Disasters and communities: understanding social resilience

Brigit Maguire and Patrick Hagan argue emergency management plans must recognise and build on a community's capacity for social resilience

Abstract

Social resilience is the capacity of social groups and communities to recover from, or respond positively to, crises. In this paper, we review the multifaceted nature of social resilience, and how this capacity is thought to have various properties, notably resistance, recovery and creativity. We also discuss the idea that social groups within a community differ insofar as their levels of resilience and the threats to which they are resilient. While research in the social sciences suggests that social resilience is a 'naturally emergent' response to disaster, we argue that emergency management plans must recognise and build on this capacity, and that improved indicators of social resilience are a priority area for future research.

Introduction

In today's world, the general public experiences disasters in ways unlike any other period in history (Omand, 2005). With each edition of the nightly news, we are able to view images of the latest disaster regardless of where it has occurred. Cheap travel options mean it is easy for us to visit the sites of disaster (see Jagannathan, 2006 on visitors to 'Ground Zero') and, as fuel prices testify, international trade brings tangible consequences of disasters to those far from affected areas.

With this heightened salience comes a growing understanding that authorities cannot prevent all disasters from occurring, or alternatively, shield people from all their consequences (Osterholm, 2005). It is generally acknowledged, for example, that Australia is *inherently* vulnerable to natural disasters (e.g., floods, drought and cyclones) (e.g., Reser & Morrissey, 2005). Furthermore, our democratic culture and participation in various military deployments are often associated with an increased risk of terrorism and while preventative efforts have proved successful in recent years, officials remind us of complexities and inevitabilities (Nolan, 2005; Sydney Morning Herald, 2004).

If it is not possible to totally prevent disasters, or shield people from their consequences, what can be done to minimise disruption and damage? Many government and non-governmental organisations now consider it a priority to strengthen the *resilience* of groups and communities in Australia, and are addressing this through research, policy and program development, as well as in crisis management and education initiatives (e.g., Coghlan & Norman, 2004). For example, Emergency Management Australia (EMA) has taken *Building Individual and Community Resilience* to be its current research priority.

Yet, in order to be able to effectively promote resilience, we should first understand what it is. To that end, this paper outlines an understanding of *social* resilience. It provides a basis upon which to develop practical actions to strengthen social resilience in Australia and to guide future research.

The three properties of social resilience

In broad terms, social resilience is the capacity of a social entity (e.g., a group or community) to 'bounce back' or respond positively to adversity

Australia is inherently vulnerable to natural disasters

(e.g., Almedom, 2005; Landau & Saul, 2004; Omand, 2005). More specifically, social resilience is understood as having three properties comprising aspects of how people respond to disasters: *resistance, recovery,* and *creativity* (Kimhi & Shamai, 2004). A community that is highly resilient has the capacity to demonstrate each of these properties.

Resistance relates to a community's efforts to withstand a disaster and its consequences. It can be understood in terms of the degree of disruption that can be accommodated without the community undergoing long-term change (e.g., to its social structure; (Adger, 2000). One way to represent this idea is shown in Figure 1a. Here, resistance is the distance between the community's pre-disaster level of functioning (*r'*) and a threshold (*t*) beyond which the community would be unable to return to its usual state (with t represented by a dotted line). For highly resistant communities, *r'* and *t* are far apart – considerable disruption is needed to move the community to the threshold. For less resistant communities, *r'* and *t* are close together.

Recovery relates to a community's ability to 'pull through' the disaster (Adger, 2000; Buckle, Marsh, & Smale, 2000a; Kimhi & Shamai, 2004). It is this property that refers directly to the idea of a community 'bouncing back' to its pre-disaster level of functioning (Breton, 2001). Recovery can be understood in terms of the time taken for a community to recover from a disruption, as shown in Figure 1b. A more resilient community returns to its pre-disaster state quickly and efficiently whereas a less resilient community recovers more slowly, or will fail to recover at all (Aguirre, 2006).

An optimal recovery involves not just returning to an initial equilibrium point. Rather, by adapting to new circumstances and learning from the disaster experience, higher levels of functioning (and thereby resilience) can be attained (Kimhi & Shamai, 2004; Pooley, Cohen, & O'Connor, 2006; Sonn & Fisher, 1998). This is the property of creativity (Kimhi & Shamai, 2004) and is represented by a gain in resilience achieved as part of the recovery process (Figure 1).

To illustrate, consider the example of a school community that is affected by a disaster. With respect to resistance, one can imagine a threshold beyond which the school community changes permanently. For example, a particularly severe disaster may cause many deaths in the community, leaving survivors too afraid or disorganised to attend school, causing the school's eventual closure. A more resilient community may provide support for teachers and students so that normal functioning (e.g., re-established classes) can resume quickly. Indeed, a creative community may learn from the experience and teach its members how to better prepare for future disasters (e.g., teaching people how to recognise tsunami warning signs), so that higher levels of post-disaster resilience are attained.

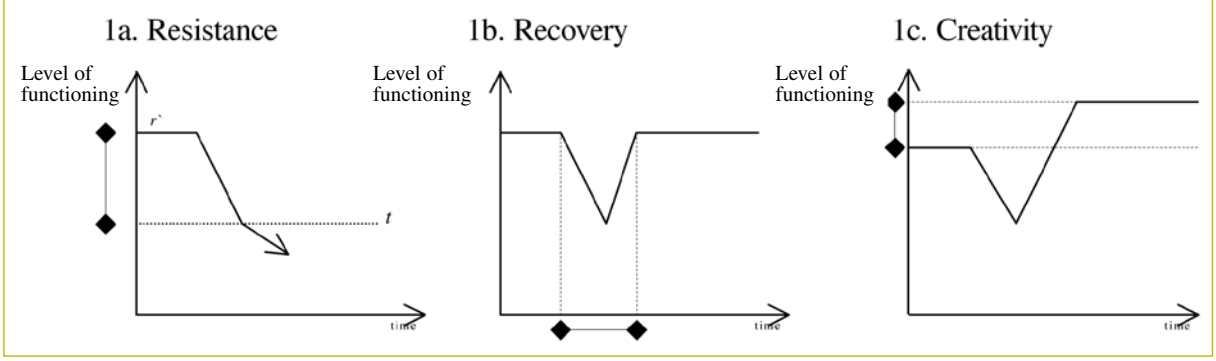
Aguirre (2006) sees resilience as encompassing all three of these components. In an ongoing process, a resilient community predicts and anticipates disasters; absorbs, responds and recovers from the shock; and improvises and innovates in response to disasters.

Social resilience as multi-faceted

A society's resilience to disasters should not be thought of as a discrete capability. Even relatively straightforward communities contain multiple social groups, and these groups differ in significant ways (Pooley, Cohen, & O'Connor, 2006). Groups may differ in terms of their socio-economic status, their degree of geographic isolation, or vulnerability to psychological trauma. These group differences may mean that different groups within the one society can be more or less resilient to a disaster (Buckle, Marsh, & Smale, 2000b). Vulnerable social groups, such as the elderly, children, or the economically disadvantaged, may have fewer resources available to cope with disaster. According to Oxfam (2005):

> *…disasters, however 'natural', are profoundly discriminatory. Wherever they hit, pre-existing structures and social conditions determine that some members of the community will be less affected while others will pay a higher price.* (Oxfam, 2005, p. 1)

Figure 1: Properties of resilience (adapted from Adger, 2000)



This was clearly demonstrated during the South-East Asia tsunami in December 2004. In various countries affected by the tsunami, women were disproportionately impacted. Specifically, in Indonesia, India and Sri Lanka, more women were killed than men. The resulting demographic changes (the gender imbalance) may have a number of long-term negative social consequences, including poor treatment of women and unequal economic freedoms (Oxfam, 2005). Non-government organisations such as Oxfam are attempting to counter such problems by involving women in medical, fire and police roles; registering houses in the names of women as well as men; supporting women's livelihoods; and ensuring wage parity across genders. As well as supporting the recovery of the community, these sorts of activities are a form of creativity. That is, they act to increase the social resilience of the community so that it can minimise similar consequences in the event of another disaster.

Thus, in order to truly understand the social impacts of disasters, and to manage and prevent adverse consequences, we must understand the impacts of disasters on particular groups (Oxfam, 2005). Moreover, it is important to identify the potential 'fracture points' or social cleavages within a community. From this, it may be possible to predict future breakdowns in social resilience in disasters, and to design preventative initiatives.

It is also true that the resilience of a community can vary with different types of disasters (Roisman, 2005). Disasters cover a broad spectrum of events, and can be differentiated in terms of their agent (natural or human-caused), proximity, impact (visible or invisible), size, scope, duration, magnitude, and the number of deaths. Furthermore, Danieli, Brom and Sills (2005) suggest that individuals can be resilient and vulnerable at the same time, depending on the type of disaster (see also Buckle, Marsh, & Smale, 2001). A community in a bushfire-prone area might have the social resources to deal with a bushfire, as an experience they are used to. However, at the same time, the community might be more vulnerable to pandemic influenza as an experience they are not used to, and lack the social resources to deal with.

Disaster management and resilience

Disaster management professionals describe the process of human reaction to disasters as cyclical, having four phases: mitigation, preparedness, response and recovery (e.g., Comfort, Ko, & Zagorecki, 2004; Mileti, 1999). Mitigation is the general process of strengthening a community's capabilities so that it has the resilience to better cope with any future disaster. Preparedness involves anticipation of an imminent disaster, and the creation of a response capability. This includes analysing probable threats, setting up warning and communication systems, response management structures, organising training, and stocking supplies (Mileti, 1999). Response refers to the actions taken during, and immediately after a disaster occurs. The focus here is on saving lives, minimising damage to property and minimising disruption to the community. Recovery is the short- to long-term phase of rebuilding and restoring a community to its pre-disaster state. During this phase damage assessment is completed, and used to inform the reconstruction of housing and infrastructure, and the re-establishment of community institutions.

Response is one phase in a cycle of human reaction to disasters

Mitigation is a vital link in the cyclical process of disaster management, and predominantly takes place after a disaster has already occurred. Similar to the creativity component of social resilience, mitigation involves more than just preparing for, responding to, and recovering from a disaster, but involves implementation of the lessons learnt in the creation of new policies and activities that will increase the community's resilience (Mileti, 1999). Without mitigation, a community is unlikely to become more resilient in the future, as it continues through cycles of short-term preparation, response and recovery, without any fundamental changes (Moore et al., 2004).

The greatest improvements in social resilience will be achieved when all four stages of the disaster process are considered in emergency management planning. It is vital, however, that such plans recognise the innate nature of social resilience (see also Yates & Anderson-Berry, 2004). It was once thought that panic, social disorder and adverse psychological consequences were expected and normal responses of a community to a disaster. In this 'Hollywood' conception of disasters,

resilience and positive coping are seen as rare and unusual (Auf der Heide, 2004). However, research into human reactions to disaster has overwhelmingly recognised that resilience in response to disaster is much more common than suggested by the media, and "mass trauma may not necessarily be a given" (Almedom, 2005, p. 254). In the immediate aftermath of a disaster, communities tend to come together, with more prosocial behaviour being demonstrated by most individuals (Auf der Heide, 2004; Barsky, Trainor, & Torres, 2006). To be effective, emergency management plans need to build on the capacities arising from naturally emergent social resilience.

Indicators of social resilience

An important step for future research is to determine valid indicators of social resilience. While we have an intuitive knowledge of what makes a resilient community, there is as yet little research that systematically sets out such indicators. Methodologically, this may involve the identification of factors that predict higher levels of resilience by comparing communities that have responded differently to similar disasters. To date, the literature would suggest that an array of factors are potentially relevant here, including:

- Trust (e.g., Enemark, 2006)
- Leadership (e.g., Ink, 2006)
- Collective efficacy (e.g., Moore et al., 2004)
- Social capital (e.g., Breton, 2001)
- Social cohesion and sense of community (e.g., Poynting, 2006)
- Community involvement (e.g., Clauss-Ehlers & Lopez-Levi, 2002)
- Existing norms/attitudes/values (e.g., Oxfam, 2005)
- Communication and information (e.g., Ink, 2006; Rohrmann, 2000)
- Resource dependency (e.g., Adger, 2000)

Research must determine which of these (if any) are predictive of resilience-related outcomes, the degree of overlap amongst them, and indeed whether such factors are themselves driven by more fundamental processes.

Summary and future directions

In this paper, we have outlined a definition of social resilience that will guide our future research. Social resilience is understood as having three properties: resistance, recovery and creativity. It is a multi-faceted, rather than a discrete capability, and there can be vulnerable groups even within a generally resilient community. Communities can also be resilient to some disasters and vulnerable to others. Past research strongly suggests that social resilience is a naturally emergent response to disasters, and it is important that emergency management plans recognise and build on this capability.

While Australian society is resilient to most disasters, little is known about the limitations of this resilience. Events such as the 2005 Cronulla riots would suggest, for instance, that there remains the potential for disasters to disrupt the multicultural fabric of Australian society and undermine resilience-building initiatives. Future research must also set out to identify indicators of social resilience and begin to leverage predictive insights through the development of theory and empirical analyses.

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