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A review of informal volunteerism in emergencies and disasters: Definition, opportunities and challenges

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Abstract
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Keywords
emergencies, challenges, volunteerism, opportunities, informal, review, definition, disasters:

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A review of informal volunteerism in emergencies and disasters: definition, opportunities and challenges

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Abstract:

Despite highly specialised and capable emergency management systems, ordinary citizens are usually first on the scene in an emergency or disaster, and remain long after official services have ceased. Citizens often play vital roles in helping those affected to respond and recover, and can provide invaluable assistance to official agencies. 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. Those who work outside of such systems have tended to be viewed as a nuisance or liability, and their efforts are often undervalued. Given increasing disaster risk worldwide due to population growth, urban development and climate change, 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 considers the role of informal volunteers in emergency and disaster management. Definitions of volunteerism are reviewed and it is argued that there is an overemphasis on volunteering within, and for, state and formal organisations. We offer a broader definition of ‘informal volunteerism’ that recognises the many ways ordinary citizens volunteer their time, knowledge, skills and resources to help others in times of crisis. Two broad types of informal volunteerism are identified — emergent and extending — and the implications for emergency and disaster management are considered. Particular attention is given to increasing ‘digital volunteerism’ due to the greater accessibility of sophisticated but simple information and communication technologies. Culture and legal liability are identified as key barriers to greater participation of informal volunteers. 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. Attempts to command and control citizen action are misguided and possibly counterproductive.

Keywords: Emergency; disaster; citizen action; emergence; informal volunteerism; resilience.
1. **Introduction**

Despite highly specialised and capable emergency management systems, ordinary citizens 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; Haworth and Bruce, 2015). 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. A brief overview of research on citizen action in emergencies and disasters is provided, and definitions of volunteerism are examined and considered in the

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\(^1\) See [http://www.blazeaid.com](http://www.blazeaid.com)

\(^2\) See [http://www.tomnod.com](http://www.tomnod.com)
context of emergency and disaster management. We argue that less rigid definitions of
volunteerism are needed to fully recognise and value citizen contributions in this space. The
paper then identifies ‘emergent’ and ‘extending’ volunteerism as two main types of informal
volunteerism and discusses the implications for emergency and disaster management.
Particular attention is given to increasing ‘digital volunteerism’ resulting from greater
accessibility and sophistication of information and communication technologies and changing
preferences for volunteering. Culture and legal liability are identified as key barriers to
greater participation of informal volunteers. 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, but that attempts to command and control
citizen action are misguided and may be counterproductive.

2. Citizen action in emergencies and disasters
The roles played by citizens in emergency and disaster management are widely documented
in disaster research (insert refs). Research challenges the popular perception that disasters
unleash chaos and disorganisation, and that citizens become passive victims, panic-stricken
or engage in antisocial behaviours such as looting. Rather, individuals and groups have
generally been found to become more cohesive than in ‘normal’ times, commonly working
together 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 (see review by 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 scene from
the outside. More recently Kendra and Wachtendorf (2003) identified seven types of
‘converger’ from 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 disaster-affected
areas vary, 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 information requests and donations.
Unsolicited donations may be inappropriate or unnecessary and require the expenditure of
valuable resources for their management or disposal (Holguin-Veras et al., 2012). This can
impede emergency services’ work, 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).

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<tr>
<th>STRUCTURE</th>
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<td>Old</td>
<td>TYPE I: ESTABLISHED</td>
<td>TYPE III: EXTENDING</td>
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<td>New</td>
<td>TYPE II: EXPANDING</td>
<td>TYPE IV: EMERGENT</td>
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Table 1: The DRC typology of organised response to disasters (Dynes, 1970)

Initial studies of convergence led to growing interest in collective behaviour 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 1). 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 (2014), 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
mobilise its members to deliver food and clothing to those who have lost their home.
Although extending organisations often work in conjunction with established (Type I) and
expanding (Type II) organisations, they often present challenges 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 needs 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 arrive. These groups often play critical ‘first responder’ roles such as
initial search and rescue, providing first aid to victims, and assessing damages and
community needs. Like extending (Type III) organisations, they can pose significant
challenges for emergency managers (Dynes, 1970). The DRC typology provides a useful
framework for understanding different types of emergency volunteering.

3. Volunteerism in emergencies and disasters
Despite the key roles ordinary people play in times of crisis, officials often consider their
actions as somehow external to or separate from the formal emergency and disaster
management system and therefore are not prepared for citizen responses (Scanlon et al.,
2014). Professionals and volunteers with official agencies tend to be viewed as legitimate
actors, while those who are not part of the system are often seen as illegitimate, impeding
effective response, and requiring management. Ordinary people can obtain legitimacy by
becoming part of the system, usually as an accredited or formally affiliated volunteer. This is
apparent in agencies’ attempts to recruit (or incorporate) volunteers, for example, as
volunteer firefighters (e.g. Country Fire Authority, 2015), through Community Emergency
Response Teams (e.g. FEMA, 2015) and attempts to register unaffiliated volunteers prior to
an emergency (e.g. Department of Human services, 2014). In this section, definitions of
volunteerism are reviewed. We argue that volunteerism has been narrowly defined – in志愿主义研究及紧急和灾难研究 – and largely excludes those who act independently of the state or formal organisations.

3.1 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.

Cnaan et al. (1996) reviewed definitions of volunteerism across a range of sectors. They found that definitions varied according an author or organisation’s position on four key dimensions: free choice; remuneration; structure; and intended beneficiaries. The strictest definitions held that volunteerism must: be entirely voluntary and entail no coercion; involve no reward or even personal interest in the voluntary activity; be undertaken through a formal organisation; and involve no relationship or similarities (e.g. ethnicity) between volunteers and beneficiaries. Broader definitions included activities that: involve degrees of coercion (e.g. volunteering as part of a school program); remuneration below the value of work and services provided; are undertaken outside of formal organisations; involve people of similar backgrounds (e.g. ethnic, religious, gender or residential groups) and even volunteers as beneficiaries (e.g. self-help groups) (Cnaan et al. 1996). Strict definitions are problematic because freedom of choice and the nature of rewards may be known only to volunteers (e.g. a person who volunteers out of a sense of religious or moral obligation, or to improve their job prospects). It has also been noted that restricting volunteerism to activities undertaken through formal organisations obscures the enormous amount of work undertaken by people in countries and communities where formal, non-government organisations are absent or under-developed (UNDP, 2011; Wilson, 2012). Moreover, in some cultures, western concepts of volunteering may be alien, with other understandings of helping behaviour dominant.
Robinson and Wilson (2001, 69), for example, explain that in Māori culture: ‘The idea of ‘public service’, which is not voluntary in the sense of being an optional activity, should be distinguished from volunteering carried out by choice. It is a function of citizenship, a requirement of belonging to a community. In the Māori community, it is a cultural obligation’. Similarly, Kerr et al. (2001, 11) note that cultural and linguistic differences mean that much volunteer-like activity in Australian Aboriginal and Torres Strait Islander communities ‘… is generally not acknowledged, fails to attract both material support and wider recognition, is not formalised and operates within the community-accepted frames of reference particular to that community’. They argue that the concept of volunteering should be extended to include different meanings given to helping behaviour in order to recognise and appreciate the experiences of those who work outside of mainstream organisations and dominant paradigms.

Time commitment is another important dimension in volunteerism. Volunteering is commonly characterised as an activity where people ‘give their time’ (e.g. Wilson and Musick, 1997, 695) and is often 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). This 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).

Research reviewed in this paper (below) demonstrates that citizen responses to emergencies and disasters are usually deliberate and constitute much more than ‘bystander interventions’, even when time commitment is minimal.3

3.2 Volunteerism in emergencies and disasters

Volunteerism has tended to be defined more broadly in the context of emergencies and disasters. Definitions typically 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, 8) 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, meaning that voluntary activities motivated by self-interest, egoism and power have been overlooked. 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, 35).

According to Shaskolsky (1967) volunteerism takes four forms in disaster situations. 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 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 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: (a) help a regular disaster organisation; (b) formally create an ad hoc organisation for dealing with the

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).
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.

In a similar vein, Wolensky (1979) identified four types of ‘post-impact’ volunteerism. 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 has authority to accept volunteer services) when the individual performs services without promise, expectation, or receipt of compensation for services performed’. Similarly, Emergency Management Australia4 (EMA, 1998, 114) 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 ambit of formal emergency management systems, in which volunteers act in accordance with the legislation, policies and procedures of the organisations they are affiliated with. Participation that is invited or requested by an agency or some other

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4 Emergency Management Australia is a federal agency responsible for planning and coordinating governmental responses to emergencies and disasters.
authority may not be voluntary if there is a real or perceived obligation. Training and accreditation is often a key requirement of formal volunteering (Britton, 1991).

While most agencies retain these formal, operational definitions of volunteerism, the participation of ‘unofficial’, ‘unaffiliated’, ‘informal’ and ‘spontaneous’ volunteers is increasingly 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. Despite this broadening perspective, most agencies are concerned with managing volunteers and integrating them into official responses.
In volunteerism research:

‘Volunteering means any activity in which time is given freely to benefit another person, group or organization’ (Wilson, 2000, 215).

‘Volunteering has four important attributes… First, it is a planned action; people think and weigh their options before they make the decision to volunteer… Second, volunteering is a long-term behavior; most people who volunteer continue this activity for an extended period of time… Third… volunteering involves ‘non-obligated’ helping… [and fourth] it occurs within an organizational context’ (Penner, 2004, 646).

‘Volunteerism refers to freely chosen and deliberate helping activities that extend over time, are engaged in without expectation of reward or other compensation and often through formal organizations, and that are performed on behalf of causes or individuals who desire assistance’ (Snyder and Omoto, 2008, 3).

In the emergency/disaster context:

‘Volunteerism will be regarded 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’ (Shaskolsky, 1967, 1).

‘Volunteerism is thus defined 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 (Wolensky, 1979, 35).

‘A volunteer is any individual accepted to perform services by the lead agency (which has authority to accept volunteer services) when the individual performs services without promise, expectation, or receipt of compensation for the services performed’ (FEMA, 2014).

A ‘volunteer emergency worker… engages in emergency activity at the request (either directly or indirectly) with the express of implied consent of the Chief Executive (however designated), or of a person acting with the authority of the Chief Executive of an agency which either the State emergency response or recovery plan applies’ (EMA, 1998, 114).

‘Potential spontaneous volunteers are individuals or groups of people who seek or are invited to contribute their assistance during and/or after an event, 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’ (Australian Government, 2010, 5).

‘Unaffiliated volunteers, also known as spontaneous volunteers, are individuals who offer to help or self-deploy to assist in emergency situations without fully coordinating their activities. They are considered ‘unaffiliated’ in that they are not part of a disaster relief organization. Although unaffiliated volunteers can be significant resources, verifying their training or credentials and matching them with the appropriate services can be difficult’ (FEMA, 2013).

Table 2: Selected definitions of volunteerism

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<td>3.3</td>
<td>Defining ‘informal volunteerism’</td>
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Discussion thus far has highlighted the restrictive nature of definitions in volunteerism research and, to a lesser degree, in emergency and disaster management (see Table 2).

Volunteerism has typically been defined in terms of deliberately chosen and planned, long-term activities that are undertaken through formal organisations. In emergency and disasters,
volunteerism has tended to be defined in terms of participation in the activities of state or
other organisations, with whom the volunteer is formally affiliated. Despite increasing
recognition of the participation of unaffiliated or ‘spontaneous’ volunteers, most agencies are
concerned with managing volunteers and integrating them into official responses. Such
definitions exclude those who act independently of the state or formal organisations, and
obscure much of the shorter-term, informal volunteering that occurs in times of crisis. Thus
we challenge the assertion that volunteering must be long-term and undertaken through
formal organisations, and argue for greater recognition and participation of informal
volunteers.

In this paper, informal volunteerism refers to the activities of people who work outside of
formal emergency and disaster management arrangements to help others who are at risk or
are affected by emergencies and disasters. Such volunteerism may take place before, during
or after an event. Informal volunteers may participate as individuals or as part of a group, on
a short or longer-term basis, regularly or irregularly, and in situ or ex situ. Their participation
may be spontaneous and unplanned, or deliberate and carefully planned.

4. Informal volunteerism: types and roles

There are many ways that citizens can participate in emergency and disaster management
informally. In this section, two broad types of informal volunteerism are identified: ‘emergent
volunteerism’ and ‘extending volunteerism’. ‘Digital volunteerism’ is identified as a new
mode of volunteering, driven by the increasing accessibility and sophistication of information
and communication technologies, which may be emergent or extending.

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 (e.g. Liath, 2004; Fernandez et al. 2006; Cottrell, 2010; Barraket et al.
2013; Sauer et al. 2014). 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 (Quarantelli, 1984;
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, 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 (Castanos and Lomnitz, 2012) and the one million volunteers from Japan and abroad who came forward in 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.

Improvisation and innovation are key features of emergent volunteerism. Extreme events often present unforeseen conditions and problems, requiring capacities to improvise and innovate (Harrald, 2006). Studies of improvisation and innovation in emergencies and disasters have tended to focus on formal organisations (e.g. Ross, 1976; Harrald, 1996; Webb and Chevreau, 2006; Mendonça and Wallace, 2007). However, Kendra and Wachtendorf (2007, p. 318) consider community innovation and disasters, noting that innovation is a capacity or process whereby a community ‘… does something new in the face of crisis, either a crisis that is potential or one that is realized’. They note that many innovative strategies and uses of resources occur in the response phase where urgent need overcomes most objections. The risk of maladaptive or suboptimal outcomes tends to be considered an acceptable risk due to the perceived urgency of taking action. The need for innovation tends to be less evident before disasters and after the immediate crisis period, which tends to result in greater disagreement about needs, possibilities, actions and consequences (Wachtendorf and Kendra, 2007). Consequently, emergent volunteerism is likely to occur in response to and in the immediate aftermath of emergencies and disasters, particularly when citizens believe that the
needs of those affected are not being met by formal response organisations. An earlier study of emergence found that most groups lasted for only short periods of time, usually hours or days (Stallings and Quarantelli, 1985). However, some groups may remain active over longer periods of time and some may develop into established organisations. Atsumi and Goltz (2014), for instance, describe how ‘a subset of volunteers with experiences in Kobe remained active as disaster volunteers in other domestic and even international disaster events’ and how the Nippon Volunteer Network Active in Disaster (NVOAD) transitioned from an emergent to an established organisation following the Kobe earthquake.

A number of studies highlight the important role of emergent behaviours and groups in emergencies and disasters. Emergent volunteers often have ‘real time’, ‘on-the-ground’ views of the issues and problems people face, and can configure themselves and their responses to meet 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). A study of the 1985 Mexico City earthquake found that the emergency response period was dominated by the activities of emergent organisations and involved considerable emergent behaviour (Dynes et al., 1990). These behaviours and organisations developed due to the lack of prior disaster planning and the challenges created by the earthquake, which exceeded the emergency response capabilities that were in place (Quarantelli, 1993). For example, in the absence of an official search and rescue service, a group of youths began crawling into collapsed buildings to reach people trapped inside. They rescued hundreds of people, despite having no prior training, experience or equipment. The group, ‘Topos de Tlatelolco’, became formally organised in 1986 and has become a highly specialised and trained search and rescue organisation. The organisation, which remains independent but coordinates its activities with government agencies and other organisations, sent search and rescue teams to assist in responses to the 2009 L’Aquila earthquake in Italy and the 2010 Haiti earthquake (Castanos and Lomnitz, 2012).

More recently, the Student Volunteer Army formed to help clean up liquefaction following the 2010-11 earthquake sequence in Christchurch, New Zealand (Villemure et al., 2012). Thousands of students joined the efforts, which also involved volunteers from farming communities known as the ‘Farmy Army’, which were widely publicised via social media. Volunteers expended an estimated $1 million worth of labour within the first week and
around 75,000 hours over the course of their effort (Villemure et al., 2012). Similarly, BlazeAid formed in the aftermath of the 2009 ‘Black Saturday’ bushfires in Victoria, Australia, to help farmers rebuild fences. 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 (Webber and Jones, 2011). After rebuilding the fences within a week, they began to help others and the organisation was formed. BlazeAid invites people to volunteer for as little or as long as they like, holds Volunteer Workers insurance, and has a Code of Conduct that outlines the organisation’s expectations in terms of health and safety, use and care of equipment, and volunteers’ interactions with each other and recipients of help. The organisation has received considerable media coverage, political support and sponsorship from mostly private sector organisations and has expanded its activities to assist people affected by flood, cyclone and drought throughout Australia.

It is important to recognise that most emergent volunteerism is less visible and does not lead to ongoing, formal organisation. For example, Webber and Jones (2011) note that ‘informal volunteering’ was common after the 2009 ‘Black Saturday’ bushfires in Victoria, Australia, with local people helping those affected to shoot injured livestock, clear fallen trees, connect generators and build fences. Similarly, Smith et al. (2012) describe the critical role played by ordinary Haitians who translated their language and culture to assist in the implementation of a disaster triage system in the aftermath of the 2010 earthquake. Moreover, as discussed earlier, different cultural understandings may mean that helping activities are not recognised as volunteering at all (Robinson and Williams, 2001). The potential benefits of utilising indigenous and other forms of local knowledge in emergency and disaster management are now widely recognised (e.g. McAdoo et al., 2009; Mercer et al., 2009; Kelman et al., 2012; Haynes et al., 2015). For example, a study of the 2011 Rena oil spill in Maketū, New Zealand, attributed the success of the clean-up to Māori cultural values and knowledge, which local people often had to assert in the face of outside ‘experts’ who wanted to advise them (Smith et al., 2015, 9).

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 responses and reduce the resources
available to those 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 a 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). Similarly, a lack of information about the toxicity and harmful effects of petroleum after the 2007 Hebei Spirit oil spill in South Korea meant that many volunteers were not properly clothed and later suffered from skin disease (Hur, 2012). Risks to both safety and organisational responses were apparent following the 2001 terrorist attacks on the World Trade Center, which saw around 30,000 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’.

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 emergent 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 critical roles in relief and recovery by collecting and distributing donated food, clothing and other domestic goods. Sporting and recreational 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 also Apan et al. 2010 and Whittaker et al. 2012).
Corporate involvement in disaster response is becoming increasingly common as part of corporate social responsibility (CSR) (Twigg, 2001). Although research has largely focused on the role of donations (Muller & Whiteman, 2009; Zhang et al., 2009; Muller & Kräussl, 2011; Johnson et al., 2011), some studies have considered the role of corporate volunteers after disaster. Twigg (2001) notes that many companies do not simply want to donate money in the aftermath of disaster and instead seek more active involvement. Many also recognise the changing expectations of employees, who seek more than monetary reward. Chong (2009), for example, examined DHL Asia-Pacific (a global logistics company) employees’ participation in a disaster response program following the 2004 Indian Ocean Tsunami. Employees collected donations and helped to transport and deliver supplies to Tsunami affected areas. Company vehicles were used to transport tourists to safety in Phuket, Thailand, and volunteers were deployed to the Airport Emergency Team (an initiative of the World Economic Forum) in Colombo, Sri Lanka, to assist in the distribution of over 7,000 tonnes of relief supplies. The study found that CSR strategies are more likely to benefit from strong employee participation when activities are aligned with their corporate identity. DHL had the skills and resources to provide logistical support following the disaster, and empowered local managers and employees to determine their level of commitment. The company’s involvement in disaster preparedness and response was formalised by a public-private partnership between the United Nations Development Programme (UNDP), Office for the Coordination of Humanitarian Affairs (OCHA) and Deutsche Post DHL (UNDP, 2014).

Another example of corporate volunteerism facilitated through partnerships with a disaster relief organisation is the ‘Ready When the Time Comes’ program initiated by the American Red Cross and WW. Grainger Inc. (an industrial supply company). Employees from businesses are trained and mobilised by the Red Cross 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.

4.3 Digital volunteerism: a new mode

The increasing accessibility of sophisticated yet simple information and communication technologies 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 range from basic use of sites like Facebook to share information through to more complex uses involving data mining and crisis mapping. For example, the ‘Pictures and documents found after the April 27, 2011 Tornadoes’ Facebook page was set up after a resident of Lester, Alabama, found some photos in her yard following the storm. She created the page to enable people to announce if they had lost or found an important item. In the year that the page was operational around 2000 items were returned to their owners (Harrison, 2013). The 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).

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 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).

Advances in information and communication technologies have not just enabled mass information dissemination, but also information and knowledge production (Linders, 2012). [Volunteered geographic information (VGI) ‘… involves the sharing and mapping of spatial data… through voluntary information gathered by the general public’ (Haworth and Bruce, 2015, 237). The strength of 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 ‘on-the-ground’ observers 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. Because it cannot be known beforehand how much information will be volunteered and where it will come from, VGI should be treated as a supplementary source of information only. 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 (Poser and Dansch, 2010).

Digital volunteerism is likely to become increasingly prevalent in emergency and disaster management worldwide. A key strength of the crowdsourcing approach is that volunteers do not necessarily have to invest long periods of time 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 for emergency and disaster management

This paper has examined some of the ways citizens participate in emergency and disaster management informally by volunteering their time, knowledge, skills and resources to help others. 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. 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, networks and enthusiasm of ordinary citizens.

Governments and agencies worldwide are increasingly recognising the opportunities and challenges posed by informal volunteers. Indeed many have developed strategies and resources for engaging and managing them. However, organisational culture, risks and
556 liabilities remain significant barriers to greater involvement of informal volunteers in
557 emergency and disaster management.

559 5.1 Cultures of emergency and disaster management
560 The extent to which citizens are able to participate in emergency and disaster management
561 depends largely on formal institutional structures and arrangements. Most developed
562 countries employ bureaucratic, command-and-control approaches that originate in the
563 paramilitary roots of most emergency and disaster management agencies (Quarantelli, 1987;
564 Neal and Phillips, 1995). Command-and-control approaches tend to assume a clear
565 distinction between the pre-emergency and emergency period, with the former characterised
566 by a sense of normalcy and the latter by chaos and disorganisation. Conceived in this way,
567 the role of emergency and disaster organisations is to establish command over chaos and
568 regain control over disorganisation (Dynes, 2004). However, Quarantelli (1988) notes that
569 command-and-control rarely works well, even in military combat situations, casting doubt on
570 its applicability and effectiveness in civilian contexts.

572 Drabek and McEntire (2003) identify a range of assumptions that underpin command-and-
573 control approaches: bureaucratic response occurs in a vacuum; information outside of official
574 channels is lacking or inaccurate; standard operating procedures will always function in
575 disasters; departures from bureaucratic guidelines are detrimental; citizens are inept, passive
576 or non-participants in disaster operations; and ad hoc emergence is counterproductive. As
577 noted above, disaster research challenges many of these assumptions. It demonstrates that
578 citizens tend to become more cohesive and engage in pro-social behaviour in disaster
579 situations. These findings are the starting point for an alternative approach to emergency and
580 disaster management that involves ‘loosening rather than tightening up the command
581 structure’ (Quarantelli, 1988, 381). Emergencies are instead viewed as ‘a set of problems
582 which have to be solved with some degree of speed and effectiveness by the existing
583 resources within that social unit – the community’ (Dynes, 1994, 156). Dynes argues that this
584 problem-solving model rests on a more realistic set of assumptions and principles, derived
585 from empirical research: emergencies do not reduce the capacities of individuals and social
586 structures to cope, but rather present new challenges; existing social structure is the most
587 effective way to address these challenges; social units are resources for problem solving,
588 rather than problems in themselves; and, emergencies are characterised by decentralised and
589 pluralistic decision-making, so autonomy of decision-making should be valued over
centralisation of authority. Thus Dynes (1994, 149) maintains that 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’.

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). This is supported by Boin and t’Hart (2010, 366), who argue that ‘the circle
of organisations actively involved in crisis response networks is [often] drawn too narrowly’,
focusing largely on established and expanding organisations, with limited participation of
extending and emergent organisations.

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 their efforts to undertake new
tasks are not constrained by established procedures, rules or legislation. Third, 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 to 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 specific 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 in the Netherlands 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 the task 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, by providing special clothing so that volunteers can be recognised, and by 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. These initiatives are built into five planned phases beginning with victims and bystanders arriving on the scene, and ending with official acknowledgement of volunteer efforts and possible provision of counselling and compensation (see Scanlon et al. 2014).

Implementation of such initiatives may be more complicated in situations where emergency responders are unable to assess whether citizens have the necessary knowledge and skills to make a worthwhile contribution. They may also be unwilling to accept assistance for fear of being held responsible if a volunteer is harmed.
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. Informal volunteers may risk physical or psychological harm to themselves and others if they engage in activities without necessary knowledge, skills, equipment and training. 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 et al. 2014).

Orloff (2011) identifies two main liability risks for emergency management agencies arising from the participation of spontaneous volunteers. The first is that volunteers or their families will sue agencies for death, injury or damages incurred as a result of volunteer activities, and the second is that recipients of help will sue agencies for the unintended or intended consequences of volunteers’ actions. In the USA, confusion about liability stems from complicated laws, inconsistent protections from state to state, and the often multiple affiliations of volunteers that blurs lines of responsibility for protection (Orloff, 2011). 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). Nevertheless, in her study of spontaneous volunteer management in Victoria, Australia, Saaroni (2014) identified very little evidence of governments being sued for the actions of spontaneous volunteers and noted that litigation against volunteers is uncommon.
While further research into legal liability and volunteer safety is needed, the risks associated with informal volunteerism can be minimised. Hospitals routinely manage risks associated with the use of volunteer health professionals during emergencies through prior planning and training to meet surge capacity, and through strict credentialing procedures (Hodge, 2006). Safety can be increased and liability risks reduced through registering, training, credentialing, assigning appropriate tasks, and supervising volunteers (Sauer et al., 2014). However, such measures are unlikely to be effective where volunteerism is more informal and emergent. Emergency managers must therefore be attuned to what is happening on the ground and be prepared to engage with a diverse range of volunteers.

It is important to recognise that capacities for managing informal volunteers may be limited in countries and regions where government and other institutions are weak or absent. Laws to protect the health and safety of volunteers and recipients of help may also be limited. This was evident in the aftermath of the 2010 Haiti earthquake when a group of ten Baptist missionaries from Idaho in the USA was apprehended attempting to cross the Haiti-Dominican Republic border with 33 children aged two to twelve (Atzet, 2010). The group was part of the New Life Children’s Refuge (NLCR, 2010, p. 3), an organisation ‘dedicated to rescuing, loving and caring for orphaned, abandoned and impoverished Haitian and Dominican children… [and providing] opportunities for adoption into a loving Christian family’. It was later revealed that many of the children were not abandoned or orphaned. Questions were raised about the intentions of the group, whose leader was experiencing financial difficulty and may have been seeking monetary rewards associated with placing children in adoptive homes. It was also revealed that one of the group’s legal advisors was under investigation for alleged connection with sex trafficking in El Salvador (Hearst, 2010). Although uncommon, examples such as this highlight the need to develop capacities and procedures for monitoring and managing the contributions of informal volunteers during emergencies and disasters.

6. Conclusion: co-producing emergency and disaster management

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 reviewed in this paper suggests that unsolicited volunteers will be active in times of crisis, 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 effective responses 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 that are cooperating and coordinating their activities with informal volunteers. This has typically involved developing volunteer registers and training programs prior to an event. Yet such measures are unlikely to be effective where volunteerism is highly 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. Attempts to ‘integrate’ informal volunteers into formal systems may prove counterproductive by quashing the adaptability, innovativeness and responsiveness that informal volunteers bring to emergency and disaster management. Further research is needed to examine how organisational cultures and structures are changing to account for informal volunteerism, and how associated legal liabilities and safety concerns 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 resiliencies that exist within and across communities.

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