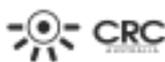bushfire&natural
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INFORMAL VOLUNTEERISM IN EMERGENCIES AND DISASTERS: A LITERATURE REVIEW

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Version	Release history	Date
1.0	Initial release of document	13/02/2015

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1. INTRODUCTION

Despite highly specialised and capable emergency management systems, members of the public are usually first on the scene in an emergency or disaster and remain long after official services have ceased. Citizens may play vital roles in helping those affected to respond and recover, and can provide invaluable assistance to official agencies. For example, following the 2009 'Black Saturday' bushfires in Victoria, Australia, citizens responded to farmers' calls for help to rebuild farm fences. The success of these efforts led to the formation of 'BlazeAid', a community organisation that rebuilds fences and provides support to rural communities affected by fire, flood and other hazards.[1] New technologies and social media have also enabled citizens to participate in emergency and disaster management in new ways (Goodchild and Glennon, 2010; Meier, 2013). This was evident in March 2014 when 2.3 million people joined the search for missing Malaysian Airlines flight MH370 by scanning more than 24,000 square kilometres of satellite imagery uploaded to the Tomnod website (Fishwick, 2014).[2]

Citizen participation is a key principle of disaster risk reduction and resilience building (e.g. UNISDR, 2007; FEMA, 2011; Commonwealth of Australia, 2011; Cabinet Office, 2013). However, in most developed countries, emergency and disaster management relies largely on a workforce of professionals and, to varying degrees, volunteers affiliated with official agencies. Individuals and groups who work outside of this system have tended to be viewed as a nuisance or liability, and their efforts are often undervalued (Fritz and Mathewson, 1957; Stallings and Quarantelli, 1985; Helsloot and Ruitenberg, 2004; Scanlon et al., 2014). Given increasing disaster risk worldwide due to population growth, urban development and climate change (Field et al., 2012), it is likely that 'informal' volunteers will provide much of the additional surge capacity required to respond to more frequent emergencies and disasters in the future.

This paper examines the role of informal volunteers in emergency and disaster management. It explores the ways ordinary citizens volunteer their time, knowledge, skills and resources to help others in times of crisis. First, volunteerism in emergencies and disasters is explored. Traditional definitions of volunteerism are examined and it is argued that less rigid definitions are needed to fully recognise and value citizen contributions to emergency and disaster management. Second, the role of informal volunteers in emergencies and disasters is explored. Research on convergence behaviour in disasters and the phenomenon of emergence is discussed, before examples of informal volunteerism are discussed. Third, the implications of informal volunteerism for emergency and disaster management are discussed. Culture and legal liability are identified as two main challenges for integrating informal volunteers into formal arrangements. We argue that more adaptive and inclusive models of emergency and disaster management are needed to harness the capacities and resilience that exist within and across communities.

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[1] See http://www.blazeaid.com
[2] See http://www.tomnod.com

2. VOLUNTEERISM IN EMERGENCIES AND DISASTERS

2.1 DEFINING VOLUNTEERISM

In simple terms, volunteering refers to 'any activity in which time is given freely to benefit another person, group or organization' (Wilson, 2000, 215). In volunteerism research, the term is generally used to refer to activities that are non-obligatory (there is no contractual, familial or friendship obligation between the helper and the helped, nor coercion); undertaken for the benefit of others, society as a whole, or a specific organisation; unpaid; and undertaken in an organised context (e.g. Cnaan et al., 1996; Wilson, 2000; Dekker and Halman, 2003; Piliavin and Siegl, 2007; Snyder and Omoto, 2008; Wilson, 2012). Nevertheless, there is considerable debate as to what activities constitute volunteerism and who can be considered a volunteer.

A review by Cnaan *et al.* (1996) identified four key dimensions on which volunteer definitions vary. First, *free choice* refers to the voluntary nature of the act, ranging from acts that are undertaken on free will to those that are relatively un-coerced and those that are obligated (e.g. community service undertaken as part of a court order). Strict definitions only consider activities undertaken on free will to be volunteering, while broader definitions may also include activities entailing degrees of obligation. However, this raises the difficult question of the extent to which an individual's sense of obligation or coercion can be known (Dekker and Halman, 2003). For example, a teenager may devote two hours per week to a homeless charity because she: simply wants to help homeless people; is compelled by her parents; feels a sense of moral or religious duty; wants to obtain school credits or work experience; or a combination of these reasons. Second, *remuneration* refers to the nature of the reward accrued by the volunteer. Strict definitions only consider activities where there is no reward, or even personal interest in the volunteering activity, to be volunteering. Broader definitions include activities where remuneration is available, provided it is less than the value of the work or service that is provided. Third, *structure* refers to the context in which the volunteer activity is performed. Strict definitions limit volunteerism to organised work undertaken through formal organisations, while broader definitions consider other types of work undertaken outside of formal organisations. A number of commentators have suggested that restricting volunteerism to activities undertaken through formal organisations obscures the enormous amount of work that is undertaken by people in countries and communities where formal, non-government organisations are absent or under-developed (UNDP, 2011; Wilson, 2012). The final dimension relates to the *intended beneficiaries* of voluntary activity. Strict definitions hold that beneficiaries must not be known to, or share anything in common with, the volunteer. Broader definitions may include people of similar backgrounds (e.g. ethnic, religious, gender or residential groups) as beneficiaries, with the broadest even considering the volunteer as a potential beneficiary (e.g. self-help groups) (Cnaan *et al.,* 1996).

Time commitment is another important dimension in volunteerism definitions. Volunteering is commonly referred to as an activity where people 'give their time' (e.g. Wilson and Musick, 1997, 695) and is further delimited to activities that 'extend over time' (Snyder and Omoto, 2008, 3) or are 'long-term' (Penner, 2004, 646). For example, Penner defines volunteerism in terms of planned, long-term action: 'people think and weigh their options before they make the decision to volunteer. In this respect volunteerism can be contrasted with bystander interventions, which are usually quite time limited' (2004, 646). The distinction between bystander interventions and volunteering is based on an assumption that crisis situations provide limited opportunities for the types of deliberation that are apparently necessary for volunteerism:

'This feature of deliberation – in which volunteerism is a meaningful reflection of the helper's motivations, values, and other personal attributes – distinguishes volunteerism from bystander intervention that often occurs in response to emergencies and disasters. The latter type of helping typically involves responses to unforeseen events that offer little opportunity for foresight and advance planning and usually demand immediate and instantaneous responses. Helping in such situations is often referred to as *spontaneous* helping in contrast to the *planned* helping of volunteerism, although emergencies and disasters may, in addition to stimulating spontaneous and immediate helping, also lead people to look for ways to become involved in longer term and more sustained helping efforts' (Snyder and Omoto, 2008, 3).

Literature reviewed in this paper demonstrates that citizen responses to emergencies and disasters are often quite deliberate and constitute more than simple bystander interventions, even when time commitment is minimal.[3] By highlighting the considerable involvement of citizens in emergency and disaster management, we challenge the assertion that volunteering must be long-term and undertaken through formal organisations.

2.2 VOLUNTEERISM IN EMERGENCIES AND DISASTERS

Volunteerism is defined more broadly in the context of emergencies and disasters. Definitions have tended to focus on volunteer activities and outcomes rather than volunteers' characteristics and motivations *per se*. For example, in an early paper on volunteerism in disaster situations Shaskolsky (1967, 1) defined volunteerism as 'any act that is orientated to the direct or indirect service of some other person or thing regardless of whether or not such act serves the self-interest of the actor'. Similarly, Wolensky (1979) argued that volunteerism has too often been defined in altruistic terms and in relation to higher-level needs such as learning, exploration and self-actualisation. This has meant that voluntary activities motivated by self-interest, egoism and power have been excluded. Wolensky regards volunteerism as 'any monetarily uncompensated, wilful action, be it spontaneous or organized, oriented toward the protection and/or restoration of symbols, interests, people, or other high priority values of a personal or group nature' (1979).

	Individual	Organised
Anticipated	e.g. doctor	e.g. regular volunteer firefighter
Spontaneous	e.g. search and rescue by bystander	e.g. non-regular volunteer firefighter

Table 1: Schematic typology of disaster volunteerism (Shaskolsky, 1967)

According to Shaskolsky (1967), volunteerism takes four forms in disaster situations (Table 1). *Anticipated individual volunteers* are those who fulfil the general expectations of society on an individual basis, such as a doctor who comes to the aid of victims. *Anticipated organisation volunteers* are those who are regularly associated with an organisation, such as a volunteer fire brigade or the Red Cross, and whose participation in the organisation's activities is expected and

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[3] The examples of bystander interventions that are commonly provided include actions such as 'help given to the victim of an assault' (Wilson 2000, p. 216) and 'helping a person who has fallen or has experienced some other kind of transitory problem' (Penner, 2004, 646).

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planned for. *Spontaneous individual volunteers* provide assistance as individuals, usually in the early stages of a disaster, for example in search and rescue activities. *Spontaneous organisation volunteers* are those who place themselves at the service of an organisation only once an emergency or disaster has occurred. These volunteers may choose to help a regular disaster organisation; (b) formally create an ad hoc organisation for dealing with the circumstances of the specific disaster; (c) use their pre-existing, non-disaster organisation for disaster work; or (d) carry out disaster-related tasks within a loose, informal network.

		SOCIAL FORM	
		Emergent	**Organizational**
MOTIVATION	**Public Interests**	e.g. search and rescue and clean-up crews (ALTRUISTIC)	e.g. regular and non-regular aid in Red Cross, police, fire, civil defence (COMMUNALISTIC)
	Private Interests	e.g. affected citizens and self-help groups (EGOISTIC)	e.g. in-group aid to fellows in unions, churches, associations (MUTUALISTIC)

Table 2: Four types of volunteerism in the post-impact stage (Wolensky, 1979)

In a similar vein, Wolensky (1979) identified four types of 'post-impact' volunteerism (Table 2). *Public interest emergent* volunteerism includes groups such as search and rescue crews, those who help clean up after disaster, and those who assist with shelter and housing efforts. Such volunteerism is considered altruistic due to volunteers' genuine concerns for human safety and community welfare. *Public interest organisational* volunteerism is considered communalistic as it involves regular and non-regular aid provided through emergency services, civil defence and other organisations that act in the interests of the entire community and its members. *Private interest emergent* volunteerism includes citizen action and self-help groups that organise to protect their own interests following disaster. These groups are considered egoistic because they primarily serve members' interests. *Private interest organisational* volunteerism includes organisations such as churches, unions and clubs that provide assistance primarily to members. Such volunteerism is considered mutualistic because help is provided to people who share common characteristics and interests.

Emergency management agencies have tended to adopt more formal, operational definitions of volunteerism. For example, the US Federal Emergency Management Agency (FEMA, 2014) defines a volunteer in the context of the National Incident Management System: 'A volunteer is any individual accepted to perform services by the lead agency (which as authority to accept volunteer services) when the individual performs services without promise, expectation, or receipt of compensation for services performed'. Similarly, Emergency Management Australia (EMA, 1998, 114)[4] defines a 'volunteer emergency worker' as someone who 'engages in emergency activity at the request (either directly or indirectly) or with the express or implied consent of the Chief Executive (however designated), or of a person acting with the authority of the Chief Executive of an agency to which either the State emergency response or recovery plan applies'. Such definitions place the volunteer within the official emergency management system, with volunteers acting in accordance with the legislation, policies and procedures of the organisations they are

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[4] Emergency Management Australia is a federal agency responsible for planning and coordinating governmental responses to emergencies and disasters.

affiliated with. Training and accreditation is often a key requirement of such 'official' volunteering (Britton, 1991).

While most agencies retain these formal, operational definitions of volunteerism, the participation of 'unofficial', 'unaffiliated', 'informal' and 'spontaneous' volunteers in emergency management is widely recognised. For example, the Australian Government's (2010, 5) *Spontaneous Volunteer Management Resource Kit* defines spontaneous volunteers as 'individuals or groups of people who seek or are invited to contribute their assistance during and/or after an event, and who are unaffiliated with any part of the existing official emergency management response and recovery system and may or may not have relevant training, skills or experience'. Similarly, FEMA (2013) distinguishes between affiliated and unaffiliated volunteers, with the latter defined as 'individuals who offer to help or self-deploy to assist in emergency situations without fully coordinating their activities'. FEMA notes that although unaffiliated volunteers can be a significant resource, the lack of pre-established relationships with emergency management agencies can make it difficult to verify their training or credentials and match their skills to appropriate service areas.

3. THE ROLE OF INFORMAL VOLUNTEERS

3.1 CITIZEN ACTION

The important role played by citizens in emergency and disaster management is widely documented in disaster research. Research challenges the popular perception that disasters unleash chaos and disorganisation, with citizens rendered passive victims, panic-stricken or engaging in antisocial behaviours such as looting. Instead, individuals and groups have generally been found to become more cohesive than in 'normal' times, working together to help those who are affected and to overcome disaster-induced challenges (e.g. Fritz and Mathewson, 1957; Stallings and Quarantelli, 1985; Perry and Lindell, 2003; Helsoot and Ruitenberg, 2004; Scanlon *et al.*, 2014). Sociological research in particular has provided important insights into collective behaviour and organisational responses to emergencies and disasters. A key contribution of this work is the documentation and analysis of emergent behaviours, groups and organisations in times of crisis (Drabek and McEntire, 2003).

Early disaster studies examined the phenomenon of 'convergence', involving the informal movement of people, messages and equipment into disaster-affected areas (Fritz and Mathewson, 1957; Barton, 1969). Contrary to the popular view of chaos and disorganisation, Fritz and Mathewson observed that survivors tend to be more passive, cooperative and 'subject to social control' [by emergency services] than those who converge on the disaster scene from the outside:

> On the contrary, the major problem of social control, and the major hindrance to organized relief efforts, usually arises from the convergence of thousands of anxiety-motivated, help-motivated, curiosity-motivated, and, occasionally, gain-motivated persons who enter the disaster-struck area from the outside (Fritz and Mathewson, 1957, 3).

More recently Kendra and Wachtendorf (2003) identified seven types of 'converger' in responses to the 2001 World Trade Center disaster. These included returnees; the anxious (seeking information about family and friends); helpers; the curious; exploiters; supporters (encouraging and expressing gratitude to emergency workers); and mourners and memorialisers. While motivations for the unaffected to enter the disaster-affected area are varied, convergence can be expected to occur in most emergencies and disasters.

Despite most citizens' good intentions, convergence can create problems and challenges for emergency managers. Auf der Heide (2003) notes that hospitals and other emergency response organisations are often inundated by requests for information and offers of donations. Unsolicited donations may be inappropriate or unnecessary, requiring the expenditure of valuable resources to manage or dispose of them (Holguin-Veras *et al*., 2012). This can impede the work of emergency services, particularly when transportation and communications infrastructure are overloaded. However, as Auf der Heide stresses, convergence is not always detrimental and 'local authorities need to recognize that unsolicited volunteers will show up, and procedures must be developed for processing these volunteers and integrating them into the response' (2003, 465).

| | | **TASKS** | |
		Regular	Non-regular
STRUCTURE	**Old**	TYPE I: ESTABLISHED	TYPE III: EXTENDING
	New	TYPE II: EXPANDING	TYPE IV: EMERGENT

Table 3: The DRC typology of organised response to disasters (Dynes, 1970)

Initial studies of convergence led to growing interest in collective behaviour during crises and the role of community and other groups in emergency and disaster response. Researchers at the Disaster Research Centre (DRC) developed a fourfold typology of organised response to disasters based on a detailed examination of field studies (Quarantelli, 1966; Dynes, 1970). The DRC typology identifies four types of organisation based on a classification of tasks (regular and non-regular) and structure (old or new) (Table 3). *Type I – Established organisations* involve routine tasks performed through existing structures; for example, fire fighting operations performed by a state fire agency. *Type II – Expanding organisations* undertake regular tasks through new structures. These are typically volunteer associations or groups whose core activities are non-emergency related but have latent emergency functions. An example of an expanding organisation is the Salvation Army, which has a core mission 'to feed, to clothe, to comfort, [and] to care' for those in need, but historically has become involved in disaster relief when needed. The 'expansion' occurs because people who are not involved in the organisation's normal activities become active participants as the emergency function is activated, and the group takes on traditional but not everyday tasks. *Type III – Extending organisations* have established structures but take on new and unexpected functions during the emergency period. Businesses and sporting clubs that take on emergency functions are a prime example. A logging company, for instance, might send bulldozer operators and equipment to help clear debris after a wildfire, while a sporting club or religious group might rally its members to deliver food and clothes to those who have lost their home. Dynes (1970) notes that although extending organisations often work in conjunction with established (Type I) and expanding (Type II) organisations, they often represent a challenge because they do not come under the effective control of the latter. Finally, *Type IV – Emergent organisations* are groups with new structures and new tasks. They emerge when needs are not being met, or it is perceived that they are not being met, by other organisations. Emergent groups often form during or immediately after the emergency period before established (Type I) and extending (Type II) organisations have

arrived. These groups often play critical 'first responder' roles such as providing first aid to victims, initial search and rescue, and assessing damages and community needs. Like extending (Type III) organisations, they can pose significant challenges for emergency managers (Dynes, 1970).

Stallings and Quarantelli (1985) note that three types of emergent group are likely to be active in the emergency phase of a crisis. *Damage assessment groups* perform tasks such as search and rescue, evaluating building damage and compiling lists of missing persons. *Operations groups* engage in work such as collecting and distributing food and clothes to survivors, clearing debris and transmitting messages out of the affected area. *Coordinating groups* include groups such as impromptu citizen committees that resolve disputes and advocate for resolution of communitywide problems. An analysis of DRC field studies found that although the size of these groups varied considerably, most only had a handful of active members at any one time. They typically lacked formal elements of organisation, had relatively flat hierarchies and diverse membership bases. Groups were unlikely to specify membership criteria or require formal training, and records were rarely kept. Most of these groups lasted for only short periods of time – usually hours or days (Stallings and Quarantelli, 1985).

Emergent groups may also be active in the pre- and post-emergency periods. These groups may have specific goal orientations, such as groups that campaign for flood protection or to provide better shelter for those left homeless by a tornado, or general goal orientations, such as wildfire preparedness or anti-nuclear groups. In the US, Stallings and Quarantelli (1985) observed that these groups also tend to have relatively flat hierarchies, with a central core comprising a handful of mostly white, middle-class members. The core group was usually supported by a larger outer core of less active members that could be mobilised for specific tasks, and an even larger peripheral group that could be called upon to engage in occasional activities such as signing petitions or attending meetings and demonstrations. The informal structure of these groups meant that there were occasionally non-member participants, such as technical experts or journalists who provide information, advice or resources because they are sympathetic to the group's goals. Their typically limited understanding of how public policies are implemented and developed meant they often became frustrated by what were perceived as non- or unsatisfactory responses by public agencies, which almost always led to an intensification of effort (Stallings and Quarantelli, 1985).

4. INFORMAL VOLUNTEERISM

There are many ways that citizens can participate in emergency and disaster management informally. We define informal volunteerism as the activities of people who work outside of formal arrangements to help those who are at risk or are affected by emergencies and disasters. Informal volunteers may participate as individuals or as part of a group, on a short or longer-term basis, regularly or irregularly, *in situ* or *ex situ*. Their participation may be highly spontaneous and unplanned, or deliberate and carefully planned. This section examines some of the ways that informal volunteers participate in emergency and disaster management.

4.1 EMERGENT VOLUNTEERISM

Emergent volunteerism involves new forms of volunteering that occur in response to unmet needs, whether perceived or real. Researchers and emergency managers have tended to focus on challenges associated with 'spontaneous' volunteers, usually once an emergency or disaster has begun. However, it is important to recognise that new forms of volunteerism may emerge beforehand, for example in prevention and preparedness activities, and may entail considerable deliberation, planning and organisation. For this reason, we prefer the term 'emergent'.

Cottrell (2010, 3) defines spontaneous volunteers as 'those who seek to contribute on impulse – people who offer assistance following a disaster and who are not previously affiliated with recognised volunteer agencies and may or may not have relevant training, skills or experience'. Spontaneous volunteers' proximity to the emergency or disaster site means they often play critical roles in first response. For example, many earthquake victims are rescued by uninjured, fellow citizens. In the 1980 Irpinia earthquake in Southern Italy, 90 percent of survivors were rescued by fellow citizens. In the 1976 Tangshan earthquake in China as many as 300,000 people crawled out of the debris, with many going on to form rescue teams that saved 80 percent of those buried under the debris (Noji, 1997). Other examples of spontaneous volunteers include youths who performed search and rescue operations following the 1985 Mexico City Earthquake (see Box 1) and the one million volunteers from Japan and abroad who came forward in the response to the 1995 Kobe earthquake (Shaw and Goda, 2004). However, while spontaneous volunteerism should be expected and planned for, it cannot be relied upon. Helsoot and Ruitenberg (2004) document situations where trauma associated with mass fatalities has rendered citizens passive, and where cultural factors have led to nonresponse and a reliance on emergency services.

Topos de Tlatelolco is a Mexican search and rescue organisation that formed in aftermath of the 1985 Mexico City Earthquake. In the absence of any official search and rescue service, a group of youths calling themselves moles ('topos') risked their lives by crawling into collapsed buildings to reach people trapped inside. They rescued hundreds of people, including sixteen newborn babies from the maternity ward of a collapsed hospital (Castanos and Lomnitz, 2012). None of the initial volunteers had any training, experience or equipment. The group became formally organised in 1986 and has become a highly specialised and trained search and rescue organisation. Topos Tlatelolco now has on average around forty members, as well as search and rescue dogs. The group sponsors technical degrees in relevant fields and provides its members with specialised training in rescue strategies, managing collapsed structures and risk management. The organisation remains independent but coordinates its activities with government agencies and other organisations. It sent search and rescue teams to assist in responses to the 2009 L'Aquila earthquake in Italy and the 2010 Haiti earthquake.

Box 1: Topos de Tlatelolco, Mexico

Another key benefit of spontaneous volunteers is their ability to improvise. As discussed earlier, emergent behaviours and groups are more likely to emerge when the needs of the affected are not being met by formal response organisations. Spontaneous volunteers are likely to have a 'real time', 'on-the-ground' view of the problem and can configure themselves and their responses to meet specific local needs. Unlike emergency services and other formal response organisations, they are rarely constrained by pre-established rules, strategies and technologies that may inhibit effective local response (Fernandez *et al.*, 2006). However, while they can be more innovative and responsive to local needs than formal responders, they are often unaware of the 'bigger picture'.

Fernandez *et al.* (2006) identify two main risks associated with spontaneous volunteers. The first involves the failure of emergency managers to effectively utilise volunteers, which creates potential for loss of life and injury, property damage and poor public perception of emergency/disaster response. The second is associated with the actions of untrained, uncoordinated volunteers, who may disrupt organised response and reduce the resources available to those who are affected. For example, following the 1999 Golcuk earthquake in Turkey which killed 17,000 people, emergency services' attempts to access the disaster area were hindered by a 32 kilometre traffic jam caused by spontaneous volunteers (Helsoot and Ruitenberg, 2004). There is also the risk that

the actions of untrained and uncoordinated volunteers will cause harm to survivors, emergency responders, and volunteers themselves. For instance, although untrained citizens saved around 800 victims in the 1985 Mexico City Earthquake, 100 rescuers died trying to save others (Helsoot and Ruitenberg, 2004). Both risks were apparent following the 2001 terrorist attacks on the World Trade Center, which saw around 30,000 spontaneous, unaffiliated volunteers converge on New York City. Many of the initial volunteers who arrived at the scene to assist search and rescue operations were overwhelmed by the emotional impact of their activities. Liath (2004, 17) notes that without proper training and support, 'these volunteers can in turn become traumatised, and by becoming victims of the disaster, may require the very services that they sought to provide'.

BlazeAid was initiated following the 2009 'Black Saturday' bushfires in Victoria, Australia. The group was formed by two farmers who sought assistance from family, friends and local volunteers to clear debris and rebuild fences that were burnt in the fires. After rebuilding the fences within a week, they began to help others to rebuild fences and the organisation was formed. BlazeAid invites people aged 12 to 85 – the ages covered under its Volunteer Workers Insurance – to volunteer: 'You don't need any fencing experience, just a willingness to give it a go and learn on the job. You can volunteer for a day or two, or a week or more' (BlazeAid, 2014). Volunteers aged under-18 must be accompanied and supervised by a responsible adult and a Code of Conduct has been developed that sets out the organisation's expectations in terms of health and safety, proper use and care of equipment, and volunteers' interactions with each other and recipients of their help. BlazeAid has received considerable media coverage, political support and sponsorship from mostly private sector organisations. In addition to bushfires, the organisation has also responded to help people affected by flood, cyclone and drought.

Box 2: BlazeAid, Australia

4.2 EXTENDING VOLUNTEERISM

Groups and organisations without emergency or disaster functions often extend their activities to volunteer in times of crisis (*Type III – Extending organisations* in the DRC typology). These volunteers are usually part of an existing community group such as a chamber of commerce, sporting club, religious group or service organisation. Like spontaneous volunteers who act as individuals or form a new group, these volunteers often have an intimate understanding of local needs and can draw on existing networks and resources to meet them. In rural Australia, volunteers from organisations such as the Country Women's Association and Rotary International often play important roles in relief and recovery by collecting and distributing donated food, clothes and other domestic goods. Sporting and recreation clubs may also play a significant role. For example, Four Wheel Drive clubs from across Victoria banded together to assist people who were affected by the 2009 Black Saturday bushfires. Demonstrating a high degree of cooperation and coordination, the clubs worked together to deliver caravans to families who had lost their homes, helped clear debris and damaged trees, re-fenced properties, delivered hay to farmers and ran supplies to volunteer fire brigades (Wangaratta Four Wheel Drive Club, 2009; see Apan et al. 2010 and Whittaker *et al*. 2012 for other Australian examples).

The Arts & Democracy Project's (ADP) 'Wellness Centre' was set up following Hurricane Sandy in New York City. The ADP is a non-profit organisation that 'cross pollinates culture, participatory democracy and social justice. We support cultural organizing and cross-sector collaborations; raise the visibility of transformative work; connect cultural practitioners with activists, organizers,

and policymakers; and create spaces for reflection (artsanddemocracy.org). Following Sandy, ADP's Director Caron Atlas received a call from a fellow neighbourhood city council member who asked if she could organise cultural programming for around 500 people with special needs (mostly elderly and people with physical and mental disabilities) who were taking shelter in Brooklyn's Slope Park Armory. Atlas suggested some arts programming however the shelter coordinators said she would need to create infrastructure for all of the programs. Instead, 'she and her artist collaborators created what they termed a 'wellness center' in the giant armory that offered religious services, AA meetings, scores of musical performances, film screenings, a knitting circle, arts and writing workshops – and simple conversation and friendship' (Spayde, 2013, 30).

Box 3: Arts & Democracy Project 'Wellness Centre', USA

Business and corporate involvement in disaster volunteering is becoming increasingly common as part of corporate social responsibility (CSR) programs (Twigg, 2001; Chong, 2009). 'Ready When the Time Comes' is a corporate volunteer program initiated by the American Red Cross and WW. Grainger Inc. (an industrial supply company) that trains employees from businesses and mobilises them as a community-based volunteer force during disasters. In 2011 the program had 14,000 trained volunteers from more than 460 businesses and organisations in 54 cities (American Red Cross, 2014). The Red Cross promotes the program as a way for companies to become involved in their communities, develop their employees' skills, and align with one of the most respected organisations in the USA. Other companies are involved on an individual basis. The Nissan Motor Corporation, for example, encourages its employees to volunteer in disaster relief and recovery activities through its 'Corporate Citizenship Activities'. It estimates that seven months after the 2011 Tōhuku earthquake and tsunami a total of 854 employees had taken part in 16 separate missions, equating to 1,200 days of work (Nissan Motor Corporation, 2014).

4.3 DIGITAL VOLUNTEERISM

The 'Pictures and Documents found after the April 27, 2011 Tornadoes' Facebook page was set up by Patty Bullion, a resident of Lester, Alabama, after she found some photos in her yard following the storm. She created the page so that people could post an announcement if they had lost or found an important item, such as a photo or document. In the year that the page was operational (Bullion took the page down after one year due to the heavy workload, and her concerns about the often intimate images of people's possessions lingering on the web) around 2000 items were returned to their owners (Harrison, 2013). The Facebook page was also used by scientists who examined 934 of the debris reports for which a clear point of origin and landing could be determined. The study found that objects lofted by tornadoes can travel further than previously thought, with light items travelling as far as 220 miles (354 km) from their point of origin (Knox *et al.*, 2013).

Box 4: 'Pictures and Documents found after the April 27, 2011 Tornadoes' Facebook page, USA

The increasing accessibility of sophisticated yet simple information technology has enabled citizens to participate in emergency and disaster management in new ways. In particular, widespread use of social media and web-based mapping software has allowed citizens to freely produce and disseminate their own emergency-related information. Examples of social media applications

range from basic use of sites like Facebook to share information (see Box 4) through to more complex uses involving data mining and crisis mapping. For example, Meier (2013) describes how graduate students at Tufts University in Massachusetts launched a live crisis map within hours of the 2010 Haiti earthquake to document the extent of the damage and the disaster-affected population's urgent needs. Information was initially sourced from social media such as Twitter and some mainstream media; however, extensive live coverage of the disaster meant that students soon began crowdsourcing data from several hundred online sources. Hundreds of volunteers from the USA and abroad volunteered to process the data, with the group manually triaging and geo-referencing more than 1,500 reports using the Ushahidi platform (free, open source mapping software). After a few days a SMS short code was set up and integrated with the Ushahidi platform, enabling Haitian people to text in their location and specific needs. With the majority of SMS messages written in Haitian Creole, social media was used to recruit volunteers from the Haitian diaspora who translated around 10,000 messages over the course of the operation. The success of the operation led to the creation of the Standby Task Force, a network of over 1,000 volunteers in 80 countries, as well as many other crisis mapping organisations and initiatives (Meier, 2013).

The strength of 'volunteered geographic information' (VGI) lies in the notion that information obtained from a group of many observers is likely to be more accurate than that obtained from a single observer. Goodchild and Glennon (2010, 235) note that despite concerns about the quality of data produced by non-experts free of institutional and legal frameworks, 'the quality of VGI can approach and even exceed that of authoritative sources'. The rich, contextual information that observers 'on-the-ground' can provide, and the speed with which it can be updated, are key advantages. Nevertheless, there are a number of challenges associated with use of VGI in emergency management (Poser and Dansch, 2010). It cannot be known beforehand how much information will be volunteered and where it will come from. As such, it should be treated only as a supplementary source of information. Nor can the quality of data cannot be guaranteed, with the potential for citizens to intentionally or unintentionally contribute erroneous information. Citizens may also be biased toward exceptionally large or severe events, meaning that smaller events go unreported.

Tomnod is a project run by a private satellite company in the USA. The project's mission is 'to utilize the power of crowdsourcing to identify objects and places in satellite images. We created this web app with thousands of volunteers (like you!) in mind. Use our satellite images to explore the Earth, solve real-world problems, and view amazing images of our changing planet' (tomnod.com). Volunteers select a campaign to work on (e.g. tracking illegal forest fires in Sumatra or assessing tornado damage in Tennessee) and then tag images containing relevant information. Multiple volunteers search and tag the same satellite imagery to ensure accuracy and reliability. This platform was used by 2.3 million citizens in March 2014 to search for the missing Malaysian Airlines flight MH370. Users scanned more than 24,000 square kilometres of imagery around the plane's suspected crash site in the Indian Ocean for evidence of wreckage, oil slicks or other notable objects (Fishwick, 2014).

Box 5: Tomnod 'MH370' campaign

Digital volunteerism is likely to become increasingly prevalent in emergency and disaster management in Australia and abroad. A key strength of the crowdsourcing approach is that volunteers do not necessarily have to invest long periods of time in order to participate, nor do they need to be near the emergency or disaster affected area. The rise of digital volunteerism also means that citizens may participate in emergency and disaster management in other countries.

5. IMPLICATIONS: THE CHALLENGES OF INTEGRATION

Research suggests that citizen convergence on emergency and disaster sites is inevitable, so emergency services and other organisations must plan for and manage the participation of these volunteers. As noted earlier, this is necessary to reduce the risk that untrained and uncoordinated volunteers will disrupt organised response and reduce the resources available to those who are affected. However, it is also necessary to maximise the effectiveness of emergency and disaster management by drawing on the immense knowledge, skills, resources and enthusiasm of ordinary citizens.

The Australian *National Strategy for Disaster Resilience* (Commonwealth of Australia, 2011, v) recognises that:

> *Non-government and community organisations are at the forefront of strengthening disaster resilience in Australia. It is to them that Australians often turn for support or advice and the dedicated work of these agencies and organisations is critical to helping communities to cope with, and recover from, a disaster. Australian governments will continue to partner with these agencies and organisations to spread the disaster resilience message and to find practical ways to strengthen disaster resilience in the communities they serve.*

Other documents explicitly recognise the potential for informal volunteerism to contribute to disaster resilience. The *Victorian Emergency Management Reform White Paper* (Victorian Government, 2012) acknowledges the important role played by spontaneous volunteers and commits the government to work with local government, volunteer organisations and agencies to develop strategies for managing spontaneous volunteers during relief and recovery efforts. A key document guiding the management of volunteers by State and local governments is the *Spontaneous Volunteer Management Resource Kit* developed by the Australian Red Cross and the Department of Families, Housing, Community Services and Indigenous Affairs (Commonwealth of Australia, 2010). It draws a distinction between 'potential' and actual spontaneous volunteers, suggesting that 'people do not become spontaneous volunteers until they have undergone the relevant induction/checks for the role they will be undertaking. Until they do, therefore, they are *potential* spontaneous volunteers' (Commonwealth of Australia, 2010, 5). A number of agencies and volunteer associations have developed registers to enable people to indicate their willingness to volunteer in emergencies and disasters; however these may not to capture less formal types of volunteer and volunteering. Consideration of the activities and implications of digital volunteerism also appears limited.

Despite increasing recognition of the benefits and inevitability of citizen participation, there appear to be two main barriers to greater integration of informal volunteers into emergency and disaster management arrangements. The first barrier relates to the culture of emergency management, the second to organisational risks and liabilities.

5.1 THE CULTURE OF EMERGENCY AND DISASTER MANAGEMENT

The extent to which citizens are able to participate in emergency and disaster management depends largely on formal institutional structures and arrangements. Most developed countries employ bureaucratic, command-and-control approaches that originate in the paramilitary roots of most emergency and disaster management agencies (Quranatelli, 1987; Neal and Phillips, 1995). Command-and-control approaches tend to assume a clear distinction between the pre-emergency and emergency period, with the former characterised by a sense of normalcy and the latter by chaos and disorganisation. Conceived in this way, the role of emergency and disaster

organisations is to establish command over the chaos and regain control over disorganisation (Dynes, 2004). However, Quarantelli (1988) notes that command-and-control rarely works well even in military combat situations, casting doubt on its applicability and effectiveness in civilian contexts. Drabek and McEntire (2003) identify a range of assumptions that underpin command-and-control approaches (Table 4).

- Bureaucratic or governmental response occurs alone or in a vacuum.

- Information outside of official channels is lacking or inaccurate; emergency personnel; are self-centred, unreliable and are likely to leave their 'post'.

- Standard operating procedures will always function and be adequate in disaster situations.

- Departures from bureaucratic guidelines may be detrimental.

- Pre-disaster social structure is weak and disjointed.

- Citizens are inept, passive or non-participants in disaster operations.

- Emergency events depart sharply from pre-disaster behaviour.

- Society breaks down during disaster.

- Disaster is characterized by irrational victim behavior such as panic or looting.

- *Ad hoc* emergence is counterproductive.

Table 4: Assumptions underpinning the command-and-control model (Drabek and McEntire, 2003)

As noted earlier, disaster research challenges many of these assumptions. It demonstrates that citizens tend to become more cohesive and engage in pro-social behaviour in disaster situations. These findings are the starting point for an alternative approach to emergency and disaster management that involves 'loosening rather than tightening up the command structure' (Quarantelli, 1988, 381). Emergencies are instead viewed as 'a set of problems which have to be solved with some degree of speed and effectiveness by the existing resources within that social unit – the community' (Dynes, 1994, 156). Dynes argues that this 'problem-solving' model rests on a more realistic set of assumptions that derive from empirical research on emergencies and disasters (Table 5).

- Emergencies may create some degree of confusion and disorganization at the level of routine organizational patterns but to describe that as social chaos is incorrect.

- Emergencies do not reduce the capacities of individuals or social structures to cope. They may present new and unexpected problems to solve.

- Existing social structure is the most effective way to solve those problems. To create an artificial, emergency-specific authority structure is neither possible nor effective.

- Planning efforts should be built around the capacity of social units to make rational and informed decisions. These social units need to be seen as resources for problem solving, rather than as the problems themselves.

- An emergency by its very nature is characterized by decentralized and pluralistic decision making, so autonomy of decision making should be valued, rather than the centralization of authority.

- An open system is required in which the premium is placed on flexibility and initiative among the various social units, and those efforts are coordinated. The goals should be oriented toward problem solving, rather than avoiding chaos.

Table 5: Assumptions underpinning the problem solving model (Dynes, 1994)

The problem solving and command-and-control models broadly align with what Harrald (1996, 256) terms 'agility' (creativity, improvisation, adaptability) and 'discipline' (structure, doctrine, process). He argues that agility and discipline are both necessary and achievable in emergency and disaster management. A degree of discipline is necessary for large organisations to be mobilised and managed; yet agility is needed to ensure broad coordination and communication. Discipline is also needed to ensure the rapid and efficient delivery of services under extreme conditions, while agility is necessary to enable creativity, improvisation and adaptability in the face of uncertainty. Structure and process are needed to ensure the technical and organisational interoperability of emergency and disaster management organisations; however, they must also be flexible enough to interact with and utilise the many spontaneous volunteers and emergent organisations that want to help (Harrald, 1996).

Stallings and Quarantelli (1985) offer five key principles for emergency managers when engaging with emergent groups. These principles are also applicable for managing relationships between emergency managers and informal volunteers. First, they emphasise that emergence is inevitable before, during and after disasters because citizens will identify needs that are not being met by emergency or other agencies. These needs may be perceived or real; regardless, emergence is likely to occur. Second, they stress that although emergency agencies may harbour concerns about emergent groups' informal structures, it should be recognised that 'their looseness is one of [their] real strengths' (Stallings and Quarantelli, 1985, 98). The informal nature of emergent groups means that they are not constrained from undertaking new tasks by established procedures, rules or legislation. Third, it should be recognised that emergent groups are not always functional, nor are they always dysfunctional. Emergent groups may not be the ideal way to address a particular problem; nevertheless, citizen attempts at resolution should be valued and it should be acknowledged that there are always alternative approaches. Fourth, it is important to recognise that although groups may emerge due to perceived failings or needs that are not being met by agencies, citizen groups are not always in opposition to public authorities. It is important for emergency managers to engage with these groups positively, and not assume opposition. Finally, Stallings and Quarantelli (1985) insist that emergent phenomena cannot be eliminated by prior planning. Instead, emergency managers should consider what forms of emergent behaviour and groups they might want to facilitate, for example by encouraging existing citizen groups to take on an emergency capability or tasks in an emergency.

Some government agencies are quite advanced in their integration of official and unofficial emergency response. Scanlon et al. (2014) document the policies and procedures implemented by the Amstelland Safety Region to make better use of ordinary people's knowledge, skills and capacities in emergency management. Criteria were established to help emergency responders decide whether and how to cooperate with ordinary citizens, existing organisations and emergent groups. The policies explicitly allow emergency responders to accept assistance from ordinary citizens and organisations, provided participation is voluntary, the tasks assigned have minimal

safety risks, the tasks add value to the overall emergency response, and citizens only fulfil a task when they have the skills and knowledge to complete it successfully. This more integrated model of emergency management requires official emergency responders to merge with existing social structures and not attempt to reorganise groups and their activities. Official responders are expected to legitimate volunteer activity by enabling access to the affected area, providing special clothing so that volunteers can be recognised, and keeping volunteers informed about emergency work. Emergency responders are also expected to identify the 'natural leaders' within volunteer groups and work with them, for example by inviting them to participate in meetings about the progress of the emergency response (Scanlon et al., 2014, 57). These initiatives are built into five phases:

- **Phase 1**: Victims and bystanders begin to provide help and mitigate the crisis.

- **Phase 2**: The first few official responders arrive. They accept assistance and do not seek to exclude citizens.

- **Phase 3**: Commanders and others in charge of emergency agencies arrive. Citizen response is discussed at the first structured meeting. The effectiveness of citizen responses is assessed and, if appropriate, arrangements are made to register volunteers.

- **Phase 4**: Emergency response continues under the control of official agencies. No new helping citizens are allowed to access the incident scene unless requested by the incident commander.

- **Phase 5**: Citizens who contributed to the emergency response are thanked by official authorities and offered mental health support and possibly compensation for any damage to their personal belongings (Scanlon et al., 2014, 57-8).

There are of course a number of barriers to such initiatives. Emergency responders may find it difficult to assess whether ordinary people have the necessary knowledge and skills to make a worthwhile contribution. They may also be unwilling to accept assistance for fear of being held accountable if a volunteer is harmed.

5.2 SAFETY AND LIABILITY

Sauer *et al*. (2014) note that despite the 'universal presence' of spontaneous volunteers following disasters, few studies have considered related issues of safety and liability. As noted earlier, informal volunteers risk harm to themselves and others if they engage in activities without necessary knowledge, skills, equipment and training. The actions of volunteers can cause physical harm (i.e. injury or death) and psychological harm (for volunteers and recipients). A survey of 19 organisations identified through the US National Voluntary Organizations Active in Disasters (NVOAD) found that 15 (79%) had encountered spontaneous volunteers during their response activities. 18 (95%) organisations reported that they did not perform background checks on spontaneous volunteers, with just 10 (53%) providing just-in-time training. Two organisations reported a spontaneous volunteer death, while eight reported injuries to volunteers. One organisation had been sued by a spontaneous volunteer and three had been sued due to the actions of a spontaneous volunteer. Only six organisations (32%) believed they were liable for spontaneous volunteers' actions (Sauer e al. 2014).

Eburn (2003) discusses legislation introduced in a number of Australian States to limit the liability of 'Good Samaritans' and voluntary members of community organisations. These Acts are primarily intended to protect those who respond to medical emergencies where life is threatened, for example by providing first aid or medical care. Importantly, the Acts do not apply to Good

Samaritans who act to protect property. Those who provide emergency assistance must act in good faith (i.e. their intention must be to assist the person concerned) and without the expectation of payment or other reward. Although most of the Acts intend to protect volunteers from personal liability, the organisation for which they are volunteering may still be liable (Eburn, 2003).

While further research into legal liability is needed, the risks associated with informal volunteerism can be minimised. Where possible, volunteers should be registered, trained, briefed, credentialed, assigned appropriate tasks, and supervised (Sauer *et al*., 2014). This is already happening in Australia through the programs and registers of a number of State emergency services and volunteer associations. However, such measures are unlikely to be effective where volunteerism is more informal and emergent. It is therefore important that emergency managers are attune to what is happening on the ground and are prepared to engage with a diverse range of volunteers.

6. CONCLUSION: CO-PRODUCING EMERGENCY AND DISASTER MANAGEMENT

Although some aspects of emergency response – such as dealing with a hazardous chemical spill or doing heavy search and rescue – require specialized expertise and equipment, much of what needs to be done can be done by many members of the population. Instead of trying to exclude ordinary people by making disaster response seem unduly complex, emergency agencies ought to welcome involvement by ordinary people. In fact, it may even be wise for emergency agencies to study the way ordinary people respond – since it seems they are usually quite effective – to see if they can learn from them and improve their own emergency response (Scanlon et al., 2014, 60).

Ordinary citizens who volunteer their time, knowledge, skills and resources to help others in times of crisis represent an immense resource for emergency and disaster management. Research demonstrates that unsolicited volunteers will show up, so it is vital that emergency services and other organisations are prepared to cooperate with them and coordinate their activities. This is necessary to ensure an effective response and avoid duplication of effort, but also to prevent volunteers from being put in situations where they may harm themselves or others.

There are many examples of governments, businesses and organisations across the world cooperating and coordinating their activities with informal volunteers. Research is needed to examine how organisational cultures and structures are changing to account for informal volunteers, and how associated legal liabilities are being managed. Such research is vital if we are to develop more adaptive and inclusive models of emergency and disaster management that harness the capacities and resilience that exist within and across communities.

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