this change has</td>
<td>Do you think different groups within the community have had different experiences?</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Flood risk management</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Answer</td>
<td></td>
<td></td>
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<td>------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td></td>
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<tr>
<td>come about?</td>
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<tr>
<td>What, if anything, do you think Morpeth as a community has learned from the flood event?</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Why do you think the areas are affected by flooding?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>What do you think is needed to decrease the negative impacts of flooding?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In your opinion, what has been done to overcome the problems and what remains to be done?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**End of interview**

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before we finish, do you wish to add anything?</td>
<td></td>
</tr>
<tr>
<td>Can you recommend any additional persons for me to speak to?</td>
<td></td>
</tr>
</tbody>
</table>