[dstl] CabinetOffice

Research project for the UK Government Cabinet Office funded by the UK Government Defence Science and Technology Laboratory (DSTL)

# COMMUNITY RESILIENCE RESEARCH:

## Evidence Review



## Final Report

December 2011

Collingwood Environmental Planning Limited
with Kingston University

Collingwood Environmental Planning

Kingston University London

# Acknowledgements

This research project was for the UK Government Cabinet Office and funded by the UK Government Defence Science and Technology Laboratory (DSTL). The DSTL project manager was Keith Bingham. The DSTL study leads were Alice Gore and Dr Aaron Cooper. The Civil Contingencies Secretariat, Cabinet Office lead was Nejla Sabberton.

Defence Science and Technology Laboratory (DSTL),
Strategic Analysis Group, DSTL Policy and Capability Studies, I-Sat J, C036, Floor C 153, Grenville West Court, Portsdown West, Fareham, Hants PO17 6AD
www.dstl.gov.uk

The report was authored by Dr Clare Twigger-Ross, Paula Orr from Collingwood Environmental Planning Limited (CEP), Dr Hugh Deeming, Jenny Stafford (CEP Associate Consultants), Dr Tracey Coates and Dr Mark Ramsden (Kingston University).

Collingwood Environmental Planning Ltd
1E, The Chandlery, 50 Westminster Bridge Road, London, SE1 7QY
Tel: +44 (0)20 7407 8700
www.cep.co.uk
Company Registration No. 06600181

The authors would like to thank Alice Gore, Dr Aaron Cooper and Fergus Anderson from DSTL and Nejla Sabberton from the Civil Contingencies Secretariat, Cabinet Office, for their views, comments and inputs. We would also like to thank all those who were very generous with their time in providing feedback and participating in interviews and case studies and the workshop.

### Citation

This report should be cited as:

Twigger-Ross, C., Coates, T., Deeming, H., Orr, P., Ramsden, M. and Stafford, J. (2011) Community Resilience Research: Evidence Review Report to the Cabinet Office and Defence Science and Technology Laboratory. Collingwood Environmental Planning Ltd, London.

### Cover photographs:

- People in Peckham, South London place positive messages about love of their community onto a boarded up shop window following the disturbances, August 2011.
- Flooding during the tidal surge of November 2007 at South Quay, Great Yarmouth. © Great Yarmouth Borough Council.

### Disclaimer

# Contents

# 1. Introduction

This is the "Evidence Review" report for the research carried out for the Community Resilience Research project funded by DSTL and supported by the Civil Contingency Secretariat (CCS), Cabinet Office. The work for this project was carried out between September and December 2011. The Evidence Review forms one of the three reports for this project:

1) Community Resilience Research: Evidence Review
2) Community Resilience Research: Case Study, Lessons and Recommendations
3) Community Resilience Research: Final Report

The aim of the Community Resilience Research project was to develop a better understanding of the role of community resilience in emergency response and recovery situations in order to inform Cabinet Office / Civil Contingencies Secretariat policy on community resilience and the development of future work. There were two parts to the research.

The first part of the project involved reviewing existing evidence on community resilience in order to explore:

- The importance of community resilience to emergency response
- The factors that promote or inhibit community resilience, including why some people choose to engage and others do not.

The second part of the project consisted of four case studies to examine the role of community resilience in the context of emergencies:

- Two on flooding (Thirlby, Yorkshire; and Great Yarmouth, Norfolk)
- Snow and ice (Gloucestershire)
- The summer 2011 civil disorder (riots) in August (specifically, Peckham, London).

The case studies enabled a more detailed understanding of:

- How communities respond in the face of adverse events
- The factors that facilitate people working together in those situations
- The extent to which that community response was linked with and assisted the response by 'the authorities'/ emergency response organisations.

In addition to the Evidence Review and the Case Studies' research, a workshop was carried out on the 17th November 2011 bringing together case study interviewees, policy staff from CCS and DSTL, academics and national stakeholders in emergency planning. A record of the workshop was produced and forms an Appendix to the Final Report.

## Objectives and requirements

This theoretical research into Social and Community Resilience and related concerns sought to meet two primary requirements:

- Identify and explore the importance of social/community resilience to emergency response
- Explore the factors that promote or inhibit community resilience, including why some people choose to engage and others do not.

# 2. The Importance of Social/Community Resilience to Emergency Response

Social or community resilience has been gaining ground within government and disaster literature in the last decade, yet the focus has been on resilience with less emphasis on the nature of community. This is perhaps because definitions of resilience have focussed largely on the individual (psychological) or the system (socio-ecological). However, impacts from disasters (e.g. flooding) are clearly felt at the community level and there is research which discusses how communities respond after such events (e.g. in terms of volunteers helping out (Watson et al, 2009) and community spaces being found for people to gather (Easthope, 2011)). The nature of those responses varies and there is work to suggest that it varies according to the type of community (Coates, 2010), as well as with the type of event. Given this, in order to support communities to be more resilient in the face of emergencies having an understanding of how communities work is very relevant. Therefore, key aspect of this research is to integrate understandings of community into the concept of resilience and given this we start with separate discussions of resilience and community ending with a brief review of "social/community resilience".

## Understanding resilience in the context of emergencies

### Defining resilience

"*The capacity of an individual, community or system to adapt in order to sustain an acceptable level of function, structure, and identity*" (Cabinet Office, 2011: p.10)

And……..

Resilience can be observed as……..:

- Resistance – "holding the line"
- Bounce-back – "getting back to normal"
- Adaptation - "adjusting to a new normal"
- Transformation – "owning a need to change"

And…….

Resilience building is an ongoing dynamic process rather than a static outcome.

In this research we take as our basic definition that cited in the Cabinet Office, National Strategic Framework for Community Resilience, which in turn has come from Edwards (2009) through research by Demos that culminated in the publication the *Resilient Nation* Report (*Ibid*.):

> *"The capacity of an individual, community or system to adapt in order to sustain an acceptable level of function, structure, and identity".* (Cabinet Office, 2011: p.10)

We would like to add to this definition and highlight that Resilience can be understood from a variety of ecological, environmental and civil-protection-relevant perspectives (Adger, 2000; Coles &

Buckle, 2004; Folke, 2006; Klein et al., 2003; Medd & Marvin, 2005; O'Brien & Read, 2005). Through interpretation, these multiple perspectives can be roughly translated as describing resilience in four principal types (Whittle et al., 2010) which are very useful to articulate these because they can be more or less helpful in building resilience. These are:

- Resilience as resistance – "holding the line"
- Resilience as bounce-back – "getting back to normal"
- Resilience as adaptation - "adapting to a new normal"
- Resilience as transformation – "owning a need to change"
- Resilience building is an ongoing process rather than a static outcome. Given the dynamic nature of both communities and the cycle of emergencies, it is more useful to discuss what processes and structures are in place to facilitate resilience than to ask if a community is resilient or not.

Each of these is discussed in more detail in the following section.

Pelling's work (2010) also promotes this basic typology as a lens through which to interpret different communities' responses to hazards and emergencies (e.g. the case-study communities), and in turn to help explore the importance of different types of community resilience to emergency response.

## Resilience as resistance: "holding the line"

### Resilience as resistance – holding the line, preparing for the last disaster

Useful when it prepares people for a hazard: e.g. flood gates on houses.

Not so useful when the hazard is not as anticipated: e.g. overtopping of flood defences that overwhelms flood gates and no plan for evacuation.

In terms of hazards, resilience as resistance can be understood as the ability of a system (a person, household, community, city) to hold fast, against certain hazards. Resistance would, for example be an appropriate description for the approach of adopting structural defences against a hazard (e.g. flood walls or earthquake-resistant design-standards). However, structural defences are only built to withstand hazards of a carefully calculated maximum intensity (e.g. flood walls built to a 1 in 200 year design standard) (Defra, 2009). In turn, those standards are developed using data that only tend to describe what is known about past events; they cannot encompass the full range of possible future scenarios (Bernstein, 1996). This anticipation of specific hazard effects, which is implicit within resistance approaches has been described as "preparing for the last disaster" (Clarke, 2005). If resilience-as-resistance is, therefore, the only strategy adopted then it will always be possible for a higher magnitude event to overwhelm the community's defences (e.g. structural or psychological). This is the residual risk that is faced by hazard-exposed communities. In terms of flood risk in particular, it was the realisation over the past two decades that residual risk will always exist that has led to a shift from flood defence approaches to the adoption of a system of flood-risk management. This approach has been implemented nationally and internationally by the likes of

Defra and the Environment Agency in England and in other parts of the world (Johnson et al., 2005; European Parliament, 2007).

## Resilience as Bounce-back: "getting back to normal"

**Resilience as bounce-back – getting back to normal…. pretending it hasn't happened**

Useful in terms of an optimistic rhetoric.

Not so useful because it can be unrealistic and can lead to reproduction of vulnerabilities.

Community bounce-back has become a popular metaphor to describe the ability to return from a shock. This approach originated in the scientific disciplines of physics and mathematics, where the term was originally used to describe the capacity of a material or system to return to equilibrium after a displacement (Norris et al., 2008). In terms of wider civil protection issues, until recently, the principal focus of UK Civil Contingencies Act guided emergency-management practice can be said to focus on bounce-back approaches: for example: in terms of how the Local Resilience Forums (LRF) are encouraged to plan for the maintenance of the business continuity of their membership. This has been most clearly demonstrated in some of the approaches to flooding which focus on getting homes "back to normal" as quickly as possible in terms of getting them dried out, refurbished etc.

However, there has been an increasing realisation that whilst things may appear to have recovered, the psychological impacts of a hazard or emergency event can change communities irrevocably. The reflexive response of those affected can make homes that were previously perceived as 'safe' suddenly 'unsafe' (Harries, 2008) and risk-governance institutions, which had been trusted to prevent such occurrences (often without conscious engagement), to become 'untrustworthy' (Freudenburg, 1993; Beck, 1992). The limitations of a bounce back philosophy do not mean that bounce back is no longer used as a working model for recovery. The insurance industry, for example, has tended to operate like-for-like refurbishment policies that, effectively, reproduce the exact same vulnerabilities to built structures as were present before; regardless of whether their client's hazard exposure has changed (Whittle et al., 2010). Whilst this approach by the industry is to some extent understandable, in terms of how that industry is regulated (Priest et al., 2005), this practice alone should act to highlight the limitations of returning to a pre-hazard state.

Resilience as bounce-back does provide an optimistic rhetoric for disaster victims to focus on, the idea of "getting back to normal" is frequently aimed for within the recovery phase. As illustrated, however, in getting back to normal, existing vulnerabilities are likely to be reproduced and therefore resilience to the next event is constrained. Thinking about this slightly differently, however, it could be said that aiming for the resumption of "normal service or functioning" is really the desired position for an impacted community to aim for. How to define "normal functioning" is a challenge, and is discussed later in this review.

## Resilience as Adaptation: "adjusting to a new normal"

**Resilience as adaptation – adjusting to a new normal…accepting that your world has changed**

Should ensure that vulnerabilities are not reproduced.

Can be hard for people to accept living with hazards.

Knowledge, experience or acceptance of a hazard or potential emergency can result in learning. Here, therefore, resilience refers to a community's ability to adapt to the changed environment. In this context, the better the adaptation, the more resilience there will be in the future; this is not bounce back, but bounce forward (Manyena, 2006). However, whilst there is change involved, resilience is regarded here as a wish to continue desired community functions in the face of a changing context (Pelling, 2010). Adaptation in this sense may mean finding new ways to share future losses (e.g. through negotiating new or additional insurances), or it could mean becoming involved in the advocacy of community interests or active participation in risk management decision-making (e.g. through joining flood action groups or community-rebuilding initiatives). Communities that adapt are conscious of the risks they face and are prepared to accept some responsibility for their own sustainability and well-being. There are, however, important considerations to take into account in terms of understanding adaptation. From a community perspective, adaptations can be brought about by actions taken from the bottom-up or the top-down. From the bottom-up, positive examples of resilience could be suggested as being the self-organisation that results in the development of community emergency plans. However, another facet of that same type of 'resilient' social organisation could result in community activity, which appears much more subversive from the perspective of the formal institutions, but which could be argued to be an equally valid example of resilience as far as the community itself is concerned. An example here could be a community, which is so unhappy with the formal approach being taken to their concerns about a particular hazard, that it collectively decides to either seek advocacy from for example an MP or gathers experts to contest what they see as an imposed narrative (Hansard, 2010; Tesh, 1999).

Since the publication of the Strategic National Framework on Community Resilience, a reorientation has occurred toward more holistic approaches to resilience building, which includes the concept of functions as well as adaptation, as reflected in the definition highlighted at the beginning of this section. The point here is that resilience as adaptation results in the re-orientation and/or reconfiguration of structures and relations in ways that will reduce negative impacts from an event.

## Resilience as transformation: "owning the need to change"

**Resilience as transformation owning the need to change……transforming to meet future threats**

Radical change (physical, social, psychological, economic) in the face of current or future hazards owned by individuals and communities (of all types).

In this form of resilience a radical form of adaptation may occur – the establishment of a completely new organisation for risk management, a change in social structure or the uprooting and resettlement (and possibly dispersal) of a community. Transformation occurs when a tipping point is reached and it is realised that previously desired community functions are no longer sustainable, despite changes made. Such transformations may happen when a community is either catastrophically damaged, or a hazard becomes so chronic that recovery of any sort is not possible between hazard impacts (Erikson, 1994; FEMA, 2007), or there is a realisation that the maintenance of the current functioning of a community is not feasible in the long term (e.g. as is currently occurring in some settlements exposed to coastal erosion: Hutchison et al., 2006). Finally, for transformation to occur and be successful, in terms of generating positive change, it is likely to develop through bottom up processes rather than from the imposition of specific decisions. The transition town movement (Hopkins, 2010) "*making a community more resilient, if viewed as the opportunity for an economic and social renaissance, for a new culture of enterprise and* reskilling, should lead to a healthier and happier community while reducing its vulnerability *to risk and uncertainty …. resilience is reframed as a historic opportunity for a far-reaching rethink*".

The value in asserting this four point typology is that to learn the lessons for resilience we need to understand that resilience can come in these different forms. With the first two forms, emphasising system continuity and the latter two emphasising change.

## Resilience building is an ongoing dynamic process rather than a static outcome

The resilience of the individual, the household, the home, is a characteristic that emerges partly in relation to wider social, infrastructural and institutional networks. As a result of this understanding, Whittle et al. (ibid.) have argued that in addition to the four distinct forms, resilience needs to be understood:

> *"…in terms of relationships and processes rather than as a static characteristic of an individual, household, public service or community. In other words, "resilience is not so much a response to the flood hazard itself, but is an emergent characteristic of the way in which the flood response and the subsequent recovery process are managed."* (Whittle et al, 2010. p.12)

Across the literature on various types of emergency these types of resilience can be identified in the ways in which communities have coped with hazards in their environment. Importantly, however, in civil protection terms, it should be understood that these four types of resilience are not mutually exclusive and they do not remain constant throughout the Integrated Emergency Management (IEM) cycle. For example, during an event, resilience might be manifest as resistance and the ability to withstand the shock, while during recovery it is manifest in terms of a community's ability to adapt,

or to self-organise into a potent forum for self-advocacy (Whittle et al., 2010). We also need to think about how types of resilience might be supportive rather than exclusive. A householder may be better prepared to 'bounce-back' because of the adaptability of the social networks around him/her (i.e. their social capital). There is also, however, evidence of 'resilience' being damaged or hindered. For example, the dispersal of residents to temporary accommodation over a wide area can lead to a breakdown of support networks and the reduction of social capital at a critical time (Cordasco, 2006; Peek & Fothergill, 2008; Whittle et al., 2010). The distribution of resources, especially during the response and recovery phases, may also lead to antagonism and splits within the community, as people perceive some form of inequity in the way they are treated compared to other individuals or social groups (e.g. when flood-affected social housing is perceived to be repaired more quickly and efficiently than private housing: Pitt, 2008).

The importance of considering resilience in this way emphasises its dynamic nature which put the focus onto ensuring response is flexible and responsive. The danger of considering resilience as static is that processes are developed that aim for an end point where resilience can be said to have been achieved when in reality as resilience emerges from events it can be enhanced through the development of flexible structures and processes that can adapt as circumstances require.

## Understanding community

**Community in this research is understood to be a combination of:**

- Spatial
- Social and
- Cognitive elements.

The definition of community used in this research combines three elements of community:

- the spatial element;
- social relations and structures such as networks; and
- cognitive or psychological elements such as local or group identities and the creation of belonging/exclusion.

Research has shown that to fully understand communities, the ways in which they respond to emergencies, and how they may be changed by the experience, it is necessary to study the interrelationship of these three elements (Coates, 2010).

Recent approaches to studying the impacts of disasters have recognised that these are essentially social events and determined by factors in people's everyday lives such as, what groups they belong to, how they perceive risks, who they trust etc (Blaikie et al., 1994; Canon, 2000; Enarson and Morrow, 1998; Fordham, 1998; Hewitt, 1997; Wisner et al., 2004). This approach has highlighted the need to understand the social processes of 'everyday life' rather than narrowly focussing on the crisis situation (Wisner et al., 2004). However to date, the focus of research has been on the

experiences of individuals and households (Twigger-Ross, 2005; Walker et al, 2006; Walker and Burningham, 2011) and whilst existing research and anecdotal evidence suggest that emergencies do impact at the community level, relatively little is known about the impacts on, and response of, social structures in the local area (Tapsell, Tunstall and Wilson, 2003). Understanding the processes operating to create and maintain communities is a key component in community resilience and the extensive community literature can play a large part in achieving this goal.

In the past, community and locality were considered synonymous; a community existed because people resided together in a location. Community was seen in positive terms and its study started with the fear that it was being lost, destroyed by the forces of modernity (Bell and Newby, 1971; Day, 2006). Communities were understood to be small, rural, stable, bounded, holistic entities that were somehow 'naturally' occurring. This particular rather romanticised notion of local community has remained influential despite changing social conditions (Clark, 2007; Crow and Allan, 1994; Day, 2006; Delanty, 2003). With increasing industrialisation, urbanisation and mobility, the focus moved from the locality and onto the networks. Although the study of networks continues to be popular, it has been criticised for failing to recognise the contested nature of communities or the importance of power. That is, network approach does not engage with the enduring appeal of community and the less tangible but important issues such as identity and attachment to locality, which play a key role in community creation. Networks are of course a key component in community resilience and understanding them is essential, but this means that the context in which they are produced must also be examined. In the context of emergency response the relationship between different types of community to specific geographical areas is key to understanding how people in that area who may or may not be connected through communities are or can become resilient.

Recent work argues that a community can never be satisfactorily defined either by location or by its networks. It can mean different things to different individuals and groups and this will depend upon the context. Whilst this approach offers a number of benefits critics have argued that the focus on the cultural aspects of community has been at the expense of spatial, material and social aspects that are so crucial with regards to emergencies in geographic areas (Amit, 2002; Herzfeld, 2005; Neal, and Walters 2008). Given this as noted above we take the view that community is defined in spatial, social and psychological terms. Even a community which appears to have no physical location can be defined in relation to a physical location through its absence. Because the emergencies we are considering are geographical in nature if is vital to understand how the people located in that area relate to each other in order to see how resilience can be improved.

## Understanding community resilience

### Community Resilience is defined as:

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

In terms of our working definition of community resilience, bearing in mind the previous discussion about resilience and community in this section, we highlight here the key aspects that we want to focus on.

Firstly, community resilience is not something that just emerges, post-hoc, as a response to an emergency, but rather we would suggest it builds on pre-existing networks and capacities, which may have influenced its emergence (positively or negatively). Community response is actually built using pre-existing community capacities, which are expanded or extended in line with a – perhaps dramatically – identified need (Dynes, 2005). Norris et al (2008) describe community resilience as process linking a network of adaptive capacities. These capacities are:

- ***Economic development***: e.g. a community's resilience depends not only on the volume of economic resources available to it, but also on their diversity. The capacity to distribute post-disaster resources to those who most need them is also vital.
- ***Social capital***: e.g. social networks need structure, institutions of support provision, rootedness, a commitment to networks goals and grass-roots leadership. To this we would add that trust and reciprocity are also vital factors in the development of social capital and that these are developed with the benefit of actual, long-term (good or bad) experiences in people's lives or in their local environment (McCulloch, 2003).
- ***Information and communication***: e.g. the need for systems and infrastructure for information exchange and a shared meaning and purpose which means that communications will be understood in the intended context.
- ***Community competence***: e.g. a capacity for action and decision-making to be achieved collectively and for the proactive development of efficacy and empowerment.

To understand how these capacities can be drawn on in risky physical or social environments, Norris et al. further propose three dynamic attributes, which the networked capacities require if they are to be effective in producing community resilience. These attributes are:

1) ***Robustness***: the capacity must be resistant to a wide variety of dangers.
2) ***Redundancy***: elements must be substitutable in the event of disruption or degradation, e.g. social networks need numerous interconnections in order that communication is not stalled by the removal of a single network member.
3) ***Rapidity***: any need for resource deployment must be rapidly identifiable.

This suggests that, if tapped effectively, the capacities needed to develop community resilience may be able to be developed at any stage of the IEM cycle, i.e. not just during response, as is implied by the definition of Community Resilience that is offered in the National Framework on Community Resilience[1] and not predominantly during recovery, as suggested by Whittle et al. (2010). In effect, for many communities the capacities that facilitate resilience building are already there (or are not).

[1] The National Framework defines Community Resilience as "*Communities and individuals harnessing local resources and expertise to help themselves in an emergency, in a way that complements the response of the emergency services."* This definition fails to encompass resilience-building that occurs at any stage of the IEM cycle apart other than response.

Not only, however, does Norris et al.'s framework identify the necessary resources and dynamic attributes, which will enable successful coping in an event. In discussing community resources it allows us to investigate the complexity of the community in terms of how those resources might be useful or not across the IEM cycle.

A further important aspect is drawn out by Norris et al.'s approach and that is the understanding that to improve community resilience it will be important to improve the underlying social aspects that make people more vulnerable to negative impacts from hazards in particular and from life events in general, e.g. low incomes, poor health, low educational attainment. In this way it is useful to draw in some of the work on urban regeneration where community resilience in the face of economic and social pressures is a key issue.

Urban regeneration, neighbourhood renewal and economic development practitioners are generally focused, in the simplest terms, on how an area can build or capitalise on its economic and social strengths and how community cohesion and social capital can be enhanced to support the former. In particular, these approaches seek to tackle what are often ongoing problems of economic and social deprivation. Reference to community resilience has been made in this context: building more resilient communities to be able better respond to and overcome economic and social pressures. The role of community networks and community engagement are directly related to developing community cohesion and social capital which are related to community resilience.

By way of example, the London Borough of Newham is focusing its approach to community development and urban deprivation around resilience; developing resilience is the overall driver behind and the essence of Newham's approach to addressing its multiple social and economic challenges and 'entrenched disadvantage'[2]. See box below for further details on how Newham is defining resilience in this context.

### Resilience in London Borough of Newham

"*Resilience is much more than an ability to bounce back from a single damaging event. It is about possessing a set of skills and having access to the resources that allow us to negotiate the challenges that we all experience but also that allow people to overcome the more difficult circumstances many of Newham and other boroughs' residents experience and to take up opportunities that come our way. This approach builds on concepts such as capabilities, empowerment and research on social mobility. In contrast to current government rhetoric on poverty and social mobility it recognises the importance of external factors in shaping our lives. Our personal skills, experiences and upbringing are essential to our resilience but these are intertwined with the resilience of the communities we live in and the economic circumstances we face. On the flip side, it is vital also to recognise the importance of character and personal responsibility and to ask more of people as citizens*."

Notes[3, 4]

[2] See, 'Quid Pro Quo, Not Status Quo, Why we need a welfare state that builds resilience' (2011) and A Strong Community: Building Resilience in Newham Stakeholder Consultation, May 2011. Both are downloadable at: http://www.newham.gov.uk/YourCouncil/Buildingastrongcommunity.htm

[3] "In the context of exposure to significant adversity, resilience is both the capacity of individuals to navigate their way to the psychological, social, cultural, and physical resources that sustain their well-being and their capacity individually and collectively to negotiate for these resources to be provided in culturally meaningful

A further aspect of community resilience we would like to emphasise is the role of institutions and more widely, governance (which is discussed in more detail later in this review). According to Adger (2000:354) "*Social resilience is institutionally determined, in the sense that institutions permeate all social systems and institutions fundamentally determine the economic system in terms of its structure and economic assets".* This element is vital to understand if the interface between the informal community responses and the more formal response and planning organisations is to work for the positive before, during and after events. This section has discussed definitions of resilience, community and community resilience.

## Understanding of community in emergency response and ways in which this influences activities

**Communities in the context of emergencies have been considered as:**

- Self-evident and unproblematic
- Synonymous with "the public"

**These understandings can lead to:**

- waste of local knowledge and expertise,
- lack of trust in authorities,
- divisions in communities,

…all of which are likely to considerably reduce community resilience in an emergency.

Community has been a central theme in both this and the previous government's policy and this can be seen in emergency response as well as in many other policies. However, as discussed in the previous section community is very malleable concept and its ability to mean so many things helps to account for its appeal and its longevity (Day, 2006). Difficulties can arise where groups attempt to come together, with community as a central notion, but without necessarily sharing the same vision of community. Different conceptualisations will lead to different strategies and interventions. The problem and its solution will be framed in different ways. This can lead to misunderstanding, missed opportunities and even conflict and damage. Attempts at engagement can therefore show insufficient understanding of the complexity of community, leading to missed opportunities in supporting these community structures or worse, a disruption or dissipation of potential community resilience (Buckle, 1999; Amlôt and Page, 2008).

### Community as self-evident and unproblematic

To date there has been a tendency within this policy literature to treat local community as self-evident and unproblematic, rather than complex and requiring investigation (Buckle, 1999; Marsh &

ways." Dr Michael Ungar, Resilience Research centre, Dalhousie University, Canada, as cited in LB Newham (2011), op cit

[4] Op cit

Buckle, 2001; Twigg, 2007). Community may also be straightforwardly assumed to coincide with the city, town or village boundaries or associated with various 'official boundaries' such as the Parish. In these usages, internal social structures and processes are largely ignored and the possibility of multiple or alternative viewpoints suppressed. This is problematic if authorities are trying to engender community resilience.

Approaches to community will come to be shaped largely by institutional requirements or responsibilities rather than by considerations of the properties of the community itself. As Canon (2000:47) notes in discussing various disaster types, this is a common phenomenon "*where institutions define problems in terms of what their own capacities are meant to be, or the proposed solution to a problem are defined in terms of what is 'possible' rather than what is really needed*". An interesting example are the boundaries for flood warning areas which are based on the levels of risk attached to different areas of a town for example. These bear no relation to other boundaries that might be present in the area either political e.g. ward, parish or community. This means that people who live very close to each other may receive different warnings because their homes are at different levels of risk.

## Community as "the public"

The term community may be used simply as a way of referring to multiple people, or as an alternative to the term 'the public'. When it is used as an alternative to 'the public' there quickly becomes a tendency to differentiate between those with specialist technical knowledge 'experts', and others 'non-expert'. Of relevance, the division between emergency responders and residents as experts and non-experts has been shown to cause a number of issues. There is extensive literature on the problematic division between expert and non-expert (Arnoldi, 2009; Blake, 1999; Dunn et al., 2008; Eden, 1996; Petts, 2006; Renn, 2008; Sjöberg, 1999). There is also considerable criticism of the 'information deficit' model of the public or non-expert (Beck, 1992; Bickerstaff and Walker, 1999; Blake, 1999; McCarthy, 2004; Petts and Brooks, 2006) where the public only need "*to be stuffed full of technical details and then they will share the experts' viewpoint …*" (Beck, 1992:58). The command and control model discussed elsewhere tends to reinforce this division. Not only does this separation hinder genuinely participatory approaches it dismisses or ignores the expertise and resources that reside within the community and that contribute to its resilience. As research has shown there is often "*significant expertise in the local community that is not fully utilised*" (Speller, 2005:22). The skills within the community that may support community resilience can be very varied and their role in an emergency situation may not be immediately apparent. For example abilities in: negotiation, managing people, coping with the media, effective communication, administration, technical knowledge, practical tasks, motivation, emotional support and assistance with daily household tasks may all play a role in community resilience. However, these are not necessarily recognised in a culture that prioritises the expert and a view that sees the community as a group of non-experts.

## Examples where lack of consideration of community structures has caused problems

There are a number of examples where a lack of consideration of community structures in post emergency management has caused problems: mistrust, alienation of local people, divisions between members of communities, and highlights the need to understand community level social impacts. Poor communication through a lack of awareness of how local structures work can lead to mistrust (Coates, 2010). In the changing relationship between the expert and the public, trust has come to be seen as a key issue (Arnoldi, 2009; Beck, 1992; Drevensek, 2004; Dunn, 2008; Giddens, 1994a&b; Rayner, 1992; Renn, 2008). There is some evidence to suggest that there is a loss of faith in expertise and trust in experts is declining (Beck, 1992; Giddens, 1994a&b). The division of responsibilities between a number of organisations may also lead to mistrust as has been shown frequently in relation to flooding. Despite steps to improve coordination over recent years it continues to be an issue however, as highlighted by the Pitt Review (Pitt, 2008).

> *"Poorly-managed and implemented response and recovery operations, however well intended, can serve to increase feelings of isolation, loss, anger and distrust".* (Amlôt and Page, 2008:34)

There is ample evidence from the flood literature of divisions caused or exacerbated by the handling of post-flood resources (Fordham, 1998; Fordham and Ketteridge, 1995; Tapsell et al., 1999; Tapsell, 2000; Tapsell and Tunstall 2001). The technological disaster literature also illustrates the dangers of dividing the community in this way (Freudenberg, 1997). For example, a study of the social and psychological impact of a chemical contamination incident of a Cheshire village in the UK found that the separation of the village into different compensation zones exacerbated divisions, and the community was effectively destroyed. The village social structure was damaged and "*the people of the village went from living in a pleasant close-knit community, to living in a blighted, contaminated, divided community that was disintegrating on a daily basis*" (Barnes et al., 2002:2238). The study highlighted how the community-level social impacts need to be taken into consideration when managing incidents and the dangers of ignoring this aspect.

If community resilience is to be improved or supported, it will be necessary for those involved to engage with communities as a complex social structure. Local communities may vary considerably and it is necessary to recognise this variation rather than expecting one solution to work in all cases. It is also important to engage with residents understandings of their community rather than imposing or assuming some readily available label. Community may have multiple meanings and it is therefore important for those working together to come to a shared understanding in order to communicate effectively.

# 3. Characteristics of Communities that Influence Community Resilience in Emergencies

Research in this area is relatively limited as yet, and as both community and resilience are complex multi-faceted concepts it is a difficult task to know which characteristics of community will influence which aspects of resilience and under what conditions. However, research suggests a number of related community characteristics which play a role in resilience: networks: social capital; trust identity and previous experience. These are summarised in the table below.

**Table 1: Characteristics of communities influence resilience**

| Characteristics | | Key features | Potential influence on community resilience in emergencies |
|---|---|---|---|
| Networks | Bonding capital | Close knit, family/friends support, could be insular | Likely to provide important "getting by" support in an emergency, but may not be linked to wider resources. If linked into authorities, organisations could provide very useful ways of communicating with local people in emergencies. |
| | Bridging capital | Looser networks between people, communities of interest, e.g. work, protest | Can enable people to draw on a wider range of resources during an emergency. Bridged networks may appear after emergencies, galvanised around the emergency. If developed around a number of issues then it provides vital links between different types of people within an area. |
| | Linking capital | Hierarchical networks between local people and authorities | If developed they provide the vital relationships between organised emergency responders and local people in such a way that improves responses to emergencies and reduces negative impacts. |
| Trust | | Competence, consistency, empathy | Crucial to the development of social capital and in governance structures. |
| Identity | | The values around which a community coalesces and expresses | Can be useful if the values link with those needed within emergencies e.g. altruism, support for neighbours, but care is needed that assumptions about how people with a shared group identity will work in an emergency. |
| Previous experience | | The experience a community has had of the event | The evidence suggests that previous hazard or emergency experience at both the individual and communal level plays a positive role in building resilience e.g. knowing what to expect, signing up for warnings etc. However, that experience can also 'imprison' communities in the belief that a low probability or 'worst case' event, of greater magnitude than any in memory, will never happen to them. |
| Community Context | | Physical and social features of the community e.g. spaces for communal events, relative isolation and social structures e.g. parish councils | The interaction between the spatial and the social aspects of community can be important in resilience building e.g. if rest centres are outside a person's community they may not go to them in an emergency. Isolated areas may foster a greater sense of perceived resilience and therefore decline offers of help. Key social centres e.g. pubs can provide valuable focus in emergencies. |

## Networks and social capital

Networks are an essential part of any community. These networks may take many forms at a whole variety of scales and may be mediated by technology as well as being face-to-face. There is ample evidence within the disaster literature of people helping one another during and following a crisis situation (Fernandez-Bilbao & Twigger-Ross, 2009; Pitt, 2008). There is also evidence that these networks may be created or reinforced through the experience of the emergency situation in a phenomenon known as the therapeutic community (Flint and Luloff, 2005; Fritz, 1961; Gurney, 1977; Tapsell et al., 1999). However, they may also be damaged and there may be division, in what has been termed the corrosive community (Erikson, 1994; Freudenberg, 1997). It is clear that networks will be called upon if there is to be some form of resilience. Correspondingly, disruptions to the existing support networks by floods or by the removal of people to temporary accommodation have been shown to reduce resilience (Buckle et al., 2000; Fordham, 1998). Recent research suggests that although help is often willingly given by local people, at least in the immediate crisis situation, this is dependent on the existing network structures. Help is more widespread, collective and organised where networks are dense and interlinked and there already exists a culture of working together (Coates, 2010). .A key way in which networks have been conceptualized is through the concept of 'social capital'. Putnam (2000) has introduced the categories of bonding, bridging and linking social capital to explain different types of networks, but as Deeming (2008) in his work in three coastal communities concludes " *merely having social capital in a community does not mean that it is readily instantiated into any form of hazard resilience"p.295.*. The following discussion differentiates and describes these three network types[5], and how they are considered to affect community resilience in emergencies. The table below summarises the key characteristics, and what they are good for, what they are not good for.

**Table 2: Categories of social capital and different types of networks**

| Type of social capital | Key characteristics | Good for…/ Opportunities | Bad for…/ Risks |
|---|---|---|---|
| **Bonding: "super-glue"** | Close knit, often based on familial or friendships ties | Support in emergencies within network, sticking together | Can be exclusive, may not be linked to wider resources that are needed to cope within an emergency |
| **Bridging** | Looser networks | Bringing people involved in different groups together providing access to wider resources | May not be able to respond quickly. May only offer very narrow types of resource based on the type of relationship (the interest). Unlikely to provide emotional support |
| **Linking** | Hierarchical networks between people in local areas and organisations with | Engendering collective action | Can become rule bound over formalised and potential for manipulation by those in |

[5] The discussion concentrates on the types of informal networks that involve physical interaction between members; therefore, it will not investigate what Putnam refers to as 'tertiary' associations. These are groups or organisations (e.g. Greenpeace) to which increasing numbers of people ostensibly belong but to which members contribute no active networking role other than to, for example, receive mailings that report the exploits of the group's activist clique.

| Type of social capital | Key characteristics | Good for…/ Opportunities | Bad for…/ Risks |
|---|---|---|---|
| | power and influence | | power |

## Bonding social capital

Bonded social capital is based on friendship and kinship (Adger, 2003). Such ties are important because they can be very strong as a result of the intra-network behavioural norms that they generate, e.g. strongly bonded social capital has been identified as being the power behind the success of several immigrant enclaves within the US (e.g. the Italians in New York - DePhilippis, 2001). The problem with bonded networks is that they can become exclusive and restrictive (ibid.; Leonard, 2004). For example, solidarity in the face of adversity or injustice could be seen as a very positive aspect of tightly bonded networks. On the other hand, , certain bonded groups represent what Rubio (1997) referred to as 'perverse social capital' and Putzel (1997) as its 'dark side'. Portes and Landolt (2000) identify four particularly "…*negative consequences of social capital: exclusion of outsiders, excess claims on group members, restrictions on individual freedoms, and downward leveling norms.*" (ibid.: p.534)

From a hazards-related perspective Cordasco (2006) clearly describes the 'dark side' of bonding social capital in its paradoxical sense, in that whilst the capacity for close bonding is regarded as a positive attribute for vulnerable individuals and groups to possess, it can have a strongly negative influence because of its propensity toward shutting out external influences. Cordasco refers to this inward-looking effect as "overembeddedness" (ibid.: p.5), one consequence of which is that information from outside organisations that may be better placed to help in an emergency is ignored, whilst potentially biased or ill-informed opinion from trusted network members is adopted as fact. Cordasco reports that in New Orleans, in the hours immediately prior to the arrival of Hurricane Katrina, some tightly-bonded family groups failed to follow the formal evacuation orders, because they were bound by existing norms of group behaviour. Individuals were required, for example, to listen to the instructions of the more mature group members – often matriarchal figures – to ignore the warnings because their previous experience of storms led these individuals to believe that there to be no need to worry. In individual psychology, the perception that any hazard event will be no worse in magnitude or effect than hazards remembered from an individual's past, has been termed the 'prison of experience' (Kates, 1962). What Cordasco shows is that, in social capital terms, these prisons do not just constrain the individual from taking effective action but the whole network.

## Bridging social capital

Bridging social capital relates to slightly weaker ties that link network members to more distant individuals. Whereas a bonded network might be represented by a family, a bridged network would represent more of a 'community of interest', such as a group of work colleagues or an environmental group. Putnam (2000) suggests that, whilst bonding social capital is good for "getting by", bridging social capital is good for "getting ahead". In effect, by developing more distant ties it is held that one can be exposed to a greater potential for personal development. In his analysis of an office environment, Burt (2000), identified certain individuals, 'boundary people' (Wenger, 2000),

who were capable of accessing multiple, exclusive bonded networks within different departments, bridging what Burt termed 'structural holes'. These individuals, he suggested, were not only more likely to be listened to by peers but were more likely to gain promotion. This is an example of what Putnam describes as bridging activity representing "sociological WD-40" as opposed to bonded capital's "sociological super-glue" (Putnam, 2000: p.19). Granovetter (1983) agrees that the evidence points to networks constructed of 'weak ties' between acquaintances being significantly more successful in facilitating the achievement of a goal than are strongly-tied bonded networks. However, he stresses, that to be successful, these weak ties need to connect individuals who operate within diverse institutions (e.g. civil protection and community development for example), rather than simply as networks of friends-of-friends, which he regards as an extension of bonding capital.

An example of a bridged network is that of the Therapeutic-Community effect, noted previously, which describes the tendency, within a disaster impacted community, for neighbours to bridge together in solidarity against what can be considered a 'common enemy' (Alexander, 2002). Examples of this effect were recorded during the review of the 2007 summer floods:

> *"[T]he need for the community to pull together resulted in new relationships forged with neighbours. People, especially those who were vulnerable, often relied on neighbours for help and support during the flood and clean-up phase, whether in the form of cups of tea, hot meals, loans of equipment, help with cleaning or emotional support. As one householder summed up, "you realise how good people are"*. Pitt (2007: p.27)

Such behaviour occurs most strongly during the recovery phase, as people work together in order to return to 'normal' (Enarson, 2001), but altruism also occurs during the warning and response phases (Dynes, 2005; Drabek & McEntire, 2003). Rodriguez et al. (2006), for example, describe the development of social norms within emerging informal social groups during, and in the aftermath of, Hurricane Katrina. This informal organisation resulted in, for example, group members agreeing not to carry weapons during their rescue activities. Tompkins and Adger (2005) suggest that this norm development can serve as an important tool, which needs to be acknowledged within more formal recovery strategies.

In terms of community resilience, this type of bridging capital often spontaneously emerges, but can quickly subside. What is important is to know that it will happen, and secondly to provide support for the maintenance of the network after the emergency has gone, through perhaps the development of community group on flooding or whatever.

## Linking social capital

Finally, linking social capital extends further the possibility for collective action through social contact (Woolcock & Naryan, 2000). Through linking, social networks can connect up through hierarchical network structures in order to gain access to resources, ideas and information from formal institutions beyond the community (Ibid.). One example of a network that has successfully linked is the National Flood Forum (NFF). This group initially formed out of a strongly bridged network in the town of Bewdley following severe flooding in 2000. The group subsequently obtained several years of Environment Agency funding for their work advising other flood groups

around the UK (NFF, 2008). By being linked into larger structures and organisations a local flood action group was able to become a national advocate for the concerns of 160 flooded communities.

However, linking social capital also has a 'dark side'. For example, emergency-management organisations are often incapable of accommodating the knowledge inhered within local networks into their 'command and control' derived evacuation strategies (Alexander, 2002; Dynes, 2006). Buckland and Rahman (1999) also suggest that network linkage wields a double-edged sword, i.e. it can foster co-operation by exploiting pre-existing networks and power relationships, but, it can also lead to conflict in decision-making within communities perceived to have a flatter social structure; where the pre-eminence of authority figures linked into the decision-making process is more likely to be questioned.

By using participatory techniques, however, it has been shown that linking social capital allows for a much greater reflexivity and reflection of public opinion, which can be integrated into planning processes (Haque et al., 2002). For example, from a participatory risk-governance perspective, Pelling (2003) points out that 'linking' is the type of networking most often used within decision-making processes related to community sustainability and resilience building. The creation of network linkages is regarded to have resulted in pragmatic and realistic participatory risk governance (e.g. Pearce, 2003). This, however, is where Pelling's caution about understanding what type of networks are being used, and what kinds of trust are being engendered, becomes relevant. If linking networks are being formally developed as a mechanism to encourage community empowerment, then it needs to be clear within the process that all risk management options were genuinely deliberated between parties with mutual respect (O'Riordan & Ward, 1997). This avoids the public being lulled into formulating false hopes about impossible alternatives which are not 'on the table'. This is important, because, linking and empowering communities to engage in what are only, in effect, manipulative processes (Arnstein, 1971), has the potential to seriously backfire. As Szerszynski (1999) points out, trust is 'actively' used by parties within decision-making hierarchies. This means that, what initially appears as a trusting public / authority relationship can rapidly change into one of belligerent conflict if the public feel themselves to have been exploited.

Thinking in more positive terms about the role of formal institutions in encouraging effective community adaptation to hazards, Tapsell et al. (2005), suggest that staff who interact with hazard-exposed communities could be resourced and trained to act as change agents (Rogers, 2003). Change agents are people who can broker a communication link, which spans hierarchical boundaries and can, therefore, provide a direct input of resilience-building expertise into otherwise disconnected and possibly disenfranchised communities. Whilst, for contingency planning, it might be expected that such brokerage would to be conducted by civil protection professionals, Deeming et al. (2011) suggest that in terms of wider resilience building there are other agents who are equally, if not better equipped, to mediate effective community social-learning, self-organisation and adaptation activities (e.g. Community Development Workers, Citizens' Advice Centre staff). Investigating who may have acted as change agents to broker resilience-building in the case study communities will be an important part of this project, in that it may reveal the importance of people whose contribution to community resilience may otherwise have remained invisible.

Challenges clearly do exist in linking social networks into decision-making fora. However, from an environmental-hazards perspective, such networking can result in a broader consensus on what constitutes community resilience and what actions are needed, and by whom, in order to achieve effective community emergency management: *"In this respect, the role of municipal-level emergency managers is particularly important in providing opportunities for community members to learn more about the hazards prevalent in that locality and in fostering the social capital bonds that contribute to resiliency."* Murphy (2007: p.313)

## Trust

Trust has been raised as an important factor in the development of networks and good community relations; the social capital literature for example suggests that trust is a key issue. It forms part of Putnam's definition of social capital as *"social networks and the associated norms of reciprocity and trustworthiness that enable participants to act together more effectively to pursue shared objectives" (*Putnam 1996:1). There is less information on this in relation to community resilience to emergencies but research with flooded residents has shown that where high levels of trust exist then residents can be remarkably generous in sharing resources within the community residents for example freely shared their houses and their cars as well as many smaller items and services (Coates, 2010). As implied above however, it is important to understand the difference between the social trust that is felt by individuals toward other community members and the trust in authority, which is developed through a community's links to formal organisations. Whilst high levels of social trust could be regarded unequivocally as a positive community attribute, trust in authority presents challenges. In effect, the argument goes that trust in authority does not necessarily relate to trust as in the sense of social trust's underlying message that "you are trustworthy" or "I have trust in my relations with you", but can be more appropriately encapsulated by the statement "I declare my dependency on you". However, this element of dependency should not be regarded as an unambiguous sign of perceived subordination on the part of the truster. If the trusted agent fails to live up to their promised responsibilities then the disappointed truster is likely to be left highly aggrieved (Szerszynski, 1999; Wynne, 1992).

The levels and types of trust needed in order to facilitate community resilience are an area that needs further exploration.

## Identity

All forms of social capital coalesce around common values and have specific identities. The identity around which a community coalesces may take a many forms. This identity can play a key role in resilience activities. Sherlock (2002), in her research in Australia, found that although residents of Port Douglas shared a sense of community and collective identity, this did not result in practical collective action. The problem lay in the fact that the identity around which residents mobilised, which revolved around privatized consumption, undermined the possibilities for collective social action. She suggests that the community could be described as *"'community without obligation', a community in which the sense of belonging is only pursued so long as it does not compromise the individual's freedom to maintain their chosen lifestyle."* (para. 5.10).

Similarly Marsh and Buckle (2001:6) note that "*even when the neighbours and the people living in proximity do communicate with each other, feeling a common bond, this does not necessarily lead to participation in local issues or to even taking part in community emergency management processes*". A shared identity is not sufficient in itself to enable collective local action, the form that it takes is crucial. It is, therefore, important that authorities do not make assumptions that simply because groups exist that they will spontaneously use their networks in an emergency. Understanding social capital purely through the numbers of organisations in a local area needs to be complemented with an understanding of what brings those people together in those groups and the context in which the groups are created. This is vital for authorities linking with local groups to be aware of if they want that engagement to be effective and genuine. The identities that people group around may well be grounded in bonded and bridged networks, but in order for collective action to take place there needs to be linking to those with power and influence, as discussed in the previous section on linking social capital.

## Previous experience

Previous experience of a particular hazard or emergency situation has been shown to be central in the way that individuals respond to such situations. It has a bearing on how the threat is perceived, acceptance that it may occur, action taken during an emergency situation, and responses in the months following (Harries, 2007; Prior and Paton, 2008). The decision whether to adopt protective behaviours is also influenced by previous experiences with a hazard (Anderson-Berry, 2003; Grothmann & Reusswig, 2006; Lechliter & Willis, 1996; Paton, Johnston, Bebbington, Lai, & Houghton, 2001; Weinstein, 1989). As far back as 1962 Kates found that people who had experienced a flood showed more concern about future floods and would take more preventative action than people that had not experienced a flood. A community's previous hazard exposure is therefore a key characteristic in their resilience, although whether the outcome will be positive in terms of improved response or negative through repeated exposure will vary.

At the communal rather than individual level the role of previous experience becomes more complex. For example, given the relatively mobile populations of many developed countries, previous experiences may be lost as those impacted move away. The fear is that useful knowledge is also being lost, leading to a loss of resilience. There has been some interest recently in the idea of 'community memory' and flood histories and community engagement with its flood risk, and some projects have tried to help recall or recreate a communal memory through various methods. The Lower Severn Community Flood Information Network for example is described as a "*multi-organisational project that is promoting urban and rural community awareness of flood risk and local flood histories at various locations within the Lower Severn catchment*". More recently there has been the project 'Learning to Live with Water: Flood histories, Environmental Change, Remembrance and Resilience' which aims amongst other things to *"… explore how social learning around extreme floods/flood risk, watery sense of place and their histories and impacts might draw on these innovative research perspectives to build informal flood knowledge and flood memory to increase community resilience…*" (Living Flood Histories, 2011). The evidence suggests therefore that previous hazard or emergency experience at both the individual and communal level will play some role in resilience. It must be remembered, however, that experience can also 'imprison'

communities in the belief that a low probability or 'worst case' event, of greater magnitude than any in memory, will never happen to them.

## Community context

The community context may also be significant in shaping its resilience. This context can include both physical and social features and those that are a complex mix of both. For example, a particular rural context was shown to offer not only certain types of heavy machinery and those with the skills to use it but also, for some, a set of beliefs in village life that reinforced communal action (Coates, 2010). Other factors such as relative isolation (physical and social) can be important; isolation may foster a strong communal identity whilst at the same time diminishing access to outside resources. Even such small scale spatial features as the layout of streets were found to influence communal responses to flooding (Coates, 2010). Similarly research in East London looking at public spaces, social relations and well-being in East London found small scale, street level features could be important in offering opportunities for informal social occasions (Dines and Cattell, 2006). It is therefore necessary to consider the community context at a range of scales.

# 4. Community Structures, Governance and their Influence on Community Resilience

**Governance is……..the structures, actors and decision processes that are involved with public life**

**Factors of governance that influence community resilience:**

- ***Diversity***….. of actors and structures in the governance structure: greater diversity likely to mean a wider range of resources to be drawn on in emergencies.
- ***Autonomy***….. of actors and structures : autonomous components likely to be more resilient.
- ***Interdependence***….. of actors and structures: ability of each actor/structures to support each other.
- ***Adaptability***……. of actors and structures to learn from experience: more adaptable actors and structures will increase resilience.
- ***Collaboration***….. between actors and institutions: partnership working between sectors brings in a wide array of resources to draw on.

This section moves our focus onto the more formal, organised structures and processes within which local communities operate.

In terms of Figure 1, see below, the focus moves from that largely of the local communities outwards onto the local, regional and national level actors and the relationships between and within those levels.

Although the process of decision-making can apply at the individual level, when decisions are jointly taken between two or more individuals then this implies the existence of some kind of structure or institution. The concept of governance considers the institutions, bodies or organisations involved in decision-making processes to consist of more than just 'government'. It may consist of a wider range of formal and informal bodies. The broader literature on governance, from the social sciences, recognises that initiative and decision making processes do not take place exclusively at the state level but within an increasingly pluralistic structure of agents at different spatial scales. According to the concept of governance, actors do not consist of exclusively government bodies but may include private sector business, community organisations, voluntary sector bodies and other NGOs, as well as influential individuals. The concept of multilevel governance suggests that governance takes place through processes and institutions operating at a variety of geographical scales including a range of actors with different levels of authority (Hooghe and Marks, 2003). Pelling and Dill (2010) point to evidence from recent disasters to highlight the importance of political context. While the evidence they draw from comes largely from less developed contexts, the aspect of the political context is nevertheless pertinent to developed countries such as the UK and in particular in relation to the influence at different sub-national, national and international scales. Godschalk (2003) examines a range of different models of governance in order to evaluate the most

effective forms for fostering community resilience. Recent government policy places emphasis on local and regional agents to mirror the more flexible and responsive forms of governance that characterise contemporary community relationships (Bennett et al, 2004; Fuller et al, 2002). Emphasis is given to local agents taking responsibility themselves for gathering the important information and signals, organizing responses, and developing new delivery frameworks. This requires highly responsive and flexible forms of governance rather than the top-down structures characteristic of previous policy (Bennett and Payne, 2000; Benneworth, 2001). It is argued that, rather than compete with or replace local networks and initiatives government policy is most effectively channelled through existing local community structures. Pelling and Dill (2010) suggest that the recent period of neoliberal policy is characterised by a shrinking state and a growth in non-governmental actors.

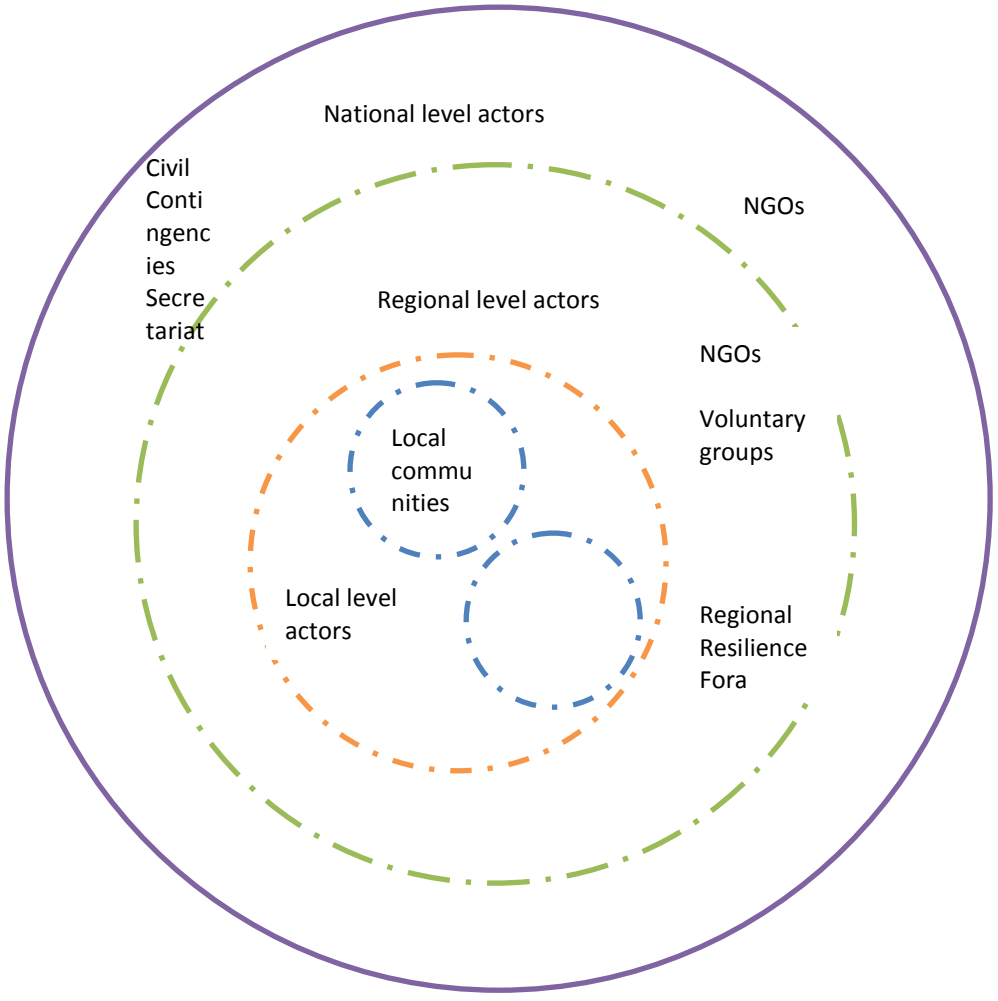


**Figure 1: Representation of the levels of governance within emergency management**

There is a body of literature that questions that ability of governmental structures to plan ahead in order to effectively respond to disasters, emergencies and extreme events. Learning from previous disasters according to Pelling and Dill (2010) is problematic given the unique context of individual events. Furthermore, the task of constructing governance structures to support community resilience is problematic if events are uncertain and unpredictable, not just events associated with the natural environment but also modern crises related to technology, health hazards, or environmental catastrophes. The unpredictability of events makes advanced planning problematic. Duit and Gallaz (2008) examine the effectiveness of governance structures and community resilience in the context of complex adaptive systems (CAS). In the context of CAS unexpected or marginal events can produce political crisis as unexpected events produce shocks and multiple factors can cascade. However, they argue that different structures can produce different responses to crisis events, with differing levels of success and resilience. There are a number of different characteristics ascribed to governance structures in the literature (Comfort, 1999; Foster, 1997; Tierney, 2002; Zimmerman, 2001; Duit and Galaz, 2008), but these may be summarised in terms as five key characteristics which are discussed in more detail below:

- diversity;
- autonomy;
- interdependence;
- adaptability; and
- collaboration.

## Diversity

This refers to the number of different components from which the governance structure is composed. The greater the diversity then the greater the range of bodies can be deployed to tackle issues and this can increase resilience. The diversity of response and structure will contain many different scales both geographical and hierarchical to be effective. In terms of our definition of community resilience, diversity of actors (e.g. NGOs, voluntary sector, local authorities) is important because they all bring different resources to draw upon during an emergency that can help reduce negative impacts of that emergency.

## Autonomy

This refers to the ability of each component to operate independently of other components within the whole structure. However, autonomy may play a very positive role in terms of the different geographical and hierarchical scales of governance. The concept of community resilience implies that 'communities' are capable of operating autonomously from, for example central government. "*A focus on resilience means putting greater emphasis on what communities can do for themselves and how to strengthen their capacities, rather than concentrating on their vulnerability to disaster or their needs in an emergency*." (Twig, 2007: 6). In this sense an autonomous community structure is likely to be more resilient than a one dependent on outside or central government support. However, whilst actors and structures may not be dependent on outside support they will need to

have a degree of interdependence with other actors and structures if a wide range of resources is to be drawn upon in an emergency.

## Interdependence

This characterises the ability of each component, within the structure, to support other components and to some degree this characteristic is related to both collaboration and autonomy. But, whilst it may sound contradictory, while a resilient community might be characterised by an autonomous structure, one might expect it to consist of a high degree of interdependence within the community structure. A structure with high interdependence is likely to have lower transactions costs, has more co-operation and less overlap of provision. Trust appears to be an important factor in fostering interdependence (Putnam, Leonardi, and Nanetti, 1993; Levi, 1997; Rothstein and Stolle, 2003; Ostrom and Walker, 2003; Hardin, 2002; Ostrom, 2005). As discussed earlier generalized trust allows citizens to co-operate and work together in collective initiatives. Studies on trust that tend to take a social capital approach focus on density of networks and how these play a role in generating reciprocity and allowing citizens to take collective action more effectively (Hooghe and Stolle, 2003), as discussed earlier. Institutional-centred approaches view social capital as embedded in and shaped by governments, public policies political institutions. Education, social status, gender, knowledge, civic skills, and in particular social class are considered important factors determining an individual's trust, reciprocity and likelihood of becoming involved in collective action. The key question that remains to be fully answered is how can trust be generated within governance structures and there are a number of aspects that have been shown to influence trust within governance structures:

- Impartiality and fairness government procedures: Rothstein and Stolle (2003) claim that in situations where government practices impartial and fair procedures trust is more likely to occur in society.
- Institutions which are closest to citizens' everyday experiences are most likely to generate or destroy trust. The implication is that local institutions as opposed to central state ones are more powerful in terms of trust generation.
- Importance of policies and politics: Huysseune (2003) suggests that government policy and political parties play an important role as sources of social capital and thriving civic societies. In contrast, Uslaner (2003) argues that state structures are not able to create trust but policies can.
- Levels of economic equality: The level of economic equality can have a powerful effect on the level of generalized trust and therefore policies aimed at promoting a reduction in inequality can generate greater trust. Uslaner suggests that societies with high levels of trust produce better institutions, not the other way round.

There are a variety of different mechanisms to ensure cooperation among actors in a governance system. The strength of these mechanisms also determines the governance system's capacity for exploitation (Duit and Galaz, 2008).

## Adaptability

This is the capacity to learn from experience and develop new structure or initiatives to tackling crisis and foster resilience and forms a key part of our definition of community resilience. A highly adaptive governance structure rapidly learns from events and is sufficiently flexible to adapt and form new approaches. This last characteristic is one the more recent literature characteristics that has been emphasized. Adaptation is seen to be extremely important in terms of the concept of community resilience and the low predictability of extreme or marginal events. While governance structures may not be shaped to cater for all or particular events, if they are adaptable then they may be able to adapt and respond to a wide range of different events.

Adaptive capacity depends on balance between 'exploitation' and 'exploration'. That is the ability to exploit existing resources and institutions, and the ability explore: to quickly learn from a situation or and adapt (Duiz and Gallaz, 2008). Adaptation may take the form of changes to the existing structures or changes to initiatives.

Strong, stated-dominated structures of governance can typically produce poor information and feedback due to strong institutional structures. Adaptability of these systems tend to be low. Systems with weak state role (Dutch governance) are argued to suffer from informational deficiencies due to lack of incentives to provide information but tend to be more highly adaptive because of organisational flexibility (Pierre and Peters, 2005). Hierarchical governance can have a greater ability to deal with complexity and steer unexpected nonlinear development (Kooiman, 2003).

## Collaboration

A highly collaborative structure contains a diverse range of opportunities for individuals and organisations to work together and support the structure "*.. sectoral partnership in the recovery planning brings together a wide array of active partners. This flies in the face of standard command-and-control emergency planning, but is a model used to good effect in post-disaster Kobe and New Orleans. Community-generated efforts, when supported by government, prove to be more sustainable than planning efforts imposed by outside consultants or government 'experts'.*" (Chakos, (undated) :.6). The nature of the relationships between community members is critical, as are access to and participation in the wider decision-making processes (Adger, 2003). As discussed earlier, individuals and organisations are more likely to be committed to supporting a structure, plan or initiative if they participate actively in its formulation (Apikul, 2010). According Tompkins and Adger (2004:9) a collective solutions or a 'co-management' approach to community governance is key to an adaptive and resilient community, "*Building community resilience through the expansion of the networks of dependence and engagement facilitates this type of learning-based management.*" This links back to our definition of community resilience as well as the discussion around linking social capital. Collaboration is discussed in more detail in the next section on engagement.

What is clear from this discussion of governance structures is for community resilience to be improved there will need to be attention paid to the actors and institutions at different levels as without the connections with those with power and between those with different types of resource and power effective responses in emergencies are less likely to happen.

# 5. Characteristics of Good Practice Engagement on the Part of Institutions Responsible for Emergencies and the Extent to which these Characteristics Promote Community Resilience

**Good Practice Community Engagement is the development of practices and actions that enable members of the community to influence the decisions and get involved in the actions that affect their lives (Involve, 2005, p. 19).**

**Good practice engagement involves:**

- Recognition of engagement principles
- Understanding the context in which engagement takes place
- Clarity of objectives
- Understanding the communities involved
- Appropriate methods of communication and engagement
- Evaluation and learning from practice.

Civil contingency institutions do not seem to have focused on developing guidance or tools for addressing the specific challenges of engaging with communities in the context of emergencies. The Cabinet Office and the Voluntary Sector Civil Protection Forum have produced a Guidance Note on Voluntary Sector Engagement (Cabinet Office, undated) which recognises the important role that voluntary organisations can play in supporting responders in emergencies. However, the focus of this document is on the formal aspects of relations between responders and voluntary organisations (e.g. Service Level Agreements, Memorandums of Understanding and protocols). These are mainly relevant to relations with large national or regional organisations and not so much to engagement with communities or members of the community. Indeed, requiring community organisations to spend time on formal procedures of this kind takes them away from work on the ground and may even discourage action.

Communication is one aspect of engagement that has received greater attention from emergency responders. The Cabinet Office has guidance for emergency responders on communicating with the public (Cabinet Office, revised in February 2011). This focuses on three main types of communication: raising awareness of hazards, warning and keeping the public informed in the case of an emergency (including working with the media). These are all essentially one-way flows of communications, allowing for little feedback from members of the community or organisations and for no discussion about the messages and their implications. One-way communication tends to see the audience as passive receptors of information rather than as being actively engaged in response and recovery. This kind of communication can be disempowering if it makes individuals or local organisations dependent on a source of information external to the community.

Similar issues come from the risk communication literature. Risk communication in the contexts of hazards has been studied for many years. In Fischoff's (1995) seminal work, for example, he illustrates what he calls the "developmental process of risk management" that occurred in the preceding two decades. Each is a stage that at some point risk communicators might have thought would be enough to ensure that the risk was clearly communicated, accepted and acted upon. What his article concludes is that the 8th stage is where risk management will be successful, by doing all of the points below:

- All we have to do is get the numbers right
- All we have to do is tell them the numbers
- All we have to do is explain what we mean by the numbers
- All we have to do is show them that they've accepted similar risks
- All we have to do is show them that it's a good deal for them
- All we have to do is treat them nice
- All we have to do is make them partners
- All of the above.

Each of these approaches is likely to be recognisable through the way past and current risks have been handled by scientists, and each of them will be met by local people with a specific response. Whilst there has been an increased openness and transparency around the communication of science and risk together with a much greater emphasis on public engagement in science (e.g. Sciencewise), to be effective, risk communication needs to be conducted as a long-term commitment requiring repeated resource investment (Ronan & Johnston, 2005). From this work it is clear that the type of communication that will lead to longer term, trusted relationships which are vital to resilience building, is best defined as engagement, which is on a continuum from provision of information through to co-delivery of actions but has at its heart a set of core principles and methods.

The following sections examine the main elements of good practice engagement, based on literature on engagement. While this literature refers to a range of contexts (community development, regeneration, public health, environment, etc), the focus here is on how emergency responders' engagement with communities can foster resilience. Following the discussion of good practice engagement there is an example of engagement in the context of an emergency, followed by a brief discussion of why some people get involved and others do not.

## Recognition of engagement principles

There is an extensive literature on community engagement or public participation, based on evolving practice and increasing recognition of the need to involve people in decisions and actions that affect their lives (e.g. Wilcox, 1994; Warburton, 1998; Involve, 2005). Research and practice on public participation indicate that while it is possible to point to examples of 'good practice' within the engagement process, organisations and individuals who engage effectively, build trust by being transparent and showing respect for all participants. They are clear about the scope and purpose of

the engagement and ensure that all interests are involved and their views taken into account. These core principles are set out in different ways in different contexts; one example is the nine principles set out by the Environment Agency in its approach to Working with Others (Environment Agency, 2006):

- Clear boundaries
- Providing information
- Showing respect
- Feeding back
- Taking action
- Learning
- Being independent
- Targeted approach
- Focused on common results.

### Relationship between principles and resilience

Building community resilience through engagement with stakeholders and members of the public, to be effective, will need to have these principles as a basis for those relationships and actions. When large complex institutions like local authorities or the Environment Agency engage with communities, it is important that all members of staff, from senior management to staff working on the ground, understand and reflect these principles in all their activities; failure to do so can lead to a loss of trust and eventual disengagement by the community. Discussion and acceptance of good practice principles of engagement at the highest levels of an organisation is also an essential first step to ensuring that staff on the ground feel that they have 'permission' to spend time engaging with communities.

## Understanding the context for engagement

In order to be able to engage effectively with communities, emergency responders need to understand the context in which they are working. External organisations seeking to motivate or build on community participation need to be clear about what they can influence in order to focus their efforts effectively.

### Understanding the incident management context

The Environment Agency has done considerable research on the impact of flooding on individuals and communities and on community participation in flood preparedness, response and recovery. A report commissioned following flooding in Yorkshire in 2000 (Wilkinson, 2005) suggested that the ability of the local authority and other key agencies to establish strong relationships with the community, *"played a significant part in the physical, emotional and community recovery following the traumatic event"* (p.5). The emergency planning team at Bradford Metropolitan District Council provided aftercare in the post-event period that not only facilitated the social and psychological

recovery of those affected but also helped the community to develop ongoing relationships with other agencies including the Environment Agency. However, the study found a lack of 'bridging capital' between the community immediately affected by the flooding and its agencies, and other neighbouring communities. Without the involvement of these neighbouring communities, it proved difficult to find lasting solutions to the causes of the flooding. This reinforces the role of bridging social capital as discussed earlier.

Twigger-Ross and Colbourne (2009) developed a representation of flooding as a cycle (see Figure 2 below), linking the before, during and after stages and pointing out that there is a triple line of community, Environment Agency and other partner activities going on in parallel. If these lines are not connected up, response and recovery are more difficult as each organisation does not know what others and information is not shared, which can result in some responders not having the right information and to confusion and contradictions in the messages being put out by different organisations.

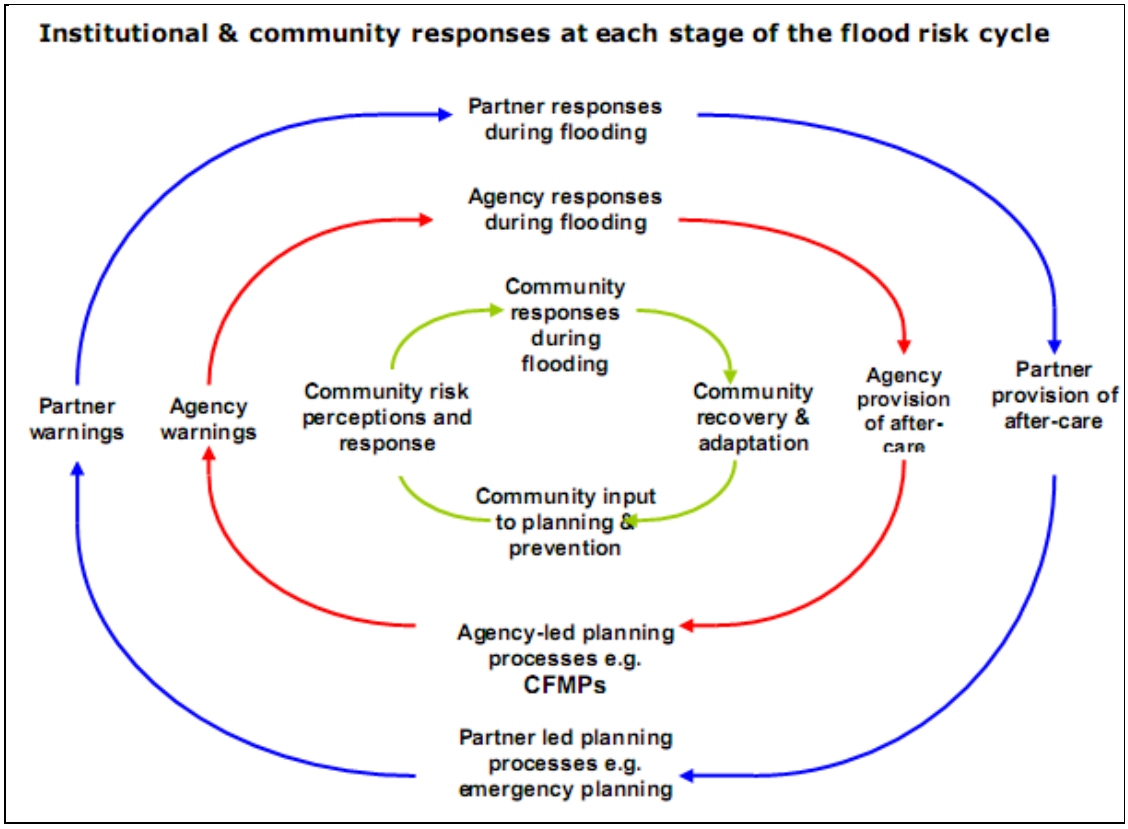


**Figure 2: Linkages between stages and lines of activity across the flood cycle**

It is likely that similar 'planning – event - response – recovery' cycles can be found in relation to other kinds of emergencies. In relation to flooding, the research has found that the linkages across lines of activity were not being made or were weak. Twigger-Ross and Colbourne [ibid] quote the following observation on the response to the 2007 flooding:

> *"The impact of the floods and the high level of risk involved could have been significantly reduced with stronger local leadership of flood risk management, clarification of roles, more*

*effective cooperation between responsible organisation, better protection of infrastructure and wider and deeper public engagement."* (Pitt, 2007:3).

### Using data to understand context

Gathering and using data is a central part of planning for emergencies. Responders have developed sophisticated data systems to understand and monitor hazards and to anticipate and manage likely responses. However, there has been a tendency to concentrate on data about the risks and hazards, giving less consideration to the characteristics of the communities which could be affected by that potential hazard. The Institute for Community Cohesion (ICoCo) has developed a tool to help local authorities, the police service and other responders to understand and monitor tension and conflict (ICoCo, June 2010, :.46). This is a specimen table of indicators, sources and spatial units, which includes data that is publically available, covering:

- Social inclusion
- Segregation
- Equal opportunities
- Educational attainment
- Community safety
- Population dynamics
- Social networks
- Political participation
- Community engagement
- Identification with a locality.

Monitoring this kind of information could help to provide a good picture of local community issues and dynamics. Unfortunately, only some of this data (mainly the social inclusion data) is currently available at the local community level. However, local authorities, voluntary organisations and community groups often have evidence about some of these characteristics: even if the information is only anecdotal, it can help to piece together a picture of the community and of the characteristics that may affect response to emergencies (particularly the information about social relations, participation and engagement, which reflect different kinds of social capital) giving responders a better, more nuanced and dynamic understanding of the communities they work with and how they evolve over time. As the use of this kind of data increases, it could be expected that the data itself will improve.

## Clarity of objectives for engagement

Over the past two decades there has been a clear move to encourage greater public participation. Much of this effort has focused on getting the people who will be affected by plans and strategies to provide information to ensure that these are targeted effectively ('getting it right first time') and on increasing understanding of and support for them and for the actions based on them (Baker et al,

2006). More recently the idea of 'partnerships' where all those involved in an issue work together, has been given greater importance. However, for communities to be resilient, they will often need to strengthen their own capacities as the basis for linking up with emergency responders. This changes the objective of engagement, from bringing communities groups and members into a plan or programme already defined by the emergency responder(s), to one of providing support to help the community build capabilities on their own terms.

Research on environmental risks finds that the shifting of responsibility onto the public is problematic and that citizens are ambivalent about this new role in their relation to state (Blake, 1999; Bickerstaff, Simmons and Pidgeon, 2008; Bickerstaff and Walker, 2002). Climate change and radioactive waste management, for example, are seen as serious collective action problems, in relation to which it is the responsibility of the state to establish a strong legal framework or guide to personal choice (Bickerstaff, Simmons and Pidgeon, 2006).

Given the difficulties of engaging residents in flood mitigation activities (Harries 2008) and resilience measures more widely (Meyer, 2006; Slovic et al, 2001) it is worth exploring the possibility of engaging communities in a broader range of activities than simply those related to disasters or emergencies. If a wide range of problems or issues are included, then a clearer benefit may be seen than if focusing on one type of event alone. Risk awareness and risk reduction programmes implemented by agencies which are not accurately targeted at local priorities are more likely to fail in their efforts to engage local people whose 'risk attention' is elsewhere: '*day-to-day life usually takes precedence over spectacular but infrequent events'* (Buckle, Marsh and Smale, 2000). Research by Winkworth et al. (2009) looking at communities following bushfires in Australia indicates that engaging with community in a broader sense than has been traditional is also beneficial for the relationship between government and those communities in question.

It may even be advantageous to widen the scope beyond resilience, and to advocate strengthening communities for a whole range of reasons, or alternatively, to incorporate civil-protection focused resilience building into ongoing community-focused activities (e.g. 'Transition Towns' groups). This could bolster people's desire for local community solutions by highlighting the potential 'emergency situation' benefits to locally based groups, who get together for a variety of other reasons (e.g. to make improvements to local area or to improve local networks), because it has the potential to increase community safety through local people knowing each other's vulnerabilities, resources and skills. Following on from the earlier discussion, it should be remembered, however, that in situations where there has been a previous experience of an emergency event then social structures will be much more open to a straightforward resilience approach but for others this is less likely. Given the constraints on budgets and resources for this work, it is also important to be able to recognise where working with local groups to bolster capacities and resilience is a critical need rather than a 'nice to have'. Here responders can draw on tools to assess the level of resources likely to be needed to address issues with local groups and individuals, based on existing relationships and experience (Colborne, 2008).

## Understanding the communities involved – stakeholder analysis

As shown earlier, insufficient understanding of the complexity of community, can mean that opportunities for supporting community structures are missed or even that social capital is undermined with a loss of potential community resilience (Buckle, 1999; Amlôt and Page, 2008). An understanding of the types of social capital and the characteristics of governance structures can help emergency responders to assess where they can most effectively focus their efforts in terms of promoting or supporting resilience.

There are many tools for stakeholder or community analysis, from plotting organisations and groups on a simple matrix (European Communities, 2003; Colbourne, 2008) to more detailed analysis of community resources and relationships (e.g., Environment Agency, 2010). In applying these tools and approaches, it is important to work with local people rather than in isolation, to avoid imposing definitions or assessments from the 'outside'. The aim of the stakeholder analysis is to ensure that a systematic approach is taken to understanding where and who the communities are who need engaging with.

## Appropriate methods for engagement

Finding the appropriate methods for engagement has been found to be important for the success of the engagement, with the key factor being linking up the objectives with the methods used. It can be easy to launch into a method (e.g. sending out a leaflet without thinking through the objective of that approach).

A useful aid to considering the range of methods appropriate to different objectives is that developed by Wilcox (1994) and is presented in the table below.

**Table 3: Determining appropriate methods of communication and engagement**

| LEVEL / STANCE | Information | Consultation | Deciding together | Acting together | Supporting |
|---|---|---|---|---|---|
| **Typical process** | Present and promote | Communicate and feedback | Consensus building | Partnership building | Community development |
| **Typical methods** | Leaflets<br>Media<br>Video | Surveys<br>Meetings | Workshops<br>Planning for Real<br>Strategic Choice | Partnership bodies | Advice<br>Support<br>Funding |
| **Initiator stance** | 'Here's what we are going to do' | 'Here's our options - what do you think?' | 'We want to develop options and decide actions together' | 'We want to carry out joint decisions together' | 'We can help you achieve what you want within these guidelines' |
| **Initiator benefits** | Apparently less effort | Improved chances of getting it right | New ideas and commitment from others | Brings in additional resources | Develops capacity in the community and may reduce call on services |
| **Issues for initiator** | Will people accept consultation? | Are the options realistic? Are there others? | Do we have similar ways of deciding? Do | Where will the balance of control lie? Can | Will our aims be met as well as those of other |

| LEVEL / STANCE | Information | Consultation | Deciding together | Acting together | Supporting |
|---|---|---|---|---|---|
| | | | we know and trust each other? | we work together? | interests? |
| **Needed to start ...** | Clear vision<br>Identified audience<br>Common language | Realistic options<br>Ability to deal with responses | Readiness to accept new ideas and follow them through | Willingness to learn new ways of working | Commitment to continue support |

Wilcox (1994) explains that the “typical process” makes a link with the “types of processes” usually associated with the particular approach. However, the more participative approaches are likely to involve a range of elements from the other approaches. You cannot build partnerships without communicating well and developing consensus. In addition, it is likely that you will need to do some information gathering for any "acting together" process. The “initiator stance” suggests how the initiator might present themselves and the approach they are working with to others. It is vital that at the outset those initiating the approach are clear about what their stance is.

Needed to start.... suggests some of the prerequisites for success - that is, pitfalls if you don't get them right. As with the “typical process” some of the more participative approaches will need the perquisites from the other approaches. Finally, the “initiator benefits” suggests what the initiator might have in mind. If the initiator is being open, this agenda should be made obvious and remember people are sensitive to hidden agendas.

With respect to engaging with members of the public around community resilience all these methods will be important at different times and stages.

## Evaluation and learning from practice

As the practice of stakeholder engagement develops, the emphasis has shifted away from methods for engagement towards the whole process of planning, engaging and evaluating. This has come with the realisation that it is crucial to understand the contexts in terms of people, events, organisations, and issues when planning any stakeholder engagement. Formal evaluations of engagement processes are on the increase, but it is by no means a given that they are carried out alongside every engagement process.

So what is evaluation? Evaluation is a process of review and analysis to assess the value (including benefits) and quality of a process according to an agreed framework. This framework should include:

- Analysis of activities and results against the objectives of the project, stated and/or implicit. It is important to include early on in the process questions about the framing of the objectives and the assumptions that lie behind those objectives.
- Analysis of the methods and processes used against agreed principles of good practice.

While evaluations have traditionally focused on assessing inputs (resources put in such as time, money, etc.), outputs (activities or deliverables, e.g. reports or meetings) and outcomes (results and

impacts), it has become increasingly important to also assess the context within which the project takes place, and the process used.

## Examples of good practice engagement on emergency response

There are many examples of good practice engagement on the part of emergency responders, for example the Local Authority officer who ran public meetings after flooding in Stockbridge in 2000 and who was praised by the community for being willing to let people vent their anger and distress when emotions were running high (Wilkinson, 2005). In a similar way, the London Borough of Southwark and police Borough Command called a community meeting the day after the riots in summer 2011, in which people who had been directly affected by the riots or involved in response were able to express the emotions that the events had produced, without being constrained by a formal agenda.

However, much good practice engagement seems to rely on individuals within organisations who are able to empathise with the community or on staff 'feeling their way' to better approaches. This means that effective engagement may not happen when it is most needed. Speller describes the frustration of the chairperson of a small community group formed after flooding in Corbridge in 2005, at what she saw as the failure of any of the emergency response organisations to take the social impact of the flooding into account:

> *"Communications did become more positive during the course of negotiations but it was felt that the support is needed most when the crisis occurs".* (p.34)

While many emergency response organisations have procedures and protocols for engaging with communities, what is important is what happens on the ground. The limited evidence that exists suggests that this is still patchy and that under pressure many staff revert to default 'one-way' methods of communication and engagement. One of the voluntary organisations in Peckham suggested that Southwark Council had gone back to a safer format of formal meetings with local people ('community conversations) following the 2011 riots, even though the Council does have experience of more innovative approaches; this was felt to have resulted in a missed opportunity for a frank exchange of views and strengthening of relationships.

## Why do some people engage but others not?

The involvement of individuals in community activities is a fundamental part of community resilience. A belief in democracy as the best and most resilient form of political organisation presupposes that people are able and willing to, at the very least, vote for the people they want to make decisions for them. In the UK, most political parties argue for greater engagement, albeit from widely differing perspectives, with some arguing for greater involvement in government activities and organisations and others arguing for greater public involvement as a replacement for government activities. For example through opportunities for public participation in decision making on issues where there is a high level of interest or in 'Big Society' initiatives to take ownership of community assets or run services. In regard to the question of how to achieve a good level of community engagement or action, the recent "Pathways through participation" project (Brodie et al,

2011) has developed a series of equations to show the factors which affect individual's decisions to start or stop participating (see figure below).

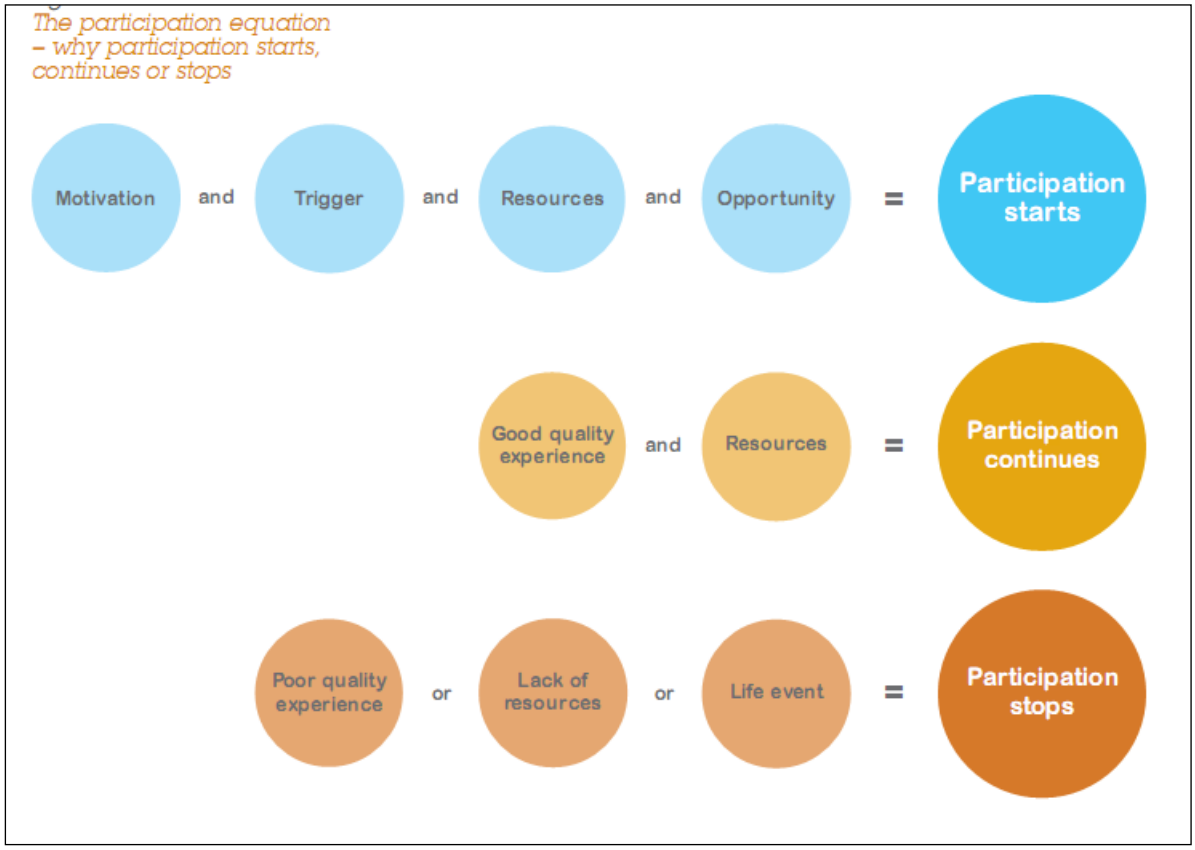


**Figure 3: Factors which affect individual's decisions to start or stop participating**

These equations suggest that there are some ways in which participation can be encouraged, supported and made more attractive, but that personal motivations and experience (e.g. life events, experience of engagement) also play an important part.

A powerful motivation for not addressing or engaging with hazards that threaten personal security is to stop oneself thinking about being in danger (Harries, 2008). Factors that make the risk seem less certain (for example if people have not experienced flooding themselves) or the ways of mitigating it less credible (for homeowners in flood risk areas, this might be the existence of a confusing range of alternatives for flood proofing) will reinforce the preference for *feeling secure* over *making oneself secure.*

Harries (ibid) points out that while the desire to feel secure is very strong, emergency responders can make it easier for people to engage with the idea that they are at risk and to take action to address that risk by presenting coherent pathways which lead people to feel safer. One example is the use of smoke alarms, a simple device which homeowners can install themselves and which must meet certain standards. In Great Yarmouth, joining a telephone tree is likely to have the same effect.

# 6. Conclusions

This review has provided an overview of key concepts and issues relating to the community resilience in the context of emergencies. We have explored the concept of resilience together with that of community, suggesting that an understanding of the nuanced nature of community can help improve resilience in emergency situations. We suggest that underpinning community resilience in emergencies are networks of bonding, bridging and linking capital which may or may not be used during emergencies. In terms of governance it is important to consider the different scales and levels at which decisions are made and how institutional frameworks may lead to one type of action over another. Understanding both community and governance structures should enable good engagement around resilient issues and the section on engagement highlights the good practice principles together with some evidence as to why some people act and others do not.

These concepts have guided the case studies and the data collection and we used the diagram below to organise our thinking.

## Figure 4: Framework for conceptualising community resilience in emergencies


**How…**
- Formed? By…
  - Adapting
  - Expanding
  - Extending
  - Emerging
- Structured?
  - Hierarchical
  - Egalitarian
- Resourced? Through…
  - Leader
  - Membership
  - via bridges or links to others

**Where?**
- Context (e.g. urban / rural)
- Geographically confined by hazard or dispersed

**Why?**
- Acute incident/event
- Chronic threat/hazard
- Participating in IEM
  - Anticipation
  - Assessment
  - Prevention
  - Preparedness
  - Response
  - Recovery
  - All the above
  - One, leading to others

**Who?**
- Leadership
- Motivation (see Why?)
- Demographics
- Formal
- Informal
- Networking, is it …
  - Bonded – tight knit (exclusive)
  - Bridged – to other groups/communities
  - Linked – e.g. to LRF, LA (via particular person [champion] or institutional pathway)
  - Complementary / antagonistic
  - Effective at communicating – between members / others

**What [has been achieved]?**
- No change
  - Stoicism/fatalism
  - Taken in stride (evidence of pre-existing resilience: what type?)
- Change [to what?]
  - Planning (wide participation/inclusion across community and beyond, or restricted to individuals / part community)
  - Support – for /others
  - Advocacy/Activism – supporting/generating community resilience through …
    - Resistance
    - Bounce-back
    - Adaptation
    - Transformation

**When?**
- Pre-established (see How?)
- By circumstance (see Why?)
- Changes over time
  - Sustained by success
  - Sustained by persistence (in face of barriers)
  - Disbanded (aims achieved)
  - Disbanded (aims unachieved)
    - Internal cause
    - External cause

*NB. Highlighted community 'types' are defined within the Strategic National Framework on Community Resilience (Cabinet Office, 2011)*

# 7. References


ADGER, W.N. (2000) Social and ecological resilience: are they related? *Progress in Human Geography,* **24**, 3 347-364.

ADGER, W. N. (2003) Social Capital, Collective Action and Adaptation to Climate Change. *Economic Geography,* **79**, 4 387-404.

ALEXANDER, D. (2002) *Principles of Emergency Planning and Management.,* Terra Publishing, Harpenden, UK

AMIT, V. (2002) Reconceptualizing community in Amit, V. (ed.) Realizing Community: Concepts, social relationships and sentiments. London: Routledge. pp. 1-20.

AMLOT, R. & PAGE, L. (2008) Helping individuals, families and communities cope in the aftermath of flooding. *Health Protection Agency Chemical Hazards and Poisons Report,* From the Chemical Hazards and Poisons Division [online] January 2008 Issue 11 p.34-36. Available at http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1205394722380 [accessed 10/10/09].

ANDERSON-BERRY, L.J. (2003) Community vulnerability to tropical cyclones: Cairns, 1996-2000. *Natural Hazards, 30*(2), 209-232.

APIKUL, C. (2010) *Planning for Disaster Risk Reduction*, Book 3. Urban Governance and Community Resilience Guides. Asian Disaster Preparedness Center.

ARNSTEIN, S. (1969) 'A ladder of citizen participation'. *American Institute of Planners* 35(4) (p.216 - 144).

ARNOLDI, J. (2009) *Risk.* Cambridge: Polity Press.

BAKER, M., COAFFEE, J. AND SHERRIFF, G. (2006) *Spatial Plans in Practice: Supporting the reform of local planning.* Department for Communities and Local Government, London.

BARNES, G. BAXTER, J. LITVA, A. & STAPLES, B. (2002) The social and psychological impact of the chemical contamination incident in Weston Village, UK: a qualitative analysis. *Social Science & Medicine* 55 (2002) pp. 2227-2241.

BECK, U. (1992) *Risk Society: Towards a new modernity* Sage, London, UK.

BELL C, AND NEWBY, H (1971) Community Studies. London@ Unwin.

BENNETT, R.J., FULLER, C. & RAMSDEN, M. (2004) Local government and local economic development in Britain: an evaluation of developments under Labour. *Progress in Planning*, **62**, 4 207-274.

BENNETT, R.J. AND PAYNE, D. (2000) *Local and Regional Economic Development: Renegotiating power under Labour,* Ashgate, Aldershot.

BENNEWORTH, P. (2001) Labour's New Regional Policy: An Assessment. *Regional Studies Association*, Seaford.

BERNSTEIN, P.L. (1996) *Against the Gods: The remarkable story of risk,* John Wiley, New York.

BICKERSTAFF, K., SIMMONS, P. & PIDGEON, N. (2008) Constructing responsibilities for risk: negotiating citizen - state relationships. *Environment and Planning A,* 40**,** 1312-1330.

BICKERSTAFF, K. & WALKER, G. (1999) Clearing the smog? Public responses to air-quality information. *Local Environment, 4: 3, pp. 279-294* DOI: 10.1080/13549839908725600 [Accessed 22/6/10].

BLAIKIE, P., CANNON, T., DAVIS, I AND WISNER, B., (1994) At Risk: Natural Hazards, People's vulnerability and disasters. London: Routledge.

BLAKE, J. (1999) Overcoming the 'value-action gap' in environmental policy: Tensions between national policy and local experience. *Local Environment, 4: 3, 257-278* DOI: 10.1080/13549839908725599.

BRODIE, E., Hughes, T., Jochum, V., Miller, S., Ockenden, N., Warburton, D., (2011) Pathways through participation: What creates and sustains active citizenship? London: Involve.

BUCKLAND, J. & RAHMAN, M. (1999) Community-based Disaster Management during the 1997 Red River Flood in Canada. *Disasters,* **23**, 2 174-191.

BUCKLE, P. (1999) Re-defining community and vulnerability in the context of emergency management. *The Australian Journal of Emergency Management*, 13 (4 ) pp. 21-26.

BUCKLE, P., MARSH, G. & SMALE, S. (2000) New approaches to assessing vulnerability and resilience. *Australian Journal of Emergency Management,* 15, 8-14.

BURT, R. S. 2000. The Network Structure of Social Capital. *In:*SUTTON, R. I. & STAW, B. M. (eds.) *Research in Organisational Behaviour.* CT. US.: Greenwich.

CABINET OFFICE (2011) *Strategic National Framework on Community Resilience* HMG London http://www.cabinetoffice.gov.uk/resource-library/community-resilience-resources-and-tools [Accessed 10/04/11].

CABINET OFFICE & VOLUNTARY SECTOR CIVIL PROTECTION FORUM (undated) *Voluntary Sector Engagement Guidance Note. Available here:*

http://www.cabinetoffice.gov.uk/sites/default/files/resources/engaging_voluntarysector.pdf [Accessed 18/01/12].

CANNON, T. (2000) *Vulnerability Analysis and Disasters* in Parker, D. J. (ed.) Vol 1. London: Routledge pp. 45-55.

CHAKOS, A. (undated) Seismic risk reduction sparks community resilience http://www.hks.harvard.edu/var/ezp_site/storage/fckeditor/file/pdfs/centers-programs/programs/crisis-leadership/seismic_risk.pdf [Accessed 18/01/12].

CLARKE, L. (2005) *Worst Cases: Terror and Catastrophe in the Popular Imagination*. University of Chicago Press.

COATES, T. (2010) *Conscious community: belonging, identities and networks in local communities' response to flooding*. Unpublished PhD thesis, Middlesex University. Available at http://eprints.mdx.ac.uk/6592/.

COMMUNITIES AND LOCAL GOVERNMENT (2009) *UK Citizenship Survey.*

COMFORT, L. K. (1999). *Shared Risk: Complex Systems in Seismic Response.* Oxford: Elsevie

COLES, E. & BUCKLE, P. (2004) Developing community resilience as a foundation for effective disaster recovery. *The Australian Journal of Emergency Management,* **19**, 4.

COLBOURNE, L. (2008) *Mainstreaming collaboration with communities and stakeholders in FCERM.* Improving Institutional and Social Responses to Flooding Work Package 4. Environment Agency, Bristol.

CORDASCO, K.M. (2006) The Paradox of Social Capital as a Liability in Disaster Management: Understanding the Evacuation Failure of Hurricane Katrina. *Natural Hazards Observer,* **30**, 3 5-6.

CROW, G AND ALLEN, G (1994) *Community life: an introduction to local social relations*, New York, USA, Harvester-Wheatsheaf.

DAY, G. (2006) *Community and everyday life.* London and New York: Routledge.

DEEMING, H (2008) 'Increasing resilience to storm-surge flooding: risks, trust and social networks. Unpublished PhD, Lancaster University

DEEMING, H., WHITTLE, R. & MEDD, W. (2011) *Recommendations for changes in UK National Recovery Guidance (NRG) and associated guidance, from the perspective of Lancaster University's Hull Flood Studies* (Report for the Cabinet Office) Lancaster University, UK.

DEFRA (2005) *Making Space for Water: Taking forward a new Government strategy for flood and coastal erosion risk* Defra London

DEFRA (2009) *Appraisal of flood and coastal erosion risk management: A Defra policy statement. June 2009.* Defra, London. http://www.defra.gov.uk/environ/fcd/guidance/pagn/flood-coast-erosion-manage.pdf [Accessed 14/07/09].

DEFRA (2011) *Flood and Coastal Resilience Partnership Funding.* Defra (on-line) http://www.defra.gov.uk/environment/flooding/funding-outcomes-insurance/funding/

DEFILIPPIS, J. 2001. The myth of social capital in community development *Housing Policy Debate,* 12**,**781-806.

DELANTY, G. 2003. *Community,* London, Routledge.

DINES, N. & CATTELL, V. (2006) Public spaces, social relations and well-being in East London. [Online] Published for the Joseph Rowntree Foundation by The Policy Press. Available at: http://www.jrf.org.uk/bookshop/eBooks/public-spaces-social-relations.pdf

DRABEK, T. E. & MCENTIRE, D. A. (2003) Emergent phenomena and the sociology of disaster: lessons, trends and opportunities from the research literature. *Disaster Prevention and Management: An International Journal,* **12**, 97-112.

DREVENSEK, M. (2004) Effective risk communication - the driving force of responsible environmental behaviour. *Paper for the ECPR Joint Sessions, Uppsala 2004, Workshop 5: Citizenship and the Environment.*

DUIT, A. & GALAZ, V. (2008) Governance and Complexity—Emerging Issues for Governance Theory, Governance**,** 21( 3): 311-335 (July 2008).

DUNN, C.E. CROWLEY, P. BUSH, J. PLESS-MULLOLI, T. & MCKINNEY, P.A. (2008) Expertise and scientific uncertainty: understanding trust amongst professional stakeholders in environment and health. *Environment and Planning A 2008, volume 40, pp. 696-714.* DOI: 10.1068/a3993.

DYNES, R.R. (2005) *Community social capital as the primary basis for resilience* (#327) University of Delaware, Disaster Research Center. http://dspace.udel.edu:8080/dspace/handle/19716/1621 [Accessed 18/01/12].

EASTHOPE, L. (2011) Presentation to Community Resilience: Putting research into Practice workshop, 17th November, London.

EDEN, S. (1996) Public participation in environmental policy: considering scientific, counter-scientific and non-scientific contributions. *Public Understanding of Science 5 (1996) pp. 183-204.*

EDWARDS, C. (2009) Resilient Nation *Demos, London* http://www.demos.co.uk/files/Resilient_Nation_-_web-1.pdf?1242207746 [Accessed 18/01/12].

ENARSON, E. (2001) What women do: gendered labor in the Red River Valley flood. *Environmental Hazards* **3**, 1-18.

ENARSON, E. and MORROW B. H (eds) (1998) The Gendered Terrain of Disaster: Through Women's Eyes. Praeger Publishers: Westport, CT.

ENVIRONMENT AGENCY (2006) *Working with Others. Building Trust with Communities: A guide for staff.* Environment Agency, Bristol.

ENVIRONMENT AGENCY (2010) *Working with Others. Training information.* Environment Agency, Bristol.

ERIKSON, K. (1994) *A New Species of Trouble.,* Norton, New York.

EUROPEAN COMMUNITIES (2003) Common Implementation Strategy for the Water Framework Directive (200/60/EC) *Guidance Document No. 8. Public Participation in relation to the Water Framework Directive.*

EUROPEAN PARLIAMENT (2007) *Directive of The European Parliament and of the Council on the assessment and management of flood risks* (2007/60/EC Final). European Commission, Brussels.

FEMA (2007) Mitigation in Wisconsin: Soldiers Grove Reflects on Moving. *FEMA: Best Practices,* Fall, 2007.

FERNANDEZ BILBAO, A. & TWIGGER-ROSS, C. (2009) (eds) Improving Response, Recovery and Resilience: Improving Social and Institutional Responses to Flooding Work Package 2. SC060019 Bristol: Environment Agency.

FISCHHOFF, B (1995) Risk Perception and Communication Unplugged: Twenty Years of Process Risk Analysis Volume 15, Issue 2, pages 137–145, April.

FLINT, C.G. & LULOFF, A.E. (2005) Natural Resource-Based Communities, Risk, and Disaster: An Intersection of Theories. *Society and Natural Resources* [Online] 18. Available at: DOI: 10.1080/08941920590924747 pp. 399–412. [Accessed 12/11/2009].

FOLKE, C. (2006) Resilience: The emergence of a perspective for social–ecological systems analyses. *Global Environmental Change,* **16**, 253-267.

FORDHAM, M. (1998) Making women visible in disasters: Problematising the private domain. *Disasters* 22 (2), pp. 126-143.

FORDHAM, M. & KETTERIDGE, A-M. (1995) Flood disaster - dividing the community. *Paper presented at the Emergency Planning '95 Conference 2-6 July, Lancaster, UK.*

FOSTER, H. D. (1997). *The Ozymandias principles: Thirty-one strategies for surviving change.* UBC Press, Victoria, Canada.

FREUDENBURG, W.R. (1993) Risk and Recreancy: Weber, the Division of Labor, and the Rationality of Risk Perceptions. *Social Forces,* **71**, 4 909-932.

FREUDENBERG, W.R. (1997) Contamination, Corrosion and the Social Order: An Overview. [Online] *Current Sociology* 45 (19). Available at: http://sagepub.com/cgi/content/abstract/45/3/19 [Accessed 04/06/08] DOI: 10.1177/001139297045003002.

FRITZ, C.E. (1961) "Disaster." pp. 651-94 in Contemporary Social Problems, edited by R. K. Merton and R.A. Nisbet. New York: Harcourt, Brace & World, Inc.

FULLER, C. BENNETT, R. J. & RAMSDEN, M. (2002) The economic development role of English RDAs: the need for greater discretionary power. *Regional Studies,* **36**, 4 421-443.

GIDDENS, A. (1994a) *Living in a Post-Traditional Society in Beck, U. Giddens, A. & Lash, S. Reflexive Modernization: Politics, tradition and aesthetics in the modern social order. pp. 56-109. Cambridge: Polity Press.*

GIDDENS, A. (1994b) *Beyond Left and Right: The future of Radical Politics. Cambridge: Polity Press.*

GODSCHALK, D.R. (2003) Urban Hazard Mitigation: Creating Resilient Cities, Natural Hazards Review, August 2003.

GRANOVETTER, M. (1983) The Strength of Weak Ties: A network theory revisited. *Sociological Theory,* **1**, 201-233.

GROTHMANN, T., & Reusswig, F. (2006) People at risk of flooding: Why some residents take precautionary action while others do not. *Natural Hazards*, 38(1-2), 101-120.

GURNEY, P.J. (1977) The Therapeutic Community Revisited: Some Suggested Modifications And Their Implications. Disaster Research Centre, Preliminary Papers, 39. [Online] Available at: http://dspace.udel.edu:8080/dspace/handle/19716/409

HANSARD (2010) *Sunderland Point: issues raised by David Morris (MP) in relation to coastal erosion* (on-line) http://services.parliament.uk/hansard/Commons/ByDate/20101115/mainchamberdebates/part008.html

HAQUE, C. E., KOLBE, M., MORTON, P. & QUINN, N. P. (2002) Public involvement in the Red River Basin management decisions and preparedness for the next flood. *Environmental Hazards,* **4**, 87-104.

HARDIN, R. (2002) *Trust and Trustworthiness*. New York: Russell Sage.

HARRIES, T. (2007) *Householder Responses to Flood Risk: The Consequences of the Search for Ontological Security.* Unpublished PhD, Middlesex University, London.

HARRIES, T. (2008) Feeling secure or being secure? Why it can seem better not to protect yourself against a natural hazard. *Health, Risk & Society,* 10, 5 479-490.

HERZFELD, M. (2005) *Cultural Intimacy* 2nd ed. London: Routledge.

HEWITT, K. (1997)*Regions of Risk: A Geographical Introduction to Disasters* Harlow, UK, Longman.

HM GOVERNMENT (2005) *Emergency Preparedness: Guidance on Part 1 of the Civil Contingencies Act 2004.* Her Majesty's Government, Cabinet Office.

HOOGHE, L. and MARKS, G. (2003) Unravelling the Central State, but How? Types of Multi-Level Governance, *American Political Science Review*, **972**: 233-243.

HOPKINS, R. (2011) T*he Transition Companion: making your community more resilient in uncertain times*.

HUTCHISON, J., TAUSSIK, J., BALLINGER, R., BALL, I., CARTER, D. & WILSON, R. (2006) *Adapting to Changing Coastlines and Rivers: Making Space for Water: Strand SD2 Taking forward a new Government strategy for flood and coastal erosion risk management. Developing a Broader Portfolio of Options to Deliver Flooding and Coastal Solutions* (Preliminary report). Defra, London.

HUYSSEUNE, M. (2003) Institutions and Their Impact on Social Capital and Civic Culture: The Case of Italy, Generating Social Capital. Civil Society and Institutions in Comparative Perspective, Hooghe, M., and Stolle, D. (eds.), pp.211-230. New York: Palgrave MacMillan.

INSTITUTE OF COMMUNITY COHESION – ICOCO (2010) *Understanding and monitoring tension and conflict in local communities*. Coventry University.

INVOLVE (2005) *People and Participation. How to put citizens at the heart of decision-making.* London.

JOHNSON, C.L., TUNSTALL, S.M. & PENNING-ROWSELL, E.C. (2005) Floods as Catalysts for Policy Change: Historical Lessons from England and Wales. *International Journal of Water Resources Development,* **21**, 4 561-575.

KATES, R.W. (1962) *Hazard and Choice Perception in Flood Plain Management*. Department of Geography Research Paper no. 78, University of Chicago Press. Available at http://www.rwkates.org/pdfs/b1962.01_CH4.pdf.

KLEIN, R.J.T., NICHOLLS, R.J. & THOMALLA, F. (2003) Resilience to natural hazards: How useful is this concept? *Global Environmental Change Part B: Environmental Hazards,* **5**, 1 35-45.

KOOIMAN, J. (2003) *Governing as Governance*. London: Sage.

LECHLITER, G.J., & Willis, F.N. (1996) Living with Earthquakes: Beliefs and Information. *The Psychological Record*, 46(2), 391-396.

LEONARD, M. (2004) Bonding and Bridging Social Capital: Reflections from Belfast *Sociology,* **38**, 5 927-943.

LEVI, M. (1997) *Consent, Dissent, and Patriotism*. New York: Cambridge University Press.

LIVING FLOOD HISTORIES (Copyright UoG 2008-11) http://www.glos.ac.uk/research/csfc/lfh/Pages/default.aspx [Accessed 27/10/11].

LOWER SEVERN COMMUNITY FLOOD INFORMATION NETWORK http://www2.glos.ac.uk/severnfloods/index.htm [Accessed 27/10/11].

MANYENA, S. B. (2006) The concept of resilience revisited. *Disasters,* **30**, 4 434-450.

MCCARTHY, S. (2004) Definition & Experience of Flooding: Residents' and Officials' Perspectives. Unpublished PhD. University of Surrey, Guildford.

MCCULLOCH, A. (2003) An examination of social capital and social disorganisation in neighbourhoods in the British household panel study. *Social Science and Medicine,* **56**, 1425-1428.

MARSH, G. & BUCKLE, P. (2001) Community: the concept of community in the risk and emergency management context. *Australian Journal of Emergency Management* 16 (1) pp. 5-7. Available at: http://www.ema.gov.au/www/emaweb/rwpattach.nsf/VAP/(3A6790B96C927794AF1031D9395C5C20)~concept_of_community_in_the_risk_and_emergency_management_context.pdf/$file/concept_of_community_in_the_risk_and_emergency_management_context.pdf [Accessed 07/01/10].

MEDD, W. & MARVIN, S. (2005) From the Politics of Urgency to the Governance of Preparedness: A Research Agenda on Urban Vulnerability. *Journal of Contingencies and Crisis Management,* **13**, 2 44-49.

MEYER, R.J. (2006) Why We Under-Prepare for Hazards. *In* DANIELS, R.J., ET AL (ed.) *On Risk and Disaster: Lessons from Hurricane Katrina.* Philadelphia: University of Pennsylvania.

MURPHY, B. (2007) Locating social capital in resilient community-level emergency management. *Natural Hazards,* **41**, 2 297-315.

NEAL, S. & WALTERS, S. (2008) Rural Belonging and Rural Social Organisations: Conviviality and Community-Making in the English Countryside. *Sociology* 42 pp. 279-297.

NORRIS, F., STEVENS, S., PFEFFERBAUM, B., WYCHE, K. & PFEFFERBAUM, R. (2008) Community Resilience as a Metaphor, Theory, Set of Capacities and Strategy for Disaster. *American Journal of Community Psychology* **41**, 1 127-150.

O'BRIEN, G. & READ, P. (2005) Future UK emergency management: new wine, old skin? *Disaster Prevention and Management,* **14**, 3 353.

O'RIORDAN, T. & WARD, R. (1997) Building trust in shoreline management: creating participatory consultation in shoreline management plans. *Land Use Policy,* **14**, 4 257-276.

OSTROM, E. 2005 *Understanding Institutional Diversity*. Princeton, USA: Princeton University Press.

OSTROM, E. and WALKER, J. (2003) *Trust and Reciprocity: Interdisciplinary Lessons from Experimental Research*. New York: Russell Sage.

PATON, D., JOHNSTON, D.M., BEBBINGTON, M.S., LAI, C.-D., & HOUGHTON, B.F. (2001) Direct and Vicarious Experiences of Volcanic Hazards: implications for risk perception and adjustment adoption. *Australian Journal of Emergency Management, Summer*, 58-63.

PEARCE, L. (2003) Disaster Management and Community Planning and Public Participation: How to Achieve Sustainable Hazard Mitigation. *Natural Hazards,* **28**, 211-228.

PEEK, L. & FOTHERGILL, A. (2008) Displacement, Gender, and the Challenges of Parenting after Hurricane Katrina. *NWSA Journal,* **20**, 3 69-105.

PELLING, M. (2003). *The Vulnerability of Cities: Natural Disasters and Social Resilience,* London, UK, Earthscan.

PELLING, M. (2010) *Adaptation to Climate Change: from Resilience to Transformation*. Routledge, London.

PELLING, M. AND DILL, K. (2010) *Disaster politics: tipping points for change in the adaption of socio-political regimes, Progress in Human Geography*, 34(1): 21-37.

PERROW, C. (2011) *The Next Catastrophe: Reducing our Vulnerabilities to Natural, Industrial and Terrorist Disasters (3rd Edn).* Princeton University Press, New Jersey.

PETTS, J. (2006) Managing Public Engagement to Optimize Learning: Reflections from Urban River Restoration. Human Ecology Review 13 (2).

PETTS, J. & BROOKS, C. (2006) Expert conceptualisations of the role of lay knowledge in environmental decisionmaking: challenges for deliberative democracy. Environment and Planning A 2006, volume 38, pp. 1045-1059 DOI: 10.1068/a37373

PIERRE, J. and PETERS, G. B. (2005) *Governing Complex Societies – Trajectories and Scenarios*. Basingstoke: Palgrave, McMillan.

PITT, M. (2007) *Learning lessons from the 2007 floods: An independent review by Sir Michael Pitt. The Pitt Review. Interim Report.* Cabinet Office, London.

PITT, M. (2008) *Learning lessons from the 2007 floods: An independent review by Sir Michael Pitt. The Final Report. The Pitt Review.* Cabinet Office, London.

PORTES, A. & LANDOLT, P. (2000) Social Capital: Promise and Pitfalls of Its Role in Development. *Journal of Latin American Studies,* **32**, 2 529-547.

PRIEST, S.J., CLARK, M.J. & TREBY, E.J. (2005) Flood Insurance: the challenge of the uninsured *Area,* **37**, 3 295-302.

PRIOR & PATON (2008) Understanding the Context: The value of community engagement in bushfire risk communication and education. The Australasian Journal of Disaster and Trauma Studies ISSN: 1174-4707 Volume: 2008-2.

PUTNAM, R.D. (1996) The Strange Disappearance of Civic America. *The American Prospect* [Online] 7 (24). Available at http://www.prospect.org/print-friendly/print/V7/24/putnam-r.html [Accessed 24/07/06].

PUTNAM, R.D. (2000) *Bowling Alone: The Collapse and Revival of American Community*. Simon & Schuster, New York.

PUTNAM, R.D. LEONARDI,R. and NANETTI, R. (1993) *Making Democracy Work: Civic Transitions in Modern Italy*. Princeton, USA: Princeton University Press.

PUTZEL, J. (1997) Accounting for the 'dark side' of social capital: reading Robert Putnam on democracy. *Journal of International Development* **9**, 7 251-261.

RAYNER, S. (1992) Cultural Theory and Risk Analysis. *In:* KRIMSKY, S. & GOLDING, B. (eds.) *Social Theories of Risk.* London: Praeger.

RENN, O. (2008) *Risk Governance: Coping with Uncertainty in a Complex World.* London: Earthscan.

ROGERS, E. M. (2003) *Diffusion of Innovations, 5th Edn.* Free Press, London.

RONAN, K. R. & JOHNSTON, D. M. 2005. *Promoting Community Resilience in Disasters: The Role for Schools, Youth and Families,* New York, Springer.

ROTHSTEIN and STOLLE (2003) Social Capital, Impartiality and the welfare State: An Institutional Approach, in *Generating Social Capital. Civil Society and Institutions in Comparative Perspective*, Hooghe, M., and Stolle, D. (eds.), pp.191-120. New York: Palgrave MacMillan.

RUBIO, M. (1997) Perverse social capital – some evidence from Colombia. *Journal of Economic Issues,* **31**, 3 805-816.

SHERLOCK, K. (2002) Community Matters: Reflections from the Field. *Sociological Research Online*, 7 (2) Available at: http://www.socresonline.org.uk/7/2/sherlock.html [Accessed 19/03/07].

SIMS, R. MEDD, W., KASHEFI, E., MORT, M., WATSON, N., WALKER, G. & TWIGGER-ROSS, C. (2009) *Flood, vulnerability and resilience: A real-time study of local recovery following the floods of June 2007 in Hull.* Paper to Flood Risk Management Conference, 2009.

SJÖBERG, L. (1999) Risk Perception by the Public and by Experts: A Dilemma in Risk Management. *Human Ecology review, Vol. 6, No. 2, 1999.*

SLOVIC, P., KUNREUTHER, H. & WHITE, G. (2001) Decision Processes, Rationality and Adjustment to Natural Hazards. *In:* SLOVIC, P. (ed.) *The Perception of Risk.* London: Earthscan.

SPELLER, G. (2005) *Improving community and citizen engagement in flood risk management decision making, delivery and flood response.* R & D Technical Report SC040033/SR3. Bristol: Environment Agency.

SZERSZYNSKI, B. (1999) Risk and Trust: The Performative Dimension Environmental Values, Volume 8, Number 2, 1 May 1999 , pp. 239-252(14).

TAPSELL, S.M. (2000) *Follow-up Study of the Health Effects of the 1998 Easter Flooding in Banbury and Kidlington.* Final report to the Environment Agency. Enfield: Flood Hazard Research Centre.

TAPSELL, S.M., BURTON, R., OAKES, S. & PARKER, D.J. (2005) *The Social Performance of Flood Warning Communications Technologies* (TR W5C-016). Environment Agency.

TAPSELL, S.M. & TUNSTALL, S.M. (2001) *The Health and Social Effects of the June 2000 Flooding in the North East Region.* Report to the Environment Agency. Enfield: Flood Hazard Research Centre.

TAPSELL, S.M., TUNSTALL, S.M. & WILSON, T. (2003) Banbury and Kidlington four years after the flood: An examination of the long-term health effects of flooding. Report to the Environment Agency. Enfield: Flood Hazard Research Centre.

TAPSELL, S.M., TUNSTALL, S.M. PENNING-ROWSELL, E.C. & HANDMER, J.W. (1999) *The Health Effects of the 1998 Easter Flooding in Banbury and Kidlington.* Report to the Environment Agency, Thames Region. Enfield: Flood Hazard Research Centre.

TESH, S. N. (1999) Citizen experts in environmental risk. *Policy Sciences,* **32**, 1 39-58.

TIERNEY, K. (2002). *Organizational and Community Resilience in the World Trade Center Disaster*. (http://www.udel.edu/DRC) (13 Dec., 2011).

TOMPKINS, E., L. and ADGER W. N., (2004) Does Adaptive Management of Natural Resources Enhance Resilience to Climate Change? *Ecology and Society***, 9,** 2 10. http://www.ecologyandsociety.org/vol9/iss2/art10.

TWIGG, J. ( 2007) Characteristics of a Disaster-resilient Community: A Guidance Note. Version 1 (for field testing) August 2007. DFID Disaster Risk Reduction Interagency Coordination Group.

TWIGGER-ROSS, C. (2005) *The impact of flooding on urban and rural communities.* R&D Technical Report SC040033/SR1, Joint Defra/Environment Agency Flood and Coastal Erosion Risk Management R&D Programme. Environment Agency.

TWIGGER-ROSS, C. & COLBOURNE, L. (2009) *Improving Institutional and Social Responses to Flooding. Science Report:* SC060019 - Work Package 5. Joint Defra/Environment Agency Flood and Coastal erosion Rick management R&D Programme. Environment Agency. Available here: http://publications.environment-agency.gov.uk/PDF/SCHO0509BQBT-E-E.pdf [Accessed 18/01/12].

USLANER (2003) Trust, Democracy and Governance: Can Government Policies Influence Generalized Trust?, in *Generating Social Capital. Civil Society and Institutions in Comparative Perspective*, Hooghe, M., and Stolle, D. (eds.), pp.171-190. New York: Palgrave MacMillan.

WALKER, G. AND BURNINGHAM, K. (2011) Flood Risk, vulnerability and environmental justice: Evidence and evaluaton of inequality in a UK context. Critical Social Policy published online 16th February, 2011 http://csp.sagepub.com/content/early/2011/02/16/0261018310396149.

WALKER, G., BURNINGHAM, K., FIELDING, J., SMITH, G., THRUSH, D. AND FAY, H. (2006) Addressing environmental inequalities: flood risk. Science Report. The Environment Agency, Bristol, UK.

WARBURTON, D. (1998) *A passionate dialogue: community and sustainable development.* In Warburton, Diane *Community and sustainable development: Participation in the Future.* London, Earthscan.

WATSON, N., WALKER., G., MEDD, W., KASHEFI, E., TAPSELL, S., TWIGGER-ROSS, C. & FERNANDEZ-BILBAO, A. (2009) Understanding Response and Resilience in Post-Flood Communities: Lessons from the Carlisle

Pilot Study. In Fernandez-Bilbao, A. & Twigger-Ross, C. (eds) Improving Response, Recovery and Resilience: Improving Social and Institutional Responses to Flooding Work Package 2. SC060019 Bristol: Environment Agency.

WENGER, E. (2000) Communities of Practice and Social Learning Systems. *Organization,* **7**, 2 225-246.

WEINSTEIN, N.D. (1989) Effects of personal experience on self-protective behavior. *Psychological Bulletin, 105*(1), 31-50.

WHITTLE, R., MEDD, W., DEEMING, H., KASHEFI, E., MORT, M., TWIGGER ROSS, C., WALKER, G. & WATSON, N. (2010) *After the Rain – learning the lessons from flood recovery in Hull, final project report for "Flood, Vulnerability and Urban Resilience: a real-time study of local recovery following the floods of June 2007 in Hull".* Lancaster University Lancaster, UK.

WILCOX, D. (1994) *The Guide to Effective Participation.* York: Joseph Rowntree Foundation.

WILKINSON, D (1994) *Joining Up: Stockbridge Pathfinder* Environment Agency Science Report SC010044/SR4. Bristol: Environment Agency.

WINKWORTH, G. HEALY, C. WOODWARD, M. & CAMILLERI, P. (2009) Community capacity building: Learning from the 2003 Canberra bushfires. *The Australian Journal of Emergency Management*, 24 (2).

WISNER, B., BLAIKIE, P., CANNON, T. & DAVIS, I. 2004. *At Risk, Natural Hazards, people's vulnerability and disasters,* London, Routledge.

WOOLCOCK, M. & NARAYAN, D. 2000. Social Capital: Implications for Development Theory, Research and Policy. *The World Bank Research Observer,* 15**,** 225-249.

WYNNE, B. 1992. Risk and Social Learning: Reification to Engagement. *In:* KRIMSKY, S. & GOLDING, B. (eds.)*Social Theories of Risk.* London: Praeger.

ZIMMERMAN, R. (2001) Social Implications of Infrastructure Network Interactions. *Journal of Urban Technology*, **8**, 3 97-119.