Community resilience to flooding: key personal attributes of social responsibility

This item was submitted to Loughborough University's Institutional Repository by the/an author.


Additional Information:

• This is a conference paper.

Metadata Record: https://dspace.lboro.ac.uk/2134/14515

Version: Accepted for publication

Publisher: The International Emergency Management Society (TIEMS)

Please cite the published version.
This item was submitted to Loughborough’s Institutional Repository (https://dspace.lboro.ac.uk/) by the author and is made available under the following Creative Commons Licence conditions.

For the full text of this licence, please go to: http://creativecommons.org/licenses/by-nc-nd/2.5/
COMMUNITY RESILIENCE TO FLOODING
KEY PERSONAL ATTRIBUTES OF SOCIAL RESPONSIBILITY

Aaron Mullins and Robby Soetanto

Department of Built Environment, Coventry University, United Kingdom¹

Keywords
Climate Change, Community Resilience, Risk Perception, Social Responsibility, Decision Making

Abstract
Recent extreme weather events and their tremendous impacts on highly interconnected modern world have called on individuals to work together to enhance resilience of community where they live. Despite well-documented evidence of the potential physical impacts of flooding, the research has so far neglected to fully investigate the manner by which decision making at community level could influence the extent of damage and the resilience to flooding. A research is currently being conducted to investigate this gap in knowledge by exploring ways in which a better understanding of the perceptions of social responsibility could potentially increase community resilience. These perceptions may affect people’s behaviour towards the issues of climate change and extreme flooding events. This paper presents some initial findings of an investigation of social responsibility in three communities (Selly Park, Witton and Digbeth) in Birmingham, United Kingdom. A questionnaire survey of householders, managers of local businesses and policy makers yielded 343 completed responses, which were then subjected to Principal Component Analysis (PCA) to better understanding the underlying constructs of social responsibility. The finding suggests two personal attributes, namely ‘societal duty’ and ‘powerlessness’, which are believed to be significant antecedents of resilience-enhancing behaviours for preparation and mitigation of flooding at community level. This finding indicates that any attempt to enhance community resilience should encompass appropriate strategies, measures and activities that higher the level of ‘societal duty’ and lower the level of ‘powerlessness’. The finding will be of interest to community leaders and provide considerations for professionals embarking on the development of resilience measures. Future research includes validating the measures and developing a tool for facilitating joined-up thinking amongst members of community.

Introduction
Climate change, considered as the greatest challenge for humanity in 21st century, is altering weather patterns all across the globe and creating changes that our global ecosystem is now struggling to cope with (Pitt, 2008). This has been attributed to a more frequent and severe flooding events, presenting unprecedented threat to the fabric of communities. The impact of flooding around the world is widely documented, prompting relevant stakeholders to take actions. The majority of people in the UK live in urban areas that rely upon an enormous amount of support from organisations to provide them with the water, electricity, gas, communications, transport and food that are necessary elements of everyday life. The systems of this critical infrastructure are reliant upon increasingly complex technology to provide

¹ Priory Street, Coventry CV1 5FB, UK, e-mail: Robby.Soetanto@coventry.ac.uk
them with greater interconnectedness. However, the networks that organisations use to support such a large amount of interdependencies are based upon an outdated infrastructure that lacks the capacity to support our ever more complicated lifestyles. This enormous amount of interconnectedness means that should an extreme flood take place then these interdependencies leave communities vulnerable to the effects of flooding. The ageing physical infrastructure, rapid economic development and growing populations all add to the vulnerability of our built environments to severe floods (Stewart and Bostrom, 2002).

Enhancing the resilience of community to flooding promises many immediate benefits in preparing for disaster and increasing the capacity to recover after the events at a local neighbourhood level. Although this has become an important government and research agenda in the last few years (Pitt, 2008), the effort has been plagued by theoretical and practical challenges. One of which is a lack of understanding of what constitute a resilient community. This is further exacerbated with a lack of consensus upon what its constituent parts (i.e. resilience and community) actually mean within a particular context of discourse.

The existence of technological measures is not sufficient for achieving community resilience to flooding (Miceli, Sotgiu and Settanni, 2008). During the summer 2007 flood in the UK, 50% of the flood defences that were tested by the flood waters were overtopped (Pitt, 2008). These failings were found in technological resilience measures across the country and together they demonstrate why non-technological resilience measures must be found and harnessed.

To enhance resilience, members of a community need to adopt appropriate behaviours to prepare for disasters before, during and after flooding events. Questions remain, what makes them willing to adopt these resilience-enhancing behaviours? How can we facilitate the process? A literature review on factors governing resilience-enhancing behaviours at community level suggests that value, belief and attitude related to social responsibility present a promising venue to a greater understanding of community resilience (Berkowitz and Lutterman, 1968; Trainer, 2005). As most social responsibility literature was written in business and corporate strategy context, there is a need to operationalise this concept for investigating social responsibility of members of a community. This will enhance an understanding of social responsibility attitude which is believed to be a significant antecedence to resilience-enhancing behaviours at community level. A questionnaire was developed based on the early conceptualisation of social responsibility by Berkowitz and Lutterman (1968), and was used in a survey of households, managers of local businesses, and policy makers in communities of Selly Park, Witton, and Digbeth in Birmingham, UK. A dataset of 343 responses was obtained and subsequently subjected to Principal Component Analysis (PCA) to reveal the underlying constructs of social responsibility. Discussion of findings and conclusions for further research work are then elaborated. A literature review of community resilience and social responsibility is presented as follows.

Community Resilience

Many definitions of resilience describe a community dealing with the effects of a flooding event and then returning to its normal functioning prior to the event. If a community returns to its previous state then it may have bounced back from the event but it has not actually increased its resilience to similar events. Instead, resilience must be thought of as containing elements of learning and adaptation to events so that community resilience can be increased. The resilience of a community is determined by the interconnected system’s ability to absorb disturbance, self-organise and contain the capacity to learn and adapt (Walker and Salt, 2006). It is the attitudes, perceptions and behaviours that members of a community adopt or display prior to a flooding event that can determine the ability of that community to absorb the disturbance. Furthermore, these aspects also determine their motivation and ability for self-organisation during the event and how much they are willing to learn from the event in order to change their perceptions and behaviours.
There has been research conducted on a number of aspects of extreme flooding events and climate change, such as resilience, adaptive capacity and vulnerability at the national, regional and sector levels (Gallopin, 2006), but there has been very little research conducted within the heart of our built environments, at the local community level. As a conceptual framework, it is helpful to understand a community in geographical terms as the members of this community not only share the resources of that area but also have a shared risk of hazards. Furthermore if members of this community share common resources and hazards, it may be easier to identify the differences between individuals that possess different levels of engagement with the issue of climate change. A localised approach will provide a better context for understanding the decisions of members of the community who fail to engage in resilience promoting actions. Lorenzoni and Pidgeon (2006) support this view, stating that although there is concern regarding climate change present in Europe and the USA; it is not a high enough concern to change behaviours in daily lives and therefore saliency of risk must be increased by concentrating communication of risk at the community level.

There are four main stages to the resilience process, collectively known as the social resilience cycle (see Maguire and Hagan, 2007, for further description). The first stage is mitigation where there is a general process of increasing a community’s ability to cope with a flooding event, for example by not building on flood plains or by better protecting buildings. The decisions associated with this stage are the planning and preparation decisions made before the flooding occurs, such as training staff, which provide a basis for community resilience to the flooding event. This first stage is arguably the most crucial stage in determining the degree of resilience that a community will have to a flood as it can also affect the capabilities of the later stages. The first stage is also the phase where perceptions, beliefs and other human barriers can create the most diverse behaviour. Therefore, these potential barriers to resilience need to be better understood.

Social Responsibility

Social responsibility is a term that has been utilised in a variety of forms but is widely recognised as relating to the relationships between the economic, environmental and social aspects of an organisation or group activities that endeavour to benefit society (ISO, 2004). It is largely agreed that social responsibility is an important topic not only for the business environment but also for wider society. Negative effects, such as new legislation and adverse publicity, are seen as arising from a failure to recognise and maintain a suitable level of social responsibility (Peterson and Jun, 2007). Social responsibility has also long been an important field of research for both academics and business practitioners and continues to provide a valuable research area for those wishing to investigate modern societal issues (Peterson and Jun, 2007). Social responsibility has been the focus of research that has (i) investigated business social responsibility by exploring and comparing the perspectives of businesses and social workers (Boehm, 2009), (ii) investigated the relationship between perceptions of personal and social responsibility and intrinsic motivation in the field of education (Li, Wright, Rukavlna and Pickering, 2008) and (iii) explored social responsibility as a factor when investigating genetic and environmental components of pro-social attitudes (Rushton, 2004). These studies indicate that personal responsibility for behaviour is important to increase resilience, and understanding how people perceive themselves and each other in relation to a particular aspect may be a useful way of investigating that aspect itself. Therefore, exploring perceptions of social responsibility for flooding events will provide an excellent platform from which to investigate barriers and drivers to community resilience.

This platform must explore social responsibility from a person-centred perspective, rather than the business-centred perspective associated with corporate social responsibility (CSR). Much previous research has largely focused on how businesses attend to societal needs through CSR, however it could be argued that this has largely been an investigation of public relations rather than actually exploring the processes associated with social responsibility. CSR and public relations share such strong similarities in their origins, theories and practices
that the distinction between the two fields has become blurred. It has even been stated that public relations is simply the practice of social responsibility, despite there being key differences between these two fields (Clark, 2000). Therefore, when one thinks of social responsibility, they think of the responsibility that businesses have to the general public and how they communicate information to the public and act upon the feedback (Trainer, 2005). This may actually be a more fitting description of the foundations of public relations models, such as the four step management process (Cutlip and Center, 1978) and the RACE framework (Marston, 1979), rather than social responsibility. Even the foundations of CSR models themselves, such as the four-step process of corporate social involvement (Preston and Post, 1975), may not be suitable to investigate the relationship between social responsibility and community resilience. This is because CSR models are built with the purpose of being related to the business, with the public being a part of this particular business process. CSR is influenced by a number of driving actors, such as investors, consumer demand, government regulation, supply chain requirements and civil groups, all of which apply in varying degrees to different businesses (Clark, 2000).

In the context of community resilience, it is not solely the community group’s responsibilities to each other which is being investigated, but is instead their responsibilities to the community itself and their roles within it. This is an important distinction that highlights why social responsibility is an independent aspect, rather than CSR and public relations models. Although public relations models allow a two-way flow of information, they are not suitable for climate change research as they do not provide true equality and integration between multiple community groups. It is unknown therefore whether or not the drivers identified for social responsibility in a corporate context will apply to perceptions of social responsibility in relation to climate change. Further, the underlying constructs that underpin socially responsible behaviour in the context of community resilience to flooding have not been addressed by the existing literature, and therefore are less understood.

Given that community resilience to extreme weather events relies upon the successful integration of each of the three key stakeholder groups, householders, local businesses and policy makers, it is reasonable to suggest that social responsibility research should not be conceptualised or investigated as a circular process, as this limits integration. Social responsibility research instead needs to investigate perceptions of the roles and responsibilities that the key community groups have not only of themselves, but also how they perceive the other groups. New ideas generated and communicated by each of the groups create a multi-path framework of perceptions and provide a basis for integration, rather than the public simply providing feedback on business ideas or policies. Exploring social responsibility in this integrated manner will highlight potential links between these community groups, how they are contextualised by social responsibility and how may affect overall community resilience. For example, it is reasonable to state that householders may expect policy makers to undertake measures to prevent flooding and policy makers may expect householders to do everything they can to lessen the impact if it does flood. However, history shows us that householders do not do anything until it is too late, such as ignoring flood warnings due to experience of false alarms, and when it does go wrong they then shift the responsibility to the policy makers. The policy makers have to follow procedures which often assume that the householders are taking actions to lessen the impact of flooding. It is these kinds of gaps and misunderstanding of social responsibilities that can cause failings in resilience measures and drain extra resources. The householders are blaming the policy makers when in fact they have decreased their own resilience (by not taking actions to protect themselves) and their community’s resilience (by allowing the flood to cause greater damage and thereby using up more of the limited resources available).

The resilience of many communities across the UK had been undermined by gaps in people’s expectations of their own and other community group’s social responsibilities. These gaps are indicative of barriers to community resilience and are brought about by a lack of integration and joined-up decision making between householders, local businesses and policy makers.
The emergency services and utility companies are responsible for many of the immediate impacts of flooding in the built environment, but the continued successful resilience of the community in the short to medium term relies upon the groups which make up that community. The Pitt Review (2008) supports the importance of these three groups, highlighting that local government plays a central role in managing flood risk, with community groups, such as local flood groups and the National Flood Forum, helping to inform the public of the risks they face before, during and after a flood event. Businesses are beginning to understand the need for a business continuity plan, seeing it as a critical element of good business practice. They are gaining help from policy makers to increase their own level of resilience as well as better safeguarding the infrastructure which provides services to householders (Pitt, 2008). This highlights some of the interdependencies that the individuals within these three groups possess.

A community is made up of individuals, each of whom can have an effect upon their personal level of resilience to flooding, which in turn will influence their community resilience. Thus, individuals have a responsibility to increase their own resilience and they can do so through the decisions they make about being aware of the risks faced by their community, accepting these risks and engaging with the issue of flooding. Unfortunately many people are unaware or are in denial about the risks they live with each day. It is these counterproductive attitudes and flawed decision making which needs to be changed in order to increase resilience. In order to instigate the necessary changes, researchers need to firstly understand how and why people reach the decisions they do about the risk of flooding, as well as understanding how the interdependencies within the community can affect these decisions. These individuals are not simply householders within the community, but also heads of businesses and local policy makers, each of which has a key role to play in increasing resilience. For example, why do local policy makers make the decision to build houses on flood plains when they know that this decreases their community resilience to an extreme flooding event? Why do householders and businesses make the decision to occupy buildings on flood plains when they know that this decreases their personal resilience to an extreme flooding event? This example indicates that there is a lack of individual and social responsibility being taken for actions that can affect personal and community resilience to flooding. It is time for individuals to play a greater role in increasing both their personal and community resilience to ensure that in the future communities will be better protected against these events.

Research Method

The research adopted a quantitative method by developing questionnaire and administering survey to selected sample of key community members, representing households, managers of local businesses and policy makers in three communities (Selly Park, Witton and Digbeth) in Birmingham, UK. The questionnaire is based upon a modified version of Berkowitz and Lutterman’s (1968) social responsibility questionnaire, which has provided a valid and reliable basis for researching social responsibility since its creation. Modified versions of the original questionnaire have been used in previous research such as Reed, Jernstedt, Hawley, Reber and DuBois (2005). The original social responsibility questionnaire measured an individual’s acceptance of the traditional values of their society. The aims of this project though are to reflect the perceptions of community members in relation to a particular aspect and as such the original questionnaire was extended and the attitudinal statements were modified to meet the aims of the research (see Table 1, column 2 for the modified self-perception statements). The respondents were asked to indicate their level of agreement to these 12 statements on a Likert scale from 1 (indicates ‘strongly disagree’) to 4 (indicates ‘strongly agree’). In addition to this, some background information from the respondents were collected including age, gender and ethnicity.

The data set was collected at different times, Selly Park was around Easter 2010 (end of March/start of April), Witton was not too long after that and Digbeth was in Autumn 2010 (start of September). Witton and Selly Park were flooded in 2007 and 2008 respectively, so
The data were collected 2 and 3 years after events. They were summer floods. Digbeth has not flooded recently. The questionnaires were distributed in person, with stamped-addressed envelopes were provided for the return of the questionnaire. In total, 343 completed questionnaires were received, consisting of 224 householders (94 from Selly Park, 81 from Witton and 49 from Digbeth), 78 local businesses (28 from Selly Park, 23 from Witton and 27 from Digbeth) and 41 policy makers.

The data were subjected to principal component analysis (PCA) to reveal the underlying structure of the data, which provides an insight into the constructs of social responsibility by key community groups. First, the data were tested to confirm sampling adequacy. Kaiser-Meyer-Olkin (KMO) measure of 0.859 indicates that the PCA could be meaningfully applied to data analysis. This was further confirmed by Bartlett’s test of sphericity (p<0.0005) which suggests the presence of correlations between variables. PCA produces a structure correlation matrix between the components and the variables after rotation. The number of components was determined based on Kaiser’s criterion that the eigen value for each component should be greater than 1. Promax oblique rotation with the power (Kappa) at 4 was applied to achieve the simplest possible structure to obtain more interpretable components. That is, this procedure clarifies the grouping of variables under principal components. For a detailed description of PCA, readers might wish to consult Tabachnick and Fidell (2007).

Table 1 Social responsibility statements, their average scores and component loadings

<table>
<thead>
<tr>
<th>ID.</th>
<th>Statements</th>
<th>Average Score</th>
<th>Component 1</th>
<th>Component 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self1rev</td>
<td>It is no use worrying about extreme flooding within the community as I can’t do anything about it anyway.</td>
<td>2.1370</td>
<td>-0.555</td>
<td>0.716</td>
</tr>
<tr>
<td>Self2</td>
<td>Every person should give some of their time for the good of their local community.</td>
<td>2.8776</td>
<td>0.721</td>
<td>-0.376</td>
</tr>
<tr>
<td>Self3rev</td>
<td>Our country would be a lot better off if we didn’t have so many rules.</td>
<td>2.0991</td>
<td>-0.439</td>
<td>0.371</td>
</tr>
<tr>
<td>Self4rev</td>
<td>Letting your neighbours down is not so bad because you can’t do good all the time for everybody.</td>
<td>2.4956</td>
<td>-0.144</td>
<td>0.596</td>
</tr>
<tr>
<td>Self5</td>
<td>It is the duty of each member of a community to do the very best they can to increase their protection against extreme floods.</td>
<td>2.9767</td>
<td>0.778</td>
<td>-0.423</td>
</tr>
<tr>
<td>Self6rev</td>
<td>People would be a lot better off if they could live far away from other people and have less interaction with each other.</td>
<td>1.9504</td>
<td>-0.452</td>
<td>0.715</td>
</tr>
<tr>
<td>Self7</td>
<td>I would like to take part in a community volunteering project.</td>
<td>2.7668</td>
<td>0.714</td>
<td>-0.173</td>
</tr>
<tr>
<td>Self8</td>
<td>I feel very bad when I have failed to finish a job I promised I would do.</td>
<td>2.9942</td>
<td>0.531</td>
<td>-0.461</td>
</tr>
<tr>
<td>Self9</td>
<td>I feel it is important to always tell the truth to others.</td>
<td>2.8980</td>
<td>0.788</td>
<td>-0.358</td>
</tr>
<tr>
<td>Self10</td>
<td>I feel it is important to get on well with your neighbours.</td>
<td>3.0175</td>
<td>0.427</td>
<td>-0.536</td>
</tr>
<tr>
<td>Self11rev</td>
<td>I do not feel that climate change is an important issue that will affect me.</td>
<td>2.3848</td>
<td>-0.414</td>
<td>0.758</td>
</tr>
<tr>
<td>Self12</td>
<td>I feel that it is important that people should always obey the law.</td>
<td>3.1458</td>
<td>0.123</td>
<td>-0.467</td>
</tr>
</tbody>
</table>

Results and Discussion

Descriptive statistics obtained from the dataset provide demography characteristics of the respondents, which will be a useful basis for interpretation of the findings. The average age of respondents is 34.7 years, with 19 the youngest and 64 the oldest. However, the distribution is somewhat (positively) skewed toward younger age (skewness statistic of 0.591, with first quartile, median and third quartile of 26, 33, 41 respectively), although it could still be considered as a normally distributed sample (Kolmogorow-Smirnov test, p<0.0005). The
The gender distribution of participants (M=Male, F=Female) was as follows: Witton householders (M=32, F=49), Witton local businesses (M=17, F=6), Selly Park householders (M=38, F=56), Selly Park local businesses (M=18, F=10), Digbeth householders (M=33, F=16), Digbeth local businesses (M=22, F=5) and policy makers (M=30, F=11). This indicates that the generalisability of the results is not limited by gender as there is near equal representation throughout. The distribution of ethnicity amongst the participants was 275 White British ethnic group (80.1%), 48 Asian ethnic group (14%), 9 Black ethnic group (2.6%), 4 Chinese ethnic group (1.2%), 2 Mixed: White/Asian ethnic group (0.6%) and 5 Other Ethnicity (1.5%). This indicates that the generalisability of the results may be limited to a White British population. Nevertheless, if these communities are representative of the ethnic distribution of communities within the UK, then the results will be more widely applicable. Furthermore, there are sufficient numbers of both White British and Asian ethnic groups in order to compare the results of each. The average score for each statement is provided in Table 1, column 3.

The PCA yielded two principal components, which explain 46 percent of the variation in the variables. The correlation coefficient between the two components is -0.509, indicating a negative relationship between the two (see Table 1 columns 4 and 5). Factor loadings suggest that Self2, Self3rev, Self5, Self7, Self8 and Self9 should be included in Component 1, and Self1rev, Self4rev, Self6rev, Self10, Self11rev and Self12 in Component 2. Further examination of Figure 1 confirmed that the variables are clustered into two groups, although this division is not very clear cut in the factor loadings of components 1 and 2. That is, few variables may not be allocated to the ‘right’ components. Nevertheless, the analysis has revealed an interesting insight into psychological constructs underpinning the perceptions of social responsibility on community resilience to flooding.

Further examination of components and variables suggests that component 1 could be interpreted as ‘societal duty’, and component 2 as ‘powerlessness’, which both to some extend are related in opposite directions. That is, respondents who demonstrate higher scores in ‘societal duty’, tend to score low in ‘powerlessness’ attributes, and vice versa. However, members of community could fall within four possible quadrants in Figure 1 (i.e. a combination between (high and low) scores in ‘societal duty’ and ‘powerlessness’. The favoured attitude is high ‘societal duty’ and low ‘powerlessness’ scores, which are more likely to induce social responsible behaviour and community resilience. Behaviours for enhancing community resilience might be motivated by a number of factors (Steg and Vlek, 2009), however ‘societal duty’ finds resonance with the finding of Miceli et al. (2008), who found that emotional factors (affect) were significantly related to preparedness to disaster, whilst cognitive perceptions of risk (i.e. likelihood judgements) were not. Based on Value-Belief-Norm theory, Hansla, Gamble, Juliusson and Gärling (2008) argued that engagement
in environmental issues and performing proenvironmental behaviour are determined by the belief in and concerned on the adverse consequences of environment problems for themselves, others or the biosphere. Here, the extent to which an individual includes other people and other living being in their notion of self in decision making in response to potential threats (i.e. self-transcendence/universalism value) determines their level of responsibility to the community. Concern about the adverse consequences is the underlying factor here, whereas our research stresses on the responsibility of a member to their community, which could extend beyond preparing and responding to flooding. Social responsibility could be blocked by ‘powerlessness’, leading to intense discontent (Trainer, 2005). ‘Powerlessness’ is the opposite to ‘self-efficacy’, which is often considered as an antecedent of motivation to undertake a certain action/behaviour. Human being is more motivated to undertake a particular action if they feel that they are capable to do it and can see the outcomes/benefits of their action. ‘Self-efficacy’ was found to determine the level of disaster preparedness (Mulilis and Lippa, 1990 cited in Miceli et al. 2008). Powerlessness is also the adverse to ‘confidence’ to undertake particular action. This will impact on the actual behaviours (and level of effort) that a member of community exhibits in preparation and mitigation to flooding events. In summary, this finding suggests that enhancing community resilience should encompass appropriate strategies, measures and activities, which should be directed to elevating community sense of belonging/being part of community and to building confident/feeling in control in that by acting together, they will enhance the resilience of community and their own.

Conclusions and Further Work

Recent extreme weather events and their tremendous impacts on highly interconnected modern world have called on individuals to work together to enhance resilience of community where they live. However, the great challenge for scientists and public at large is to understand the meaning of resilience within particular community context, the factors which may influence resilience, and the behaviours/actions that may enhance resilience. A thorough review of existing literature suggests that social responsibility provide a promising area from which the underlying factors influencing community resilience could be better understood. Further, existing discourse of social responsibility revolves around applications in the corporate context, in which members of public is largely considered as a ‘recipient’ within the process, and the activities are very much driven by companies with main concomitant benefits of enhanced corporate image. This highlights a lack of understanding of the concept and the role of social responsibility in the context of enhancing community resilience to flooding. Here, social responsibility means members of community proactively adopt certain behaviours and take actions individually and/or together with others (e.g. neighbours), in effort to improve community and their own resilience.

A questionnaire survey of three communities in Birmingham, UK, was undertaken to obtain the perceptions of social responsibility. In total, 343 completed questionnaires were received and subjected to principal component analysis (PCA) to reveal the underlying structure of the data. The data represent the opinions of diverse members of community, in terms of their age, gender and ethnicity. The PCA produced two components, subsequently named as ‘societal duty’ and ‘powerlessness’, which are believed to be significant antecedents of resilience-enhancing behaviours for preparation and mitigation of flooding. This finding indicates that any attempt to enhance community resilience should encompass appropriate strategies, measures and activities that higher the level of ‘societal duty’ and lower the level of ‘powerlessness’. Any attempts should be directed toward elevating community sense of belonging/being part of community and to building confident/feeling in control. This paper makes a contribution in highlighting the importance of proactiveness of community members to enhance the resilience, and potential strategies that could be deployed to enhance ‘societal duty’ and overcome ‘powerlessness’ within the mind of community members.
Future work will require a validation of these two attributes for the purpose of creating a tool for informing strategies for enhancing community resilience through joined-up thinking. Comparison of the levels of social responsibility between community groups (i.e. householders, local businesses, policy makers), age, gender and ethnicity will allow more specific strategies to target appropriate groups. This acknowledges the fact that there are no ‘one-fits-all’ strategies for enhancing resilience. Investigating the gap between the expectation of one group on the level of social responsibility they believe the other groups should have, and their perception of their own level would highlight barriers to community resilience. Here, community groups may not even be aware that they are failing to meet their expected level of social responsibility. In conclusion, this research represents the first attempt to understand the perceptions of social responsibility in relation to community resilience to flooding, and provides an important platform to developing resilience-enhancing behaviours from within the mind of individuals that make up the community.

References


Acknowledgements

The Community Resilience to Extreme Weather (CREW) Research Project is funded by the Engineering and Physical Science Research Council, UK and this support is gratefully acknowledged. The academic team consists of the Universities of Coventry, East Anglia, Greenwich, Manchester, Salford, West of England, Wolverhampton and Scottish Agricultural College. Thanks are due to all the members of staff involved.

Author Biography

Aaron Mullins is currently working as a researcher on the £1.6m EPSRC-funded research project aimed at enhancing Community Resilience to Extreme Weather (CREW Project, 2008-2011). Aaron graduated from The University of Northampton, UK in 2008 with a 1st Class Honours Degree in Psychology, graduating top of his year and winning a number of prizes. Prior to attending university, Aaron served four years in the Royal Air Force where he gained academic qualifications and experience in engineering, as well as experience of extreme events and disaster management having been an explosives expert, been involved with arctic training in Norway and earned a medal for anti-terrorist work in Northern Ireland.

Robby Soetanto, BEng, MEng, PhD is a Senior Lecturer and the Leader of Construction Management Applied Research Group at Coventry University, UK. He has spent the last 15 years in researching human factors in the built environment context, and involved in several industry and government-sponsored projects. His current research focuses on understanding people’s cognitive thinking and its role in governing behaviour during decision-making processes, and interdependencies between various constituencies during extreme weather events. He is a Co-Investigator in the EPSRC-funded CREW Project, which involves partners from 14 British Universities. His work has been widely disseminated to a diverse audience (a total of 76), including a book entitled “Flood damaged property: a guide to repair” (Blackwell Publishing, 2004), and a book chapter entitled “Residential property in England and Wales: an evaluation of repair strategies towards attaining flood resilience” (2008).