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Governance and Disaster Management: The Governmental and Community Response to Hurricane Katrina and the Victorian Bushfires

Howard Karger John Owen Shashi van de Graaff

Global warning may be increasing the frequency and destructiveness of natural disasters. Public-based emergency services were unable to cope with Hurricane Katrina and the Victorian bushfires and voluntary aid was critical in meeting the needs of the victims. This article examines the role of government and voluntary agencies in addressing these disasters in terms of aid, rebuilding, relocation, and redevelopment.

Keywords: disaster management, governmental sector, Hurricane Katrina, NGO, Victorian bushfires, voluntary organizations

Over the last decade, the frequency of occurrence of natural disasters has significantly increased. The intensity of impact of these disasters seems to vary globally. Disaster management programs and initiatives attempt to increase the efficiency, effectiveness, and coordination and collaboration of public responses to natural disasters. These responses include both public emergency alerts that occur before the disaster and emergency relief as well as rebuilding efforts after the disaster. In August 2005 Hurricane Katrina left 1,836 people dead, hundreds missing and 80 percent of New Orleans flooded (Olsen, 2010). Damage estimates ran to one-hundred billion dollars (Olsen, 2010). In February 2009 more than four-hundred bushfires blazed in Victoria, Australia, during some of the worst bushfire weather imaginable. Although unequal in scale, the events had a similar impact given the relative population size of each country. In both

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 $\ensuremath{\mathbb{C}}$ 2012 International Consortium for Social Development countries this led to public examination of the role of government in preparing for and responding to disasters.

From a public policy perspective, disasters are notoriously difficult to predict. The sheer randomness of large-scale disasters presents challenges at all levels of society—and as recent events such as those in Haiti have demonstrated—the impact of natural disasters can extend beyond communities and states—with disaster relief efforts being coordinated on a global scale. This paper examines two relatively recent cases of natural disaster by focusing on Hurricane Katrina (2005) in New Orleans, LA and the 2009 Victorian Bushfires in Australia.

Although these catastrophes occurred in different hemispheres, there are striking similarities. For one, both events happened on what was considered to be an "unprecedented scale." Neither was easily controlled and they overwhelmed existing service capacities. Despite their relatively sudden onslaught, there were clear signs of a catastrophe in both instances. In New Orleans, the Army Corps of Engineers knew beforehand that the levee system holding back the Gulf of Mexico was inadequate and in disrepair (Kunzelman, 2010). In Victoria the conditions were perfect for a massive bushfire of unprecedented fury. In both instances, too little was done to prepare for the worst.

In both instances, the response from national- and state-based agencies came under significant scrutiny over their handling of relief efforts. Moreover, the competence and actions of those leading the relief effort also have come under scrutiny. In July 2010, former Victoria Police Chief Christine Nixon resigned from her role as chairwoman of the Victorian Bushfires Reconstruction and Recovery Authority, after it was revealed that she visited her hairdresser and biographer on Black Saturday (the beginning of the bushfires) and left the command center at 6 p.m. to go to dinner with friends. Appointed by former President George Bush in 2003, Michael Brown was the director of the Federal Emergency Management Agency (FEMA) at the time of Hurricane Katrina. Brown resigned on September 12, 2005, in the wake of what was believed to be his incompetent handling of the Katrina relief efforts. He now hosts a radio talk show in Colorado. Both Nixon and Brown were political appointments.

In the United States and Australia, criticism of the responsible agencies has received high-level attention, with ongoing media reports about the litany of planning and implementation failures. It is safe to say that the public discussion about the overwhelming nature of these disasters has now been eclipsed by the reporting about the failure of government agencies to respond to them. What has been left out of the public conversation, however, is a critical discussion about the contribution of nongovernment organizations (NGOs) and nonassociated groups in the immediate and postdisaster periods.

This paper examines and compares formal responses from the United States and Australia—noting successes and failures in the delivery of relief. Given the absence of discourse about the involvement of nonstate agencies, it also examines the role of NGOs and grassroots actors in responding to the two disaster events. The final section considers some of the common lessons emerging from

the case studies and their implications for disaster planning at the grassroots, state, and federal levels.

Hurricane Katrina

At 6:10 a.m., on Monday, August 29, 2005, Hurricane Katrina made landfall as a category 3 storm. It first hit Louisiana and then Mississippi. The flooding that resulted from the breach of the levee system was catastrophic and was the most destructive natural disaster in American history. The state of Louisiana officially recognizes an estimated 1,464 victims of Katrina, although more than five-hundred names have not been publicly released because the program to identify missing persons and unidentified bodies ran out of money in 2006 (Olsen, 2010). The best estimates are that between 1,300 and 1,800 people died (80% were in the New Orleans area) with many being elderly or infirm (Olsen, 2010). More than 770,000 individuals were displaced (Olsen, 2010). It is estimated that 300,000 homes were either destroyed or made uninhabitable by the storm (Olsen, 2010). In New Orleans, the city most affected, approximately 80 percent of the city was flooded from between six and twenty feet of water—all within eighteen hours of the storm making landfall (Olsen, 2010). Louisiana, Mississippi, and Alabama also were affected. The 130-mph wind and twentyseven-foot storm surges impacted nearly ninety-three-thousand miles and affected 138 parishes and counties, an area roughly comparable to Great Britain (Quigley, 2010). The estimated cost of the damages was roughly ninety-six billion dollars and left 118-million cubic yards of debris in its wake (Townsend, 2006). See table 1 for an overview of the damage caused by Hurricane Katrina.

How does a nation respond to an event of this magnitude? Using Hurricane Katrina and the Victorian bushfires as examples, this paper contrasts formal and/or bureaucratic responses with more community-based approaches.

The Formal Response

The primary agency responsible for coordinating Federal assistance in preparation and response to Hurricane Katrina was FEMA. As it does not have its own critical response assets, FEMA managed the operational response, relief, and recovery efforts of the federal government by tasking the Departments of Health and Human Services, Defense, and Transportation, as well as the American Red Cross (Townsend, 2006). To prepare for the impending disaster, FEMA began coordinating with state governments to activate and preposition multiple emergency, search and rescue, and medical response teams to locations near the affected areas. Operational staging areas and mobilization centers were activated to accept the delivery of commodities and dispense them to local distribution points throughout Alabama, Louisiana, Georgia, Texas, and South Carolina (U.S. Department of Homeland Security, 2006).

On August 25, 2005, a state of emergency was declared in Louisiana, Mis-

Table 1. Estimated Damage from Hurricane Katrina and the New Orleans Flood

Sector	Costa
Housing	67
Consumer durable goods	7
Business property	20
Government property	3
Total	97

Note. Taken from Karger (2011).

sissippi, and Alabama. Governments at all levels worked with the American Red Cross and other not-for-profit organizations to establish over 114 emergency shelters for more than twenty-eight thousand people throughout the region, with many of the shelters located in local schools and churches. One of the most notorious shelters, the New Orleans Superdome, was initially opened only to city residents with special needs, but was later recategorized as a "shelter of last resort" for the general population (Townsend, 2006).

Voluntary evacuations of New Orleans were announced at 5 p.m. on August 27 (Quigley, 2010). Residents who did not plan to leave were advised to take precautionary measures such as stocking up on bottled water, batteries, and nonperishable food. Despite these warnings, many Gulf Coast residents had become so accustomed to hurricanes and tropical storms that they refused to evacuate. Mandatory evacuations were then issued for New Orleans on August 28. Although hundreds of thousands of people were safely evacuated, evacuation efforts were delayed by the effects of the oncoming hurricane that forced the cancellation of last-minute flights. As a result, tens of thousands of residents remained in areas most threatened by the approaching hurricane, either in shelters of last resort or hunkered down in their homes (Townsend, 2006).

As soon as conditions permitted, life-saving and life-sustaining efforts began. In many areas, roads and bridges were destroyed, making air or water the only means available to reach stranded victims, conduct initial damage assessments, and get emergency management response personnel into the area. Despite an environment involving extreme heat, chemicals, contaminated mud, downed power lines, and standing water, search and rescue teams successfully rescued approximately fifty-thousand hurricane survivors. Where possible, FEMA began moving prestaged trucks of water, ice, and preprepared food from federal operational staging areas into the disaster area and to various points of distribution. Medical teams were activated and deployed to support response efforts, and assisted in evacuating over twenty-five-hundred people with special needs (U.S. Department of Homeland Security, 2006).

A number of barriers hindered the efficacy of immediate response efforts. Although FEMA and other federal, state, and local entities had prestaged

^aGiven in billions of dollars

commodities and personnel in and around the region to respond to Hurricane Katrina, the magnitude of the storm and its catastrophic effects completely overwhelmed FEMA's disaster response system and resources, and those of state and local governments. The loss of most of the important infrastructure significantly reduced the ability of emergency responders to forward situational and operational information to state or federal personnel outside the affected areas (U.S. Department of Homeland Security, 2006). Likewise, local emergency response officials found it difficult to establish functioning incident command structures or guide the local response efforts due to extensive damage to their facilities, equipment, and communications infrastructure. Coordination issues often left response efforts to their own initiative in organizing relief efforts (Townsend, 2006).

The Informal Response—Faith-Based Organizations

Faith-based organizations (FBOs) played a vital role in responding to Hurricane Katrina. After the hurricane hit, FBOs did not wait for authority or guidance from formal agencies, but often began helping others while they also were suffering from the effects of the storms. Many of the organizations were not included in much of the government predisaster planning and did not have experience in these types of relief efforts (Homeland Security Institute, 2006). Furthermore, the vast majority of churches did not receive federal monies to assist in support efforts; instead, they relied solely on donations from congregations and private sources (Cain & Barthelemy, 2008). Despite these challenges, FBOs of all sizes and denominations provided a comprehensive range of services across the entire geographic region affected by the hurricane.

In the immediate aftermath of Katrina, FBOs took on a multiplicity of roles as "de facto" first responders with extraordinary effectiveness. Support efforts covered a wide spectrum of need and assistance that included, but were by no means limited to, the provision of food, emergency shelter, hygiene and medical services, mental health and spiritual support, children's services, transportation services, and case management. FBOs also were involved in brokering relationships with the larger disaster-response community, reconnecting individuals with family members located outside of the affected area, and acting as social justice advocates on behalf of hurricane survivors (Trader-Leigh, 2008). In some communities, FBOs were the only ones to provide shelter, food, or medical services for days or even weeks (Homeland Security Institute, 2006). FBOs are continuing to provide recovery services in many communities (Clarke, 2010).

Case Study 1: LDS One of the most significant contributors to the Hurricane Katrina relief effort was the Church of Jesus Christ of Latter-Day Saints (LDS). Prior to Hurricane Katrina's landfall, LDS began staging materials and personnel in neighboring states so that they could be deployed as quickly as possible.

As soon as the hurricane had passed, LDS drew on its network of church storehouses in the Southeast to immediately send fourteen truckloads of food, water, and emergency equipment to coastal areas devastated by the hurricane (LDS, 2005a). As a result of these efforts, LDS trucks often reached affected communities before any government agencies or formal relief efforts arrived (Zuckerman, 2005). Emergency shelters, distribution centers, and church-operated food pantries were quickly established throughout the region to cater to thousands of hurricane survivors (LDS, 2005b). At the request of the American Red Cross, LDS (2005b) volunteers assembled twenty-seven-thousand personal hygiene kits (Greaves, 2005) and more than thirty-thousand home cleaning kits for distribution through the church's shelters and other organizations ("LDS Church Sending," 2005). In the two weeks after Hurricane Katrina made landfall, the LDS had shipped more than 140 truckloads of commodities and supplies (about 2,800 tons) into the affected areas. Two years after Hurricane Katrina, LDS volunteers had assembled and distributed more than forty-thousand linen sets, sixty-thousand cleaning kits, seventy-thousand kitchen kits, 250,000 school kits, and nearly a million hygiene kits (LDS, 2005a).

The involvement of LDS members in response to Hurricane Katrina extended to longer-term cleanup, recovery, and rebuilding efforts. Over ten-thousand LDS volunteers took part in a debris-removal crew, whose work also has involved gutting and reconstructing hundreds of damaged houses, many of which are inhabited by residents unaffiliated with the church ("LDS Church Volunteers," 2005). With many area schools destroyed or severely damaged by the hurricane, LDS focused their efforts on getting the schools operating again. Apart from collecting and distributing school supply kits, volunteers launched a book drive to replenish damaged school libraries and donated used televisions, audiovisual equipment, and furniture ("School Supplies Help," 2005). LDS employment centers also worked with employment specialists to assist those who had lost jobs due to the hurricane. By 2007, LDS volunteers had contributed more than 42,000 days worth of work (LDS, 2007).

Case Study 2: Faith Works — Several partnerships between FBOs also emerged in response to Hurricane Katrina. The group called Faith Works is an example of a network of local Presbyterian churches that pooled their hurricane recovery efforts. While setting up accommodations for the work crews and coordinating donations of supplies, Reverend Steven Arndt, pastor of Gretna Presbyterian Church, learned that other local Presbyterian churches, as well as churches of other denominations throughout New Orleans, were working independently with the same goals of marshaling volunteers and resources. Realizing they could be more effective working together, the local churches created a partnership, Faith Works, to focus their efforts. The partnership provided smaller churches a chance to contribute to the recovery effort in a meaningful way, such as by providing access to kitchen and shower facilities.

Strengths of the FBO Response An obvious benefit of faith-based responses, much as a grassroots response, is that they usually are both part of and proximate to the affected communities. On one hand this offers a level of assurance regarding commitment and responsibility around the efforts provided to evacuees. On the other hand, being proximal to disaster affected communities reduces delays.

For instance, Pant, Kirsch, Subbarao, Yu-Hsiang, and Vu (2008) compared response times between federal, state, and community-based agencies. According to the researchers, state responses often take between twenty-four to seventy-two hours whereas federal responses can take from forty-eight to seventy-two hours. In the case of Hurricane Katrina, the critical gap in the provision of basic services was often met by community-based faith organizations that were often able to provide these services during the acute emergency phase of the response.

Another benefit of FBOs is that relative to state-based agencies, small executive boards are empowered to make prompt decisions around responses. This comparatively flat governance structure also enabled volunteers to feed expressed concerns directly to decision makers, resulting in a more timely response time and a more relevant set of goods and services on the ground (Pant et al., 2008).

Weaknesses of FBO Responses The major weakness of the FBO response to disasters is related to their existence as an "informal network." Because they are not part of the formal response structure, they may not have access to routine means of monetary support, communication, supply lines, or direct access to the affected area. In addition, although many of the FBOs had volunteers, the Red Cross was required to fill varying degrees of supply gaps for FBO shelters with support in the form of nurses, medicines, material goods, and publicity.

Another weakness was the lack of formal disaster training and education for FBO volunteers. Although some FBOs did provide disaster response training to volunteers after the event, educational materials that had previously been developed by the Red Cross were often utilized for this training. This is important when considering the lack of standardization of FBO evacuation shelters. In addition, only a minority of the shelters had pre-existing disaster plans, which mainly consisted of evacuation plans and drills for the church facilities. The absence of structure, formal training, and emergency management experience has the significant potential to result in, at best, a reduced quality of service, and at worst, could lead to dangerous or harmful practices. One way in which this critical issue could be addressed is through the structured integration of FBOs into the formal disaster response network, in addition to providing FBOs with appropriate training, resources, and emergency supplies. Another weakness was the lack of child educational and parental support programs. This lack of uniformity in childcare is another issue when standardizing shelter operations. Childcare should be seen as an enabling service for adult evacuees in the recovery phase of a disaster when they need time to search for employment and apply for disaster assistance through formal government agencies (Pant et al., 2008).

Grassroots Response Grassroots responses were evident in the actions of one or two individuals, as well as in groups of people working towards a common cause. Types of responses included, but were not limited to, the provision of essential items, legal services, health services, debris removal, and the reconstruction of housing. A number of these examples are described below.

Common Ground Relief is a Louisiana-based grassroots mutual aid society that emerged in response to Hurricane Katrina. The organization provided short-term relief for victims of hurricane disasters in the Gulf Coast region and long-term support in rebuilding the affected communities. It was a vehicle for nearly twenty-five-thousand people of all ages and backgrounds to volunteer in the recovery efforts. As such, Common Ground Relief had gutted over three-thousand flood-damaged homes, provided for the basic needs of thousands of New Orleans residents, and founded a now independent health clinic and women's shelter. It also established an advocacy center that houses a free legal clinic staffed with law school volunteers and supervised by a Louisiana licensed attorney. The organization provides free legal services that encompass wrongful demolition, succession documentation, mortgage application assistance, and contractor fraud (Common Ground Relief, n.d.).

Katrina Help Austin was another grassroots response to Hurricane Katrina that served as a matchmaker between Austin-area residents who wanted to take in hurricane evacuees and those looking for shelter. The group introduced evacuees to potential hosts and let the parties decide whether they would share a roof. At the site, evacuees could peruse donated items and find other services, such as rides. Volunteers claimed the organization had helped find matches for more than four-hundred evacuees and had gotten host offers from about three-thousand families (Schwartz, 2005).

Project Town Angels emerged from the actions of Shauna Hoffman, who developed a twenty-point plan for assisting families stranded by Hurricane Katrina. Her aim was to bring evacuees to Santa Clarita, California, and have the hurricane victims become self-sufficient within a year. Project Town Angels solicited and coordinated pledges to cover portions of each family's needs, such as providing a week's worth of groceries, a car or bus passes, affordable housing, or anything else on a twenty-point list. Pledges needed not be long term. The Town Angels wanted to help their families find jobs and nurture their job skills and education to get a fresh start (Rock, 2005).

Katrina Krewe was an all-volunteer organization established by Becky Zaheri in November 2005 to provide relief from the trash and debris in New Orleans resulting from Hurricane Katrina. In only months, the Krewe mobilized over ten-thousand local, national, and international volunteers to bag and remove over 250,000 tons of debris from New Orleans. Although the Katrina Krewe

has since discontinued cleanups, it continues to foster antilitter awareness among neighborhoods, schools, and businesses in the New Orleans area (Katrina Krewe, 2006).

St. Bernard Project was a nonprofit, community-based organization founded by Liz McCartney and Zack Rosenburg in St. Bernard Parish in mid-2006. The St. Bernard Project's rebuilding program rebuilds homes for senior citizens, people with disabilities, and families with children who cannot afford to have their homes rebuilt. The St. Bernard Project has helped more than 120 families move back into their homes and communities (St. Bernard Project, 2010).

Victorian Bushfires 2009

At the start of February 2009, the state of Victoria, Australia was hit with the worst heat wave in more than 100 years. A total fire ban was placed across the state where temperatures reached more than 106 degrees Fahrenheit (40 °C) and high winds exceeded the conditions that led to the deadly Ash Wednesday fires of 1983. On February 7, Melbourne, Victoria, recorded its hottest day since records were first kept in the 1850s—the temperature peaked at 46.4 degrees Celsius (115.5 °F; Victorian Bushfires Royal Commission, 2009). On this day, later known as "Black Saturday," Victoria was devastated by the worst bushfires in Australia's history.

Fires ignited in various places over the day, straining fire fighting resources already in action. As a windy cool front swept across the state, the long flanks of the fires breached containment lines much sooner than expected (Salvation Army, 2010). The rate at which the bushfires spread surpassed anything previously recorded. Flames leapt three-hundred feet (100 meters) into the air, generating heat so intense that aluminum road signs melted (Victorian Bushfires Royal Commission, 2009). Despite the intensity of the event, mandatory evacuations were not issued in the area due to Australia's "stay or go" bushfire policy, in which individuals are urged to either leave the area well in advance or be prepared to stay and defend their properties (Victorian Bushfires Royal Commission, 2009).

The scale of the disaster was unprecedented. By the time the fires were contained, 173 people had died and many others seriously injured. The fires damaged more than one-million acres (430,000 hectares), killed or injured over eleven-thousand farm animals, and resulted in enormous economic and environmental impacts (Victorian Bushfire Reconstruction and Recovery Authority, 2009). Nearly eighty communities throughout the state were left devastated, 3,400 properties were destroyed or damaged, and over seven-thousand people were left homeless (Victoria Government Department of Health, 2009). More than fifty-five businesses, five schools and kindergartens, and three sporting clubs were destroyed. Since the event, over 10,020 insurance claims have been lodged for residential, industrial, and farming losses, for a total of about \$1.2 billion (Victorian Bushfire Reconstruction and Recovery Authority, 2009).

The Formal Response

In the week prior to Black Saturday, emergency services were on high alert. A week-long fire ban had been in place in Victoria and some parts of New South Wales, while as many as 100,000 volunteer and staff fire fighters remained on standby ("Extreme Heat Sparks," 2009). A number of emergency meetings were held to brief residents in areas vulnerable to the bushfire threat ("Gippsland Fire Anger," 2009). Despite these preparations, bushfires jumped containment lines and left a path of destruction in their wake. To respond to the Black Saturday bushfires, hundreds of fire fighters from across Australia were sent to assist the effort in Victoria with every state and territory in Australia contributing some form of personnel and equipment to help battle the fires and to assist in the relief and cleanup operations.

In the days and weeks that followed Black Saturday, Australian state and federal governments deployed considerable resources directed at the recovery effort in Victoria (Victorian Bushfire Royal Commission, 2009). Staff and personnel sent to the affected areas from throughout the country included first aid and healthcare professionals, social workers, paramedics, search and rescue experts, identification experts, forensic crime scene examiners, and police and cadaver dogs ("Communities Rally," February 11, 2009). Nearly five-hundred centrelink (Australian Department of Welfare) officers and social workers were sent to Victoria to help distribute emergency funds and participate in the relief operations (Peatling & Coorey, 2009).

In addition, Victoria's seventy-nine municipal councils (one-third of which had been affected by the bushfires) provided a significant contribution to the response effort. Councils sent horticulturalists and road maintenance crews, nurses and health inspectors, finance and grief counselors, rangers and planners, and childcare and social workers, and provided assistance in a host of other areas (Grennan, 2009).

The Australian Defence Force (ADF) provided a range of resources and expertise including the deployment of engineering support, personnel carriers, reconnaissance teams, army bulldozers, and front-end loaders to build containment lines and logisticians to help make shattered communities functional again. The ADF established a series of tented "first-stop" shops to provide assistance to people who had lost their homes and belongings in the fire (O'Malley, 2009).

More than one-hundred environmental health staff was deployed to assist municipal councils and communities in the days and weeks following the fires to help manage public health issues including food safety, water quality, waste management, and effluent disposal. There were significant public health risks related to hazardous materials on fire affected sites, such as asbestos, damaged septic tanks, and unstable structures. As a result, the Department of Human Services (DHS) led the coordination of a public safety awareness campaign. This included providing information on returning to fire affected sites and the

distribution of approximately 14,000 "fossicker kits" to allow people to safely go back onto their property to salvage their surviving possessions. These kits included face masks, gardening gloves, disposable overalls, and waste collection bags (Victorian Bushfire Reconstruction and Recovery Authority, 2009). In collaboration with DHS, the Victoria Environment Protection Authority undertook an asbestos monitoring program immediately prior to and during the cleanup phase (Victorian Bushfire Reconstruction and Recovery Authority, 2009).

The size and scope of the policing component of the emergency response and initial recovery was the largest ever undertaken by Victoria police and the Australian federal police (AFP). All of Victoria police's five policing regions and sixteen departments, along with more than 150 AFP officers contributed support. Victoria police coordinated with the ADF to conduct initial rapid impact assessments. Conducted on behalf of the Office of the Emergency Services commissioner, these assessments provided an understanding of the extent of the devastation and assisted response and recovery work (Victorian Bushfire Reconstruction and Recovery Authority, 2009).

Long-Term Response: Reconstruction and Rebuilding Communities

In the week following Black Saturday (February 10, 2009), the commonwealth and Victorian governments established the Victorian Bushfire Reconstruction and Recovery Authority (VBRRA) to oversee and coordinate the largest recovery and rebuilding program Victoria ever faced. VBRRA was primarily a coordinating body, working with communities, businesses, charities, local councils, and other government departments to help rebuild communities affected by the bushfires (VBRRA, 2009). The Victorian Bushfires Royal Commission also was established on February 16, 2009, to investigate the causes of and responses to the bushfires (Victorian Bushfire Royal Commission, 2009).

The Victorian Bushfire Appeal Fund (VBAF) was established on February 8, 2009, by the Victorian government in partnership with the commonwealth government and Australian Red Cross. The appeal helped coordinate the overwhelming generosity coming from across Australia and internationally. Funds donated through Red Cross had been transferred into a separate trust account established by the Victorian government. An unprecedented \$379 million were received in donations, which is the largest single charitable appeal in Australia's history (VBAF, 2010). Funds were distributed through the Department of Human Services under the oversight of an independent advisory panel (VBRRA, 2009).

VBAF initiatives initially focused on emergency support, such as helping people dislocated from their homes and assisting bereaved families. However, VBAF later focused on delivering assistance for the strengthening and rebuilding of communities. Community Recovery Committees worked with local individuals and organizations to develop thirty-three long-term community recovery plans (CRPs) that identify specific, tailored, localized responses needed and

supported by the community. More than 470 of those projects had confirmed funding (VBRRA, 2010).

Community service hubs were established by VBAF in the most fire-affected areas to provide communities with face-to-face support and outreach services and practical information for rebuilding and recovery. Hubs primarily served as a "one-stop shop" for a range of services including financial support, housing, and counseling, and as a drop-in center that facilitated interaction among community members, the development of support networks, and the establishment of locally relevant recovery activities. The hubs had been a vital source of support for communities, having received almost six-hundred visitors a week (VBRRA, 2010).

Other community rebuilding services and initiatives that have been provided through VBRRA include, but are not limited to, the establishment of local memorials, local artist exhibitions and poetry workshops, rebuilding sports facilities, financial counseling, emotional and trauma counseling, youth support services, childcare services, distribution of material aid, workshops for community capacity building, and restoring community health services (VBRRA, 2010). VBRRA was committed to building and restoring community assets in fire-affected areas, including the upgrade of more than twenty community halls, building new community centers, as well as rebuilding sports and recreation facilities, parks, and gardens.

Other community funding approved for distribution included a \$9.1 million community assistance package delivered through local governments to provide additional recovery and rebuilding services and activities, such as grief and trauma support services, repairing community infrastructure and community support services, and helping bushfire-affected individuals and communities recover and rebuild. Around \$1.9 million was allocated for community events to help hold activities, such as winter health information sessions and community festivals (VBAF, 2010).

Schools, such as Middle Kinglake Primary School, continued to function after the disaster through the temporary relocation of building and facilities. Within the Kinglake community, a temporary school was established to provide six portable classrooms, toilets, a library, and an administration area. The provision of a temporary schooling option as close to home as possible and in familiar surroundings was considered helpful for traumatized students (VBRRA, 2009).

Another community rebuilding initiative aimed at improving the health and welfare of older members of the bushfire affected communities was the development of men's sheds, which provided a relaxed venue for men to make new friends and share stories and experiences; learn new skills; and become involved in the local community. About \$4.5 million had been invested by the government to build seventy-six men's sheds across Victoria (Neville, 2010).

Another initiative funded by VBAF and VBRRA was a series of women's bush to beach retreats. These retreats focused on encouraging women's leadership within their own communities, and creating bonds between women so that they

could support each other through the rebuilding and recovery process (VBAF, 2010).

In February 2009 VBRRA announced a program to clear debris and hazardous material from the thousands of bushfire affected properties. The cleanup and demolition operation was jointly funded by the Victorian and commonwealth governments and was free, voluntary, and open to anyone who owned property affected by the bushfires. A key objective of the program was to maximize the use of local contractors for cleanup work, with 69 percent of the work being undertaken by local contractors. VBRRA also had provided reimbursement to property owners who carried out their own cleanup after the bushfires (Victorian Bushfire Reconstruction and Recovery Authority, 2009).

People who lost their home in Victoria's devastating bushfires were offered temporary housing while their communities were being cleaned up and rebuilt. Although some people chose to move away from bushfire affected areas, others opted to remain in their communities. For those wanting to stay in bushfire affected areas, VBRRA attempted to assist them to live in their community or as close as possible. One way VBRRA attempted to support community members was through the construction of temporary villages. Each village catered for up to forty families and forty single people, with room for expansion. Accommodation was a mixture of self-contained one and two bedroom moveable units and single and double rooms. Each village had temporary shared amenities, including public toilets, shower blocks, laundries, and communal kitchen facilities. Professional camp managers were appointed at all sites and village codes of conduct were established to ensure smooth and efficient operation of the villages. The temporary villages were expected to be in operation for between six months and two years, subject to need. VBRRA also assisted more than 1,300 households with a range of housing options including public and community house, supplying bonds and donating caravans (VBRRA, 2009).

Community Response

In the midst of the catastrophe, neighbors often helped each other to put out fires. Once their own home was secure, community members would roam the area helping to put out fires. In one instance, a sixty-eight-year-old resident noticed that a neighbor's veranda had caught fire, and rushed over to see if he could help extinguish it. The property had no water so the neighbor grabbed a handsaw and cut down the burning pole to stop the fire from spreading. A fire truck pulled up at that moment and the house was saved (Perkin, 2009).

In addition to reporting news and providing updates and fire warnings, local radio stations became a kind of "virtual town square." Around the clock, victims phoned in. People shared their stories and their advice, and let listeners know where they could go to find help. Australian Broadcasting Corporation (ABC) radio very quickly became a community outpost. The ABC in Melbourne dedicated its entire lineup to bushfire coverage, prompting callers from towns

affected by the bushfires to phone their stories. In one instance, a resident called ABC radio on Saturday night to say that most of the town is going up and listeners should make their way to the town's fire station, where he and others were sheltering for the night. A resident whose home was spared in the blaze observed that the ABC's coverage had provided her not only with news throughout the ordeal but also company (Clayfield, 2009).

Equestrians banded together to help fellow equestrians by stockpiling feed and essentials that were taken to the fire-ravaged regions. Riders from Canada, the United Kingdom, and Europe offered cash to help those with horses rebuild (Hobbs, 2009a).

The National Farmers Federation (NFF) was inundated with phone calls from farmers across the country wanting to lend a hand in whatever way they could. The Tasmanian Farmers and Graziers Association offered loads of fodder for shipment to fire and drought affected areas, while other states looked at similar measures (NSW Farmers Association, 2009). The Victorian Farmers Federation (VFF) worked with farmers on the collection and distribution of fodder, the coordination of grazing, and the reconstruction of fencing and other critical farming infrastructure ("VFF Pledges," 2009).

Citizens around Australia had set up numerous donation centers. Volunteers sorted, folded, and packed donated blankets and clothing and organized food ready for transportation ("Donations Pour," 2009). Public donations for bushfire victims topped thirty million dollars in two days ("Donations Pour," 2009).

A contingent of Victorian fruit and vegetable wholesalers provided produce to the army of caterers feeding those affected by the fires (Hobbs, 2009b). Schools and Lions Clubs throughout the country raised money for the Victorian Bushfire Appeal Fund. One public school made two-hundred gift bags for school students in the affected areas. The country galvanized around the catastrophe ("Communities Rally," 2009).

Many supermarkets became disaster centers by providing food and drink to emergency services workers and those who had fled their homes. One supermarket launched its latest in Melbourne with a promotional radio broadcast. The store soon became a disaster communications and relief center, supporting emergency workers fighting one of the worst fire events at nearby Kinglake (Atkinson, 2009).

Makeshift villages had sprung up in the fire-affected areas. The morning walk for some locals meant dropping off their jerry can at the fuel tanker, then wandering over to the supermarket. Outside there was box after box of free fresh fruit and vegetables, loaves of bread, and some canned food. Once the locals had filled up they moved onto the warehouse next door which had clothing, toiletries, canned food, and other basics to help restock cupboards and pantries. The local pub became an Internet cafe with free phones where people could recharge mobiles. Portable toilets were located in the back near a truckload of showers and hygiene stations (Vincent, 2009).

Numerous individuals made offers to house and accommodate those

displaced by the fires ("Ipswich Reaches Out," 2009). Across the Tasman Sea, some New Zealanders welcomed survivors of the Victorian bushfire into their homes (McNeilly, 2009). Within a few days, the *Otago Daily Times* in New Zealand had received more than thirty offers of accommodation for people left homeless by the fires (Kirkness, 2009).

Veterinarians from across Australia came out in full force. Many volunteered their time and supplies to assist pets, wildlife, and livestock affected by the disaster. The Australian Veterinary Association established a team to help coordinate veterinary activities ("Vets Show Generosity," 2009).

Not to be outdone, Victoria's taxi drivers offered free travel to bushfire victims and offered to transport essential goods to relief centers and fire fighting staging areas. The Victorian Taxi Association announced it would pay the fares for people in bushfire areas who had lost their homes or cars, or had family members who were hospitalized or dead ("Vic: Taxi Drivers," 2009).

Conclusions

The impact of Hurricane Katrina and the Victorian bushfires on the United States and Australia is far more similar than it is dissimilar. For one, if the death toll is viewed in terms of the population of Australia (22.6 million) and the United States (311 million), the 1,800 people who died in Katrina is roughly proportional to the 173 that died in the Victorian bushfires.

Second, there were warnings before both events that went unheeded. For instance, the Army Corps of Engineers, the federal government, and New Orleans and Louisiana officials all knew the levees would be breached in a category 5 storm (Olsen, 2010; Kunzelman, 2010). Yet, they allowed low-income people in the lower ninth ward to live near the levees that were the most vulnerable to failing. Moreover, there was adequate notice that Katrina was massive and would hit land. Despite long-standing experiences with hurricanes, New Orleans had no mass evacuation plan. All the elements for a "perfect bushfire" were in alignment in Victoria—that is, a longstanding drought, brutally hot weather, and hot dry winds. Despite these conditions, no mass evacuation was undertaken before the fires started.

Third, the sheer magnitude of the catastrophes overwhelmed the capacity of the governmental agencies charged with responding to emergencies. FEMA was virtually paralyzed when Katrina made landfall and the Victorian government was similarly overwhelmed when the bushfires burned wildly out of control.

Fourth, there was an outpouring of public support in both catastrophes. When the thousands of Katrina victims were moved into the Reliant Astrodome in Houston, TX, thousands of volunteers showed up to help. The response was so overwhelming that officials had to turn away volunteers and subsequently only allowed vetted professionals into the Astrodome. By July 2007 \$4.25 billion—the largest single response to philanthropy in American history—had been raised by private charities for Katrina victims ("Where Did Post-Katrina,"

2007). Similar efforts were underway in Australia where charities raised \$325 million for bushfire victims. Both tragedies helped to illustrate the high level of civic engagement of Australians and Americans.

Last, both the US and Australian governments responded to these crises with massive support and myriad programs. In New Orleans, the federal government invested in rebuilding everything from education, to healthcare services, to criminal justice, and policing. The Australian government was equally—if not more—aggressive in developing and delivering a wide range of diverse services to bushfire victims.

Hurricane Katrina and the Victorian bushfires showed that governmental and NGO sectors can work well in tandem when dealing with catastrophes because the strength of each sector complements the other. For instance, Hurricane Katrina and the Victorian bushfires demonstrated that the relatively flat organizational structure of the voluntary sector allowed it to respond more quickly and decisively when providing short-term assistance. Unencumbered by complex command structures or murky turf issues, voluntary organizations were able to get relief quickly to Katrina victims. They were also able to mobilize public support and utilize a wide range of voluntary professionals in their relief efforts.

Although the voluntary sector was better able to rapidly deploy people and goods in Katrina's aftermath, the more robust resources of the federal government made it possible to stay the course in the long term. The same was true for the Australian government's long-term commitment to rebuilding the communities devastated by the Victorian bushfires. Although each sector played an important role in disaster management, only government had the fiscal resources to provide the long-term assistance and the necessary systematic rebuilding after a catastrophe.

Climate change is creating unstable and violent weather patterns throughout much of the world. In 2011 alone, Japan experienced a deadly tsunami; tornados wreaked havoc in the southern and midwestern United States and in Auckland, NZ; massive flooding occurred in Australia; China had its worst drought in sixty years; and huge snowstorms and freezing weather in the northeastern United States and Europe paralyzed cities and whole countries. As it is likely that extreme weather patterns will continue well into the future, disaster management needs to become a necessary part of each nation's planning.

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