Communicating bushfire safety: the challenge of community participation for government

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Abstract

Bushfires are a major part of the Australian natural disaster landscape, and are responsible for severe property damage and loss of life. Since 2009 there have been four major bushfire events in Australia warranting inquiry, three within the state of Western Australia. The recommendations from reviews such as these are intended to drive future policy and decision making, reflecting a commitment on behalf of authorities to learn from past events. Despite these efforts, the literature on bushfire management is still lacking a rigorous discussion of the role that integrated strategic communication can play in implementing these recommendations. Much has been written about emergency communication, including the use of social media and online interactive technology, particularly in recent years. The state of bushfire preparedness is also discussed at length. However, the notion of these elements as entwined in a strategic, integrated process which includes non-emergency communication is less prevalent. Nicholls and Glenny (2005) write that in bushfire management, the government and community are part of a "hybrid organisation" that is vulnerable to the same public relations post-crisis threats as other organisations. These can include damage to employees, product, services, financial condition or reputation. For authorities, ensuring the successful communication of bushfire safety is the key to securing legitimacy as an organisation, and can be seen as an important part of the overall management of bushfires in Australia.

Communication within the public sector is characterised by politics, legal constraints, extreme media and public scrutiny, among other factors which prevent it from falling clearly within existing public relations models (B. F. Liu andand Horsley, 2007). The element of risk can provide a barrier to innovation in public sector communication, particularly in relation to internet communications (Roehrich andand Armstrong, 2004). Head (2007) writes that government communication systems are used to presenting their activities in the best light, and promote an image of competence and care. For this reason, Young (2007) says that we should not always assume that governments want greater community participation, highlighting both the economic and political risk involved in doing so. Nevertheless, greater community participation in bushfire communications appears to be a key recommendation of the multiple inquiries into bushfire events. The public sector generally, and fire and emergency services organisations specifically, are under some pressure to accommodate this perceived need. Internet-based communications have a key role to play in filling the gap, but must balance community desire for participation with government requirements to be reliable and minimize risk (eg. Freeman and Freeman, 2010). The increasing use of social media during disaster events (Bird, Ling, and Haynes, 2012; Keim and Noji, 2011) reflects the fact that in the absence of official platforms, or sometimes even despite them, citizens will create their own unofficial channels to communicate (Quinn, 2012). As part of preparations for a project which aims to provide greater community involvement in the Landgate *FireWatch* information service, this paper reviews the opportunities and threats inherent in government/community bushfire communication.

Technology and models of government communication

Smyth (1999) argued that government communication campaigns in Australia follow a two-way asymmetric model to achieve their objectives of providing information about government services, winning support for policies and building positive institutional images for government departments and agencies. However, Chen, Gibson, Lusoli and Ward (2007: 169) wrote that, in Australian government, "the institutional approach to online communication … is still very much a top-down, informational broadcast model rather than one that provides opportunities for citizens to comment, interact or engage with representatives or policy". Government communication is usually described as exemplifying the public information communication model (Nicholls and Glenny, 2005).

Since its early use in government communication, the Internet has been identified as a driving factor for an increasingly interactive government model (Smyth, 1999), and there have been attempts to incorporate a two-way symmetric communication model into online government services. Queensland has been Australia's leader in online consultative communication, providing platforms for citizens to 'have a say' on key issues. Western Australia has also demonstrated examples of participatory government through forums and other initiatives for citizens to engage in the policy-making process (Young, 2007). However, as Chen, Gibson, Lusoli and Ward (2007) showed, not all experiments in interactive online initiatives have been successful. Cross-agency communication has historically been a challenge for Australian government services, and involvement of more than one agency or level of government is one of the biggest barriers towards integrated online services (Roehrich and Armstrong, 2004).

American researchers Liu and Horsley (2007: 1) suggested that existing public relations models "do not account for the unique environmental characteristics of the public sector". Even in a country with a constitutional right to free speech, media scrutiny, legal threats and political partisanship blur the boundaries for traditional models applied to the public sector. Within this environment, risk can counteract innovation, particularly in new media communications (Roehrich and Armstrong, 2004). Public service communication systems are designed to enhance reputation, not to invite doubt about competence and service, and also to defend public duty in an increasingly politicised public sphere (Head, 2007). As Orr (2007: 29) has pointed out, in the largely unregulated political communications environment in

Australia, politicians and government officials "now have lesser rights to reputation than other public figures, such as celebrities". There is both risk and opportunity in engaging with communities and moving beyond a broadcast communication practice (Young, 2007).

Models for bushfire management and communication

Toman and Shindler (2006) highlight the importance of strategic communication in bushfire outreach activities. They argue that the common vague communication goal of simply "educating the public" fails to differentiate between the goals of awareness building and behaviour or attitude change, and does not effectively address target audiences and contextual influences or make the best use of internal resources. Despite commitment to raising awareness about the dangers of bushfires, levels of household bushfire preparation remain low (Prior, 2010). Several studies (O'Neill, 2004; Paton, Kelly, Burgelt, and Doherty, 2006; Prior, 2010) indicate complex motivations for engaging in bushfire preparation activities, further reinforcing the need for tailored messages even within a single communication aim. It has been found that "neither living in areas susceptible to adverse hazard impacts nor the standard approach to risk communication, providing people with information on hazards and their consequences, exercise a significant influence on preparing" (Paton, Kelly, Burgelt, and Doherty, 2006: 567). O'Neill (2004) suggests that there is need for an innovative, planned and evidence-based culture in the design of community safety programs to develop an appropriate risk communication model.

Integrated approaches to bushfire communication identify several stages in the management process and research has found that different models of communication are required at different stages in the bushfire management cycle. O'Neill (2004) advocates for problemsolving at a community level during the 'before' and 'recovery' phases of bushfire management. Sharp, Thwaites, Millar and Curtis (2009) have found that two-way symmetrical communication and demonstrated inter-agency cooperation are important as part of the preparation and recovery phases, whilst during bushfires the community is satisfied with a one-way flow of information relaying details about the situation. Following the event, community members want a two-way flow of information that provides targeted information relevant to individual circumstances. Underlying these findings is the idea that healthy stakeholder relationships need to exist before the fire to help build positive expectations of managing agencies' capacity to deal with a bushfire emergency.

There has been a shift towards a 'community safety' risk management approach within bushfire management, with the knowledge that, when an event does occur, authorities are unable to defend every property in danger (Elsworth, Stevens, Gilbert, Goodman, and Rhodes, 2008). Resilience is often named as an objective in disaster management literature, and it can be defined as enabling people to better support themselves and each other in preparation for disaster events, and as a factor in achieving sustainability (Dufty, 2012: 40). Australia's National Strategy for Disaster Resilience promotes the need for current targeted information to be available about disaster risk and mitigation, networking across sectors and regions, and the use of information sharing technologies (COAG, 2011).

A successful model of community bushfire planning for resilience is demonstrated in the Victorian Community Fireguard program. This initiative encourages the formation of small community groups, with information and support provided by the Country Fire Authority (Boura, 1998). The Community Fireguard program provides information and support throughout the networking and planning process; however, it can be difficult to promote measures for community resilience prior to an actual disaster (Berselli, Burger, and Close, 2012), and it has been found that a strong motivator for becoming involved in Community Fireguard was a personal experience of bushfires and a desire to begin the recovery process immediately to help mitigate and prepare for the future (McGee, 2011).

Another mode for integrated bushfire management is the collaborative governance model, which implies two-way communication between public and private stakeholders (Ansell and Gash, 2008). Collaborative bushfire governance has been policy-mandated in New South Wales and a study has found that agencies involved are more active, less centralised and more closely connected during planning than they had been prior to this initiative (Brummel, Nelson, and Jakes, 2012). However, it was also found that institutionalising collaboration can encourage a power bias towards public organisations with more limited participation and decision-making ability by other representatives, including volunteers (Brummel et al., 2012).

Fire Inquiries and the requirement for community engagement

Communication between government and non-government agencies and community stakeholders was addressed in four significant government bushfire investigations held in Australia since 2009, and their resulting reports:

- The 2009 Victorian Bushfires Royal Commission Final Report (2010)
- A Shared Responsibility: The Report of the Perth Hills Bushfire 2011 Review (2011)
- Inquiry into the 2011 Kimberley Ultramarathon (2012)
- Appreciating the Risk: Margaret River Bushfire Special Inquiry Report (2012)

These reports investigated four very different kinds of fires, but all identified ways that communications surrounding bushfires can be improved. The most publicised fires in this period occurred in rural Victoria in 2009, the Black Saturday Bushfires, in which 173 people lost their lives. Recommendations from the Royal Commission which followed include numerous references to community involvement and greater co-ordination between government agencies and between authorities and home dwellers. Three significant fire incidents occurred in Western Australia in 2011, one in February in the peri-urban outskirts of Perth, one in the Kimberley region in September and one in the southern town of Margaret River in November. The Perth Hills inquiry was scathing in its criticism of inter-agency collaboration (Keelty, 2011). By the time of the Margaret River inquiry, the committee noted that progress had been made in inter-agency collaboration since the February fires in Perth (Keelty, 2012). However, further improvements were needed especially "in regard to local knowledge and engagement with the volunteer bushfire brigades" (Keelty, 2012: 3). The findings of this report concerned not only the emergency situation, but issues related to planning and risk assessment. Risk assessment was to expand to include local businesses and tourist operations which generated jobs and income in the region and would necessarily involve the local community (Keelty, 2012). The inquiry into the Kimberley Ultramarathon Fire detailed multiple failures of communication between the race organisers and the local community (Economics and Industry Standing Committee, 2012). Tragically, knowledge needed to prevent participants being burned existed in the community but was not accessed. Inquiries into the three significant fires which occurred in WA in 2011 and the ongoing discussion of the Black Saturday disaster have focussed public attention on government communications concerning bushfire planning and response.

Discussion of *community* has been common in these fire inquiries, although there are many definitions of community and not all rely on a "community of place". Increasingly *community* has come to be dissociated from geographical place. During fieldwork in a country town in rural Victoria, Akama and Ivanka (2010) found that a lack of understanding of what constitutes the *community* resulted in ineffective communication by government authorities. They documented "community building burnout" and even active resistance to community by non-permanent holiday-makers. Despite using a suite of innovative methods, these researchers struggled to achieve the "community of place" in which local knowledge of the environment and the people in it could be harnessed for bushfire safety.

Emerging use of new technologies and social media in bushfire communication

Quinn (2012: 2) argues that government emergency services must "go where the conversation is" rather than rely on traditional broadcast methods. The past decade has seen a wave of new technologies offering possibilities for online communication, and in recent years there has been an increased interest in the use of mobile technology and interactive social networking in disaster management. Social media are "forms of information and communication technology disseminated through social interaction" that "rely on peer-to-peer networks that are collaborative, decentralised, and community driven" (Keim and Noji, 2011: 47). Effective use of online media for communication appears to require more than simply transferring existing messages into the new medium (Quinn, 2012).

A study of a government-driven website scheme to promote community engagement during and after the 2009 Victorian bushfires reveals some of the problems with government-run online communities (Freeman and Freeman, 2010). As part of the scheme, self-contained websites were launched and website postings were temporarily moderated by officials until some were successfully handed to community members. It was found that when the top-down moderation was removed, these sites were utilised effectively. Social media sites created on existing platforms such as Facebook were by far the most utilised format for communities to communicate online post-bushfire; however, from a government perspective they were seen to pose issues of reliability (Freeman and Freeman, 2010).

Research sponsored by the Victorian Emergency Services Foundation suggests that there is a desire to learn more about how social media and two-way communication can be used in

emergency management. Berselli et al. (2012) have examined the potential for emergency service organisations to harvest community social media information, in order to increase situational awareness across vast geographical areas. Known as "crowdsourcing", this technology uses publicly outputted information to form an interconnected understanding of an event, helping authorities to better assess a situation, and giving the community an opportunity to actively help identify and report potential issues (Berselli, et al., 2012).

The use of social media during disaster events in Australia has been well documented (Bird, et al., 2012; Bruns, Burgess, Crawford, and Shaw, 2012; Keim and Noji, 2011; Queensland Police Service, 2011). Liu and Palen (2010) have looked at the rise of crisis map mashups produced by non-experts with the increased availability of both mapping tools and publicly available data. For example, a journalist was able to create the LA Times Google My Maps mashup to report on the 2009 LA fires using a combination of geological survey data, emergency alerts, reports from journalists in the field and occasional satellite imagery. Liu and Palen (2010) suggest that local knowledge and the ability of amateurs to manipulate data are leading to greater cartographic literacy. Research into Australian bushfire information websites in Australia has found that visitors want access to more pictures, maps, diagrams and charts, downloadable videos and up-to-date information about current bushfires (Rohrmann, 2007). The online platform Crowdmap, which incorporates social media information and geographic mapping aids, was used by the Australian Broadcasting Corporation during the 2010-2011 Queensland floods to organise public social media information including tweets, pictures and videos onto a single geographic map (Berselli et al., 2012: 2). Bruns et al. (2012) analysed the use of Twitter in the same Queensland flood event and concluded that social media played an important role both during and after the emergency. The most retweeted information was sourced from the Queensland Police Service Media Unit's own Twitter account, demonstrating an effective two way communication process between government and the affected community. Twitter users provided additional situational information, thus acting as sensors, and also amplified the official messages. This Twitter "community" was not a traditional "community of place" as it was made up of both local people and remotely located people interested in the crisis.

The existence of independent online community bushfire websites indicates a perceived gap in official services from some sectors. These websites appear to offer services of varying reliability and functionality to the public. Bush Fire Front, an "Alliance against bushfire

damage in Western Australia" is an example of an independent, non-verified one-way information and opinion website about preventing bushfire damage (Bush Fire Front, 2012). In contrast, the Bushfire Connect website is a two-way, interactive platform that provides an online bushfire crisis service. It uses a version of the Crowdmap software and relies on SMS alerts from community members about bushfire events, which are moderated by volunteers who then map this activity (Bushfire Connect, n.d.). An emergency-only system, Bushfire Connect is currently inactive due to the need for financial support.

Whilst the uptake of social media in a disaster situation provides immediate benefits to the participant, the fact that it is difficult to promote measures for community resilience may mean that the uptake of online non-emergency communication systems presents additional challenges. Whilst initially designed to facilitate crisis communication, technologies such as Crowdmap offer a template for a non-emergency system of online bushfire communication and can be used as interactive databases for local knowledge (Ushahidi, 2012). Keim and Noji (2011) argue that social media can help in non-emergency contexts through its ability to absorb disaster impact, assisting with more effective approaches to risk reduction and supporting the capacity to remain flexible in changing socioeconomic environments. Dufty (2012) highlights how social media can be used to facilitate the sharing of information, discussion and planning, coordination and managing of tasks and evaluation, forming social capital, and providing support to people after a disaster. Bruns et al. (2012) noted that the Twitter community during the 2011 Queensland floods moved from situational information and advice during the emergency to a wider set of topics from volunteer cleanup to fundraising afterwards.

In a non-emergency situation the Internet can be seen as a tool that operates through a uses and gratifications communication model to facilitate valuable community discussion (Ko, Cho and Roberts, 2005). In this model, a high level of interactivity and choice in media exposure means that people can actively choose to seek information from online sources. Whilst communication in an online community is reliant on having access to technology, the Internet can actually instigate dialogue between members of the community including non-Internet users through a two-step information flow process (Norris and Curtice, 2008). Those who use the Internet to gain information are more likely to talk about it to others than those who access the same information through mass media communication (Norris and Curtice,

2008). Thus, when being used as a supplementary tool in non-emergency bushfire communication, universal access to social media is not essential.

Government responsibility

Government communications in the area of bushfire safety arise from organisational objectives. For those involved in frontline emergency services, providing explicit information to the public about fire management is a core objective. For other government organisations, provision of information which supports frontline fire management is seen as only one part of a suite of services. Landgate, a statutory authority in Western Australia, provides an array of land and location information services, of which satellite derived fire information is only one. The audience for these services includes other government and semi-autonomous organisations, community organisations and individual members of the public. Landgate provides the FireWatch map service (http://firewatch.landgate.wa.gov.au/) in multiple versions to cater to these different audiences. However, frontline providers of fire management and emergency services are such key stakeholders that their communication needs have exerted a strong influence on the way that all versions of the service are delivered. Current research is underway to redesign FireWatch for public use, using a bottom up scenario-based design methodology (Haimes, Jung, and Medley, 2012).

Where fire emergencies have occurred resulting in loss of life and property, public and political scrutiny exerts another strong influence on information provision. Rapidly detecting fires in such a large and sparsely populated country as Australia, and then disseminating this information through appropriate media, is a huge government obligation requiring significant technical resources. The information must be understood by stakeholders ranging from experts to laypeople and, where complex information is presented, there is the risk that critical information will be overlooked or misunderstood. Where decisions about dissemination are made there is the risk that media channels will be unavailable. Discussions about problems of mobile delivery have been ongoing since the Black Saturday Fires (Al-Debei, 2011; Aloudat and Michael, 2011).

Importantly, government organisations can be criticised for failing to provide accurate information or failing to provide it in a format which can be understood and acted upon. In this environment, where responsibility is keenly felt by government providers, it is perhaps

not surprising that the prospect of community contribution to the information pool is daunting. So there is a possible disjunct between the recommendations to government coming out of multiple fire inquiries in Australia – to engage with communities – and perceptions of the duty of government providers to provide accurate information. As Nicholls and Glenny (2005) have suggested, government and the community form a hybrid organisation which can suffer harm as a result of the post bushfire impact on reputation.

Concerns about accuracy of information have arisen repeatedly in studies investigating government use of new media (Aloudat and Michael, 2011; Berselli et al., 2012). Nevertheless, innovative solutions to accuracy issues have been demonstrated in recent emergencies. The Queensland Police Service Media's use of the #Mythbuster Twitter hashtag was an effective strategy to diffuse rumours during the 2011 Queensland flood (Bruns, et al., 2012). Growing understanding of the volume of information available from geolocated community sourced data may also alleviate concerns about accuracy. It has been found that the nature of high-volume crowdsourced social activity is inherently self-moderating when the sheer volume of accurate posts can overwhelm inaccurate posts (Berselli, et al., 2012: 35). Crowdsourced visual situational data may ameliorate some concerns about truthfulness or accuracy of reports.

The communication flows required during a live emergency differ from those which occur in non-emergency situations surrounding bushfires. Non-emergency communications have an important role to play in preparation for, and management decision-making about, bushfires. Community members are an active audience and they are now armed with a suite of communication tools allowing them to connect, self-organise and even change the agenda. Communities need to be seen as risk assessors, as decision makers, as crisis detectors and as message amplifiers – effectively partners in bushfire management with government. They are potentially solution providers as well as the recipients of government care. Government organisations are being entreated to "go where the conversation is", but conversations can be ephemeral. The future challenge will be to balance the requirement to provide information continuously in a form most useful to the public whilst also utilising valuable community knowledge and communication activities as they arise.

Conclusion

The literature paints a picture of a highly dynamic networking climate where the Internet and mobile technology are presenting new opportunities for building communities and facilitating communication. It also reveals an extensive research and knowledge base about best-practice community bushfire management and risk communication which exceeds the scope of this paper; however, work focussed on the integrated, strategic communication of bushfire issues is scarce. Also evident is a collection of government bodies that, whilst demonstrating willingness to improve, are constrained within a governance model that presents unique challenges to effective communication. The pressure to provide both accurate and timely information about bushfires to communities is increasing through detailed inquiries into bushfire events in Australia. Changes in perceptions of communities by governments, and by the communities themselves, and a commitment to shared responsibility are required to resolve this challenge.

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