Working outside 'the rules': Opportunities and challenges of community participation in risk reduction

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ABSTRACT

Research has shown that greater community action is needed for effective risk reduction. Community participation in risk reduction ranges from action that is initiated and led by members of the public, independently of government assistance, to those that are initiated and facilitated by government and non-government organisations. Natural hazards research has demonstrated that despite awareness of and a desire to reduce risk, many community members lack the physical, psychological or financial capacity to take action. This is particularly the case for bushfires, where preparations can be costly and physically demanding. In response to this, Fire and Rescue New South Wales (FRNSW) established the Community Fire Unit (CFU) program. CFUs are groups of residents who are provided with education, training and equipment to enable them to reduce risks around their homes through enhanced preparation and some bushfire defence. This paper examines the experiences and views of CFU members after bushfires in the Blue Mountains, NSW in October 2013. The majority of respondents believed that their participation in the CFU program reduced bushfire risk and led to a greater sense of community and social capital in their local area. However, the research revealed challenges associated with participating within the formal, top-down structures of a professional fire brigade. Respondents therefore considered that greater flexibility was needed with simultaneously greater support and autonomy from FRNSW. The paper explores the experiences, challenges and opportunities presented by a top-down community based risk reduction program and considers the implications for community participation in risk reduction more generally.

1. Introduction

Community participation is a key principle of disaster risk reduction and resilience building. Participatory approaches were enshrined in the Hyogo Framework for Action 2005–2015, which declared '*Both communities and local authorities should be empowered to manage and reduce disaster risk by having the necessary information, resources and authority to implement actions for disaster risk reduction*' [1]; p.5). Its successor, the Sendai Framework for Disaster Risk Reduction 2015-30, advocates a shared responsibility model that substantially reduces disaster risks and losses. The framework reaffirmed the commitment to empowerment and inclusive, accessible and non-discriminatory participation and noted that '*special attention should be paid to the improvement of organized*

voluntary work of citizens' [2]; p.13). In Australia, community participation is central to the National Strategy for Disaster Resilience (NSDR), which identifies '*Empowering individuals and communities to exercise choice and take responsibility*' as a key priority [3]; p.13). Priority outcomes of the NSDR include that community members have knowledge and expertise of local risks, are able to make objective assessments of the defensibility of properties and communities from potential hazards, and have the resources and tools to reduce risks [3]. Fire and Rescue New South Wales (FRNSW) established the 'Community Fire Unit' (CFU) program in 1994 to reduce disaster risks through community participation and capacity building [4].

A CFU is a team of trained residents living in urban areas close to bushland who are supported by FRNSW to enhance their safety and

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resilience to bushfires [4]. The minimum number of residents needed to form a CFU is six. CFU members learn how to prepare themselves, their families and their properties for bushfire and to make informed decisions about leaving early or staying to defend when a bushfire threatens [5].

Following the success of the CFU program in New South Wales (NSW), the initiative was also implemented in the Australian Capital Territory (ACT) in 2003. While CFUs receive training and equipment from FRNSW and ACT Fire and Rescue (ACTFR), it is emphasised that they are not trained fire-fighters and being a CFU member is about education, prevention and preparation for bushfires [6]. CFU members follow a number of rules of engagement, including: the need to officially activate for duty by contacting FRNSW and ACTFR; only activating and engaging in duty when four or more members are present; and operating only within their designated area of operation i.e., the immediate vicinity of their homes [4]. The current record indicates there are 514 CFUs and 4670 members across metropolitan and regional NSW and 50 CFUs with 850 members in the ACT [6].

Bushfires are a regular occurrence in south-eastern Australia. While fire is a natural part of many ecosystems [7], it may also threaten human lives, property and the environment [8,9]. Changing environmental circumstances [10] and poor land-use planning [11] means that '*more Australians confront being colocated in time and space with fire events*' [12] p61). For example, the municipality of Blue Mountains City Council has the largest number of bushfire-prone addresses (<200 m to bushland) in NSW [13], with approximately 75% located within 130 m of bushland. This includes many new peri-urban developments along mountain ridges that are surrounded by extensive and dense bushland. In October 2013, dry, hot and windy weather spurred three separate bushfires in the Blue Mountains: the State Mine Fire, which began on 16 October; the Mt Victoria fire, which began on 17 October; and the Linksview Road fire, which also began on 17 October. Overall more than 200 homes were lost in the Blue Mountains. There were no fatalities.

As development continues to expand and push the urban fringe into bushfire prone landscapes, a fundamental rethink is required in how we coexist with fire [14]. To achieve this, we must draw from '*new understandings not only from fire science, but also from the wider social sciences, humanities and philosophy*' [12] p61). In a practical sense, research has demonstrated that participatory approaches are an effective way to engage people with bushfire risk and motivate planning and preparation [15–17]. This paper aims to generate new understandings from the perspective of community participation in the CFU program. In particular, we examine the results of a mixed-methods survey that explored CFU members' experiences during the 2013 Blue Mountains bushfires, with a focus on the empowerment of individuals and their ability to exercise choice and take responsibility for risk, as envisioned by the NSDR. The paper begins with a brief literature review examining community participation in risk reduction in order to place the CFU scheme within other similar initiatives worldwide.

2. Community participation in risk reduction

Participation in risk reduction ranges from activities that are initiated and led by communities through to those that are established and managed by government and non-government organisations. Research on such activities has focused on behaviours and organisations that emerge in times of crises, when people typically work together to overcome individual and collective challenges (e.g. Refs. [18–23]. These emergent behaviours, groups and organisations often occur in response to emergencies or disasters, when the needs of affected people are not being met, or are perceived to be unmet, by established organisations [24]. For example, studies have documented the critical first-responder roles played by citizens in the immediate aftermath of earthquakes, including initial search and rescue, provision of first aid, and impact and needs assessment [25,26]. Increasingly, research has characterised emergent behaviours and groups in terms of spontaneous volunteerism

(e.g. Refs. [27–29]; however, the term 'spontaneous' may obscure the degree to which much unanticipated activity during and after emergencies and disasters emerges from pre-existing social networks and capacities [30].

Community participations can benefit emergency and disaster management through enhanced utilisation of local knowledge, networks and capacities. Local people often have 'real-time' knowledge of the issues and problems that they and fellow community members are experiencing and can therefore be highly responsive and adaptive to specific local needs [30]. In contrast to formal emergency and disaster management organisations, their participation is unlikely to be constrained by pre-established rules, strategies or technologies that may inhibit effective local response [27]. However, a lack of formal rules and procedures to guide community participation can create tension between 'official' and 'unofficial' responders. Formal emergency and disaster management organisations tend to be highly structured, rule-based and procedural, and many employ 'command-and-control' approaches that provide little scope for community participation [31–33]. Participation may also be discouraged due to concerns for public safety and the risk of being held legally liable for injury or death [28]. For these reasons, emergency and disaster management agencies tend to create opportunities for community participation within their organisations, thereby maintaining control over how people participate.

In Australia, emergency management agencies have relied on volunteers to provide a wide range of services including firefighting, hazmat and traffic accident response, search and rescue, surf lifesaving and storm response [34]. However, these 'volunteers' tend to be highly trained, are regulated by formal rules and codes of practice and are considered official members of these organisations. In comparison to these more prescribed volunteering arrangements, many organisations have also developed programs that invite community participation in prevention, planning and preparedness activities. In particular, fire services have led the way through programs such as FRNSW's CFU program and the Victorian Country Fire Authority's 'Community Fireguard' program, which was established in 1993 to engage interested groups of neighbours and educate them about bushfire preparation [35]. The Tasmania Fire Service's 'Bushfire Ready Neighbourhoods' program takes a community development approach, selecting communities based on levels of bushfire risk, capacity and community interest, and tailors bushfire education events and activities to unique local needs [36]. Similar programs exist in North America, including the 'Fire-Smart-ForestWise' program in Canada and the 'Firewise Communities' program in the USA.

Reviews suggest that neighbourhood level programs such as FRNSW's CFU program help to reduce bushfire risk, but can also enhance social connectedness and resilience [4,15,37]. However, these programs remain largely untested by rigorous and robust evaluations. An exception is the CFA Community Fireguard program, which was assessed by two studies following the Black Saturday bushfires in 2009, which killed 173 people and destroyed over 2000 houses (see Ref. [38]. MacDougall et al. [15] concluded that the CFA Community Fireguard program had a positive impact on members' preparedness for bushfire and sense of self-efficacy and control, which assisted them during the Black Saturday fires. Gibbs et al. [16] explored the economic savings provided by the Fireguard scheme and demonstrated that over a 10-year period total costs for each group averaged $10,884, while savings, in the event of a major fire, were $732,747 from reduced property loss and $1.4 M from reduced fatalities for each Fireguard group.

3. Research methods

This study employed a mixed methods approach to examine members' experiences and views of participating in the CFU program and during their response to the October 2013 bushfires in the Blue Mountains, NSW. Mixed-methods were used to ensure rigorous and comprehensive data collection (e.g. Refs. [39–41]. Quantitative data were