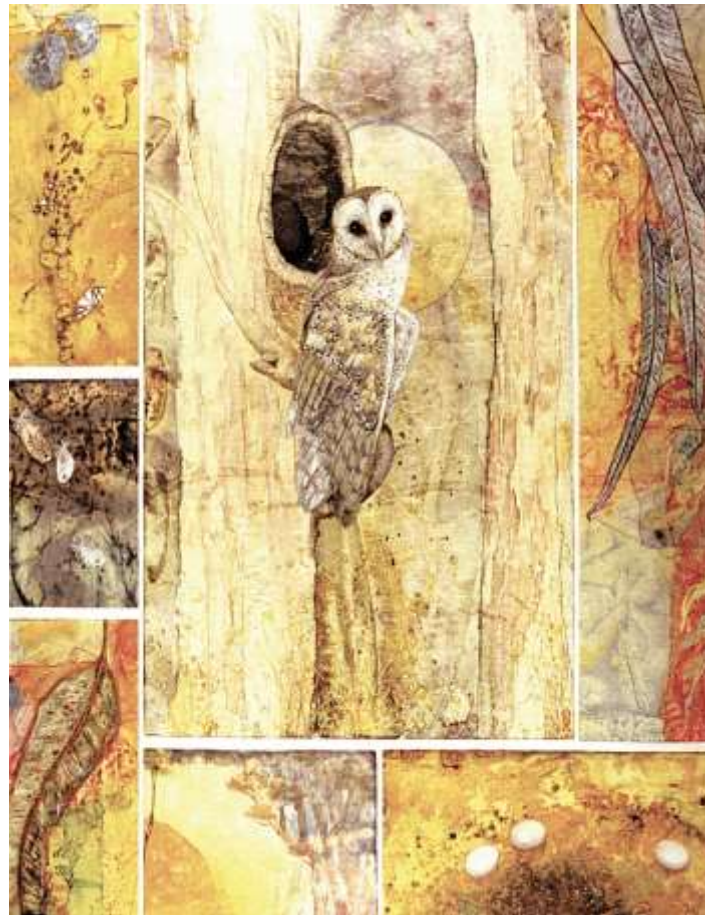


# Long-term disaster resilience



Vol. 1 Executive Summary and Recommendations

Vol. 2 Long-term disaster resilience: Full report

**Vol. 3 Long-term disaster resilience: Literature review**



Gender & Disaster Pod

An initiative of WHGNE, WHIN & MUDRI

## Authorship and Acknowledgement

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## **Acronyms**

EMV	Emergency Management Victoria
MUDRI	Monash University Disaster Resilience Initiative
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
WHGNE	Women's Health Goulburn North East
WHIN	Women's Health in the North
UNISDR	United Nations Office for Disaster Risk Reduction

## Introduction

This literature review **aims** to answer the following question:

**‘What factors increase or hinder long-term individual and community disaster resilience’?**

The specific **purpose** is to identify protective factors that contribute to long-term disaster resilience for individuals, family, community, organisational volunteers and unaligned volunteers for females and males in future disasters.

This Final Report describes the search strategy and presents the findings from the Long-Term Disaster Resilience Literature Review.

## Scope of Literature Review

### Initial Scope

WHGNE provided a briefing note that included the following scope to guide the initial search strategy:

- A narrative literature review
- The focus is a gendered analysis of lived social experience (not psycho-clinical) – men, women, boys, girls AND volunteers
- The lived social experience is at three levels: individual, family and community. For volunteers, this may also be at organisational level
- Consider 2 cohorts: survivors of disasters 6-10 years ago, and 20-30 years ago (if studies are between 10 and 20 years ago, this would, of course be included and decisions made about how to do that)
- The literature review would prioritise Australian research, and in the lack of much available research, could extend to countries like Australia, e.g. the US, the UK, Canada, New Zealand, European countries with similar cultural values and levels of wealth
- Length would be 10 to 20 pages

### Clarification of Scope of Literature Review

Following discussion with Dr Debra Parkinson to clarify the literature review scope, she confirmed the following points:

1. Reframe the aims of the research question to

*‘Researching long-term disaster resilience will identify protective factors & inform resilience for individuals, family, community, organisational volunteers and unaligned volunteers for women and men, girls and boys in future disasters’.*

2. For each group explore factors that
  - increase resilience
  - hinder resilience, and
  - include whatever is relevant, so if other things that we might not have anticipated come up that you think would be relevant and valuable to include.
3. Given the lack of available research, the research will consider the period at least 3 years post event in addition to the period 8 to 9 years after Black Saturday & 20 to 30 years after earlier fires and floods in Victoria, as noted in the documentation.
4. The MUDRI team will look at the lived experience of resilience, as in experiences of resilience in the aftermath of disasters, e.g. Ash Wednesday in 1983, Victorian floods

in 1993 and 2010-11 & the 2009 Black Saturday fires, as it applies to our comments above.

## Narrative Review

As instructed in the briefing note, the MUDRI team undertook a narrative review. With no acknowledged guidelines for narrative reviews, we adopted a systematic methodology to improve the quality of the narrative approach as these aim to reduce bias in the selection of articles for review and employ an effective bibliographic research strategy (Ferrari 2015). Likewise, a narrative literature review reports the authors' 'findings in a condensed format that typically summarises the contents of each article' (Helewa in Green 2006:103), from which reviewers draw conclusion into a comprehensive interpretation. Narrative reviews favour qualitative findings that encompass an understanding of the diversities and pluralities within scholarly research.

## Search strategy

Search Terms
1. Life * or " live " or " experience" or "Self"
2. Man OR boy OR Wom(en)* OR girls OR Child* OR "Community" OR " Family" OR Volunteer*
3. Ash Wednesday AND Bushfire
4. Black Saturday AND Bushfire
5. Flood AND Victoria
6. 3 AND 4 AND 5 AND (1 AND 2)

## Databases Searched

Scopus  
Emerald  
Web of Science  
Taylor and Francis  
PubMed  
ProQuest  
SAGE  
Google Scholar

We consulted with the Monash University Librarian to determine an appropriate search strategy and to identify the best databases for this topic. We conducted an extensive search of the literature using the search strategy above which we conveyed to the Research Committee in our draft report dated 17 November 2017, as noted below.

The PRISAM 1Flowchart tabulates the results on the next page.

## Inclusion and Exclusion Criteria

Inclusion Criteria
1. Peer reviewed empirical article
2. Examine the 'lived experience' of affected people, includes children,

<sup>1</sup> PRISMA is an evidence-based minimum set of items for reporting in systematic reviews and meta-analyses. PRISMA focuses on the reporting of reviews evaluating randomized trials, researchers can use it as a basis for reporting systematic reviews of other types of research.

<ol style="list-style-type: none"> <li>3. Must be from the Australia: a focus on 1983 Ash Wednesday fires; 2009 Black Saturday fires; and' 2010/11 floods</li> <li>4. Papers published at least three years post-event.</li> </ol>
<b>Exclusion Criteria</b>
<ol style="list-style-type: none"> <li>1. Research conducted within first three years of an event</li> <li>2. Evaluating health or psychosocial factors related coping.</li> <li>3. Book chapters and non-peer-reviewed empirical literature: e.g. theses, conference papers, editorials and reports</li> </ol>

## Use of NVivo to Organise Documents

We used NVivo to assist in categorising the relevant text for the forty-four papers.

## Results from Search Strategy

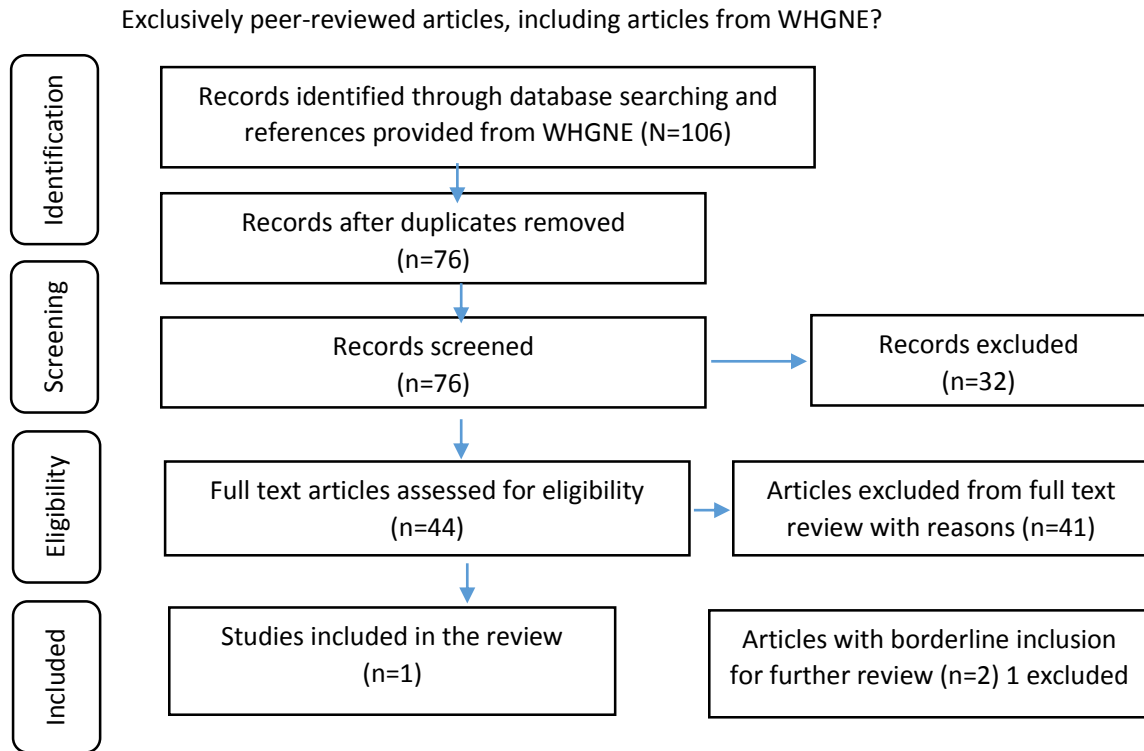
While WHGNE requested a gendered analysis of lived social experience (not psycho-clinical) – men, women, boys, girls AND volunteers, and the lived social experience at three levels: individual, family and community, the initial review did not yield this particular information. Likewise, WHGNE requested two cohorts: survivors of disasters 3-10 years ago, and 20-30 years ago. Again, the initial review did not yield this particular information.

The review team identified 106 references from the literature search, including references that WHGNE provided. Once we removed duplicates, 76 remained for scrutiny. Following scrutiny of titles and abstracts for applicability to the inclusion criteria, we excluded 32 papers, leaving 44 papers for full-text review. Following full-text review we excluded a further 40 papers, leaving two papers that met the full inclusion criteria. However, a further two papers were borderline and were further reviewed and included due to the closeness of the timeframe and brevity of research available for this review.

The predominant reason for excluding papers reflected the fact that research methods in the reviewed papers revealed that the data collection period occurred within the first three years following an event, while the publication date met the search criteria, i.e. published after the first three years.

Two review team members made all final decisions on all inclusion/exclusion of each paper.

## PRISMA Flowchart



## Draft Progress Report 21 November 2017

In light of the limited research, the MUDRI reviewers sought guidance from the Research Steering Committee meeting 21 November to identify further actions:

1. The committee members could provide no further input or direction for additional relevant research.
2. Committee supported the decision to include a review of the 2003 Canberra Fires.
3. Review the two borderline peer reviewed papers for inclusion/exclusion
4. A secondary search targeting specific journals, e.g. AJEM, using the same inclusion/exclusion criteria produced no additional research.
5. Additional papers from Yarra Ranges and EMV failed to meet the search strategy criteria.
6. Undertake a review of the grey literature

## Grey and Secondary Literature Searching

The MUDRI review team searched the grey literature and secondary searching, e.g. of bibliographies of peer reviewed papers, a search of the Australian Journal of Emergency Management, documents already in our possession and others that colleagues sent to the team. We identified a further 21 reports and papers to which the team applied the same inclusion and exclusion criteria as for the peer reviewed papers resulting in a further four peer reviewed papers and two from the grey literature.



Following the initial progress report to WHGNE, MUDRI discussed the initial observations with the lead researcher. In agreement, we revised the inclusion and exclusion criteria to include the Canberra report because of its extensive research on people who experienced the bushfire more than three years post event.

## **Outcomes from Literature Review**

### **Dearth of Research in Topic Area**

The WHGNE briefing paper (Appendix A) noted the dearth of research on long-term recovery. This is consistent with international observations (Birnbaum, 2017, Reuben, 2009) and national observations (Camilleri, 2007, Gibbs, 2016). Most recently, Dr Margaret Moreton, in her PhD thesis (2016) entitled *A Study of Four Natural Disasters in Australia: How the Human Response to Fire, Flood and Cyclone contributes to Community Resilience and Recovery*, made a similar observation:

This extensive and systematic search of the existing academic literature has found very little evidence or scientific study that describes in any detail the community recovery process after a crisis. In particular, no study was found that focused on the members of affected communities describing their own experiences of the disaster recovery process, or that explored communities themselves as leading the disaster response and recovery in their own community. Similarly, no systematic studies could be found of the data about the actions that community members themselves take and whether these actions contribute to the recovery of the community after a natural disaster. (p43)

Of note, this 2016 thesis found no new literature on this topic.

### **An Optimistic Hope**

The MUDRI team had hoped to retrieve a greater number of papers by conducting a systematised peer reviewed literature search. Indeed, the number of papers initially retrieved caused some initial excitement among the research team but it was misplaced because, like others (Winkworth 2009) and as noted above, we found most research related to the immediate aftermath of an event or to short-term recovery. While a disappointing outcome, this research dearth identified and confirmed the need to fill the research gap that WHGNE identified.

### **Long-term Disaster Resilience**

A particular challenge presented by this review was the ambiguous nature of the term 'resilience'. Resilience has no universally agreed definition as a systematic literature review determined in its analysis of definitions about community resilience related to disasters. No evidence of a commonly agreed definition of community resilience exists (Ostadtaghizadeh, 2015). By adding 'long-term', this definitional conundrum became even more complicated, which had a tendency to conflate with recovery as Camilleri (2007) noted.

The MUDRI team tend to use the UNISDR definition of resilience

"The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions", United Nations Office for Disaster Risk Reduction (UNISDR), "2009 UNISDR

In light of the above comments, this review analysed the small number of papers that identified factors that may increase or hinder long-term individual and community disaster resilience. While the papers conform to the search strategy they do not explicitly specify attributes that might enhance the lived experience of long-term disaster resilience or a good recovery. Consequently, we draw from factors from these sociological studies and make 'presumptive interpretations', or common-sense judgments, about the ways these factors *may* provide insight into the social and contextual issues that could enhance the lived experience of long-term disaster resilience or contribute to a good recovery.

## Papers Identified

Author(s)	Published	Location	Event	Method
<b>Peer Reviewed</b>				
Brockie, L et al	2017	Ipswich, Queensland	FLOODS	qualitative research
Carra, K A et al	2017	Loddon Shire, Victoria	FLOODS	qualitative research
Harm, et al	2015	Victoria	BLACK SATURDAY BUSHFIRES	Mixed methods longitudinal study
Whittaker, J et al (2012) *	2012	East Gippsland, Victoria	BUSHFIRE	qualitative research
Winkworth, H et al*	2009	Canberra, ACT	BUSHFIRE	qualitative research
<b>Grey Literature</b>				
Regional Australia Institute	2013	Marysville and Alexandra, Victoria	BUSHFIRE	qualitative research
Camilleri, P et al	2007	Canberra, ACT	BUSHFIRE	qualitative research

## Peer Reviewed Literature

In this section, we provide a summary of the peer reviewed research papers reviewed in the analysis as per the approach of the narrative literature review.

### **Brockie, 2017, Older adults' disaster lifecycle experience of the 2011 and 2013 Queensland floods**

Research on older Australians occurred two years after the 2011 Queensland floods and five months after the 2013 floods. While the timing of the research sits just outside the timeframe of this review, the researchers decided to include participant stories because residents experienced and had reflections on the 1955 and 1974 floods relevant to long-term disaster resilience.

This qualitative research uses the disaster lifecycle, preparedness, response, recovery and mitigation, as an analytical framework and semi-structured interviews to study the knowledge gap of ten older residents' experiences of the 2011 and 2013 floods. Averaging 73 years of age and having lived through multiple floods (1955, 1974, 2011 and 2013) respondents were beginning to concede that ageing, and specifically their increasing frailty, was changing and affecting their ability to prepare for, respond to and recover from a SWE.

Of particular interest, this research showed how older Australians drew on their significant life and past flood experiences to cope. They have unique temporal and historical perspectives about how their disaster preparation and response experience evolved from a reliance on informal communication and support from friends to technology, officials and strangers.

#### **Carra, 2017, Posttraumatic Growth among Australian Farming women after a flood**

Research on six Australian farming women occurred 30 to 36 months after the 2010-11 floods. The timing of this research sits on the cusp of the inclusion criteria. Because the second set of interviews occurred at the 36<sup>th</sup> month, the review team felt it prudent to include this paper due to the paucity of related research.

This interpretive, qualitative study using in-depth interviews explored the impact of the 2010–2011 Victoria floods on the lives of six farming women with 20-50+ years of farming experience. Eligibility to participate included women, who had been involved in farming for at least 20 years of their adult life, resided on a farming property in the Loddon Shire and experienced flooding in 2010–2011. All participants were aged between 55 and 75 years.

The three themes that emerged from the data included helplessness, adapting to change, and self-discovery while the findings related to dimensions of post-traumatic growth; and engagement in meaningful activity appeared to facilitate positive change.

#### **Harm, 2015 Conceptualising post-disaster recovery: Incorporating grief experiences**

This paper explored bereavement-related experiences of people from the Black Saturday bushfires within the context of post-disaster recovery. While the research results identified the dimensions of psychosocial recovery, its inclusion in this review relates to community-level loss and the repeated exposures to the loss of family and friends, as well as the prolonged and complicated nature of grief experiences for disaster survivors. Likewise, this study reflected the deep distress that arose for people not only in experiencing the losses of those in their communities, but the silencing of their subsequent loss experiences. The timeframe just fits within the search strategy as the researchers completed a baseline survey assessment by telephone or web based self-administered interview at 34 months post-event and secondly at 59 months. In addition, the researchers interviewed a sub-sample of survey participants from affected communities between May 2013 and August 2014. This equates to between four and five-and-a-half years after the fires. Thirty-five people participated. Eighteen were male and seventeen were female and ranging from four to sixty-six years.

Using data from the Beyond Bushfires (Gibbs, 2016) research project researchers used a mixed-methods study to examine survey and interview data relating to individual loss and recovery experiences. The loss through death of friends and community members appeared to predict poorer mental health outcome, although prolonged grief outcomes were rare. The sense of relationships as being 'like family' was identified by interviewees as an important dimension of their particular communities, as was coping with multiple deaths and the hierarchy of grief that emerged, and the stress of notifying others of these deaths.

#### **Whittaker, 2012, Vulnerability to bushfires in rural Australia: A case study from East Gippsland, Victoria (2012)**

We had hoped this paper would explore the causes of vulnerability to bushfires and thus inform long-term disaster resilience. In fact, the paper examined how and why people were exposed to hazards during the bushfires; and how and why people were

differentially capable of coping and adapting to the fires' impacts. Its inclusion in this review relates to how and why people were differentially capable of coping and adapting to the fires. Their experience of coping may contribute to a better understanding of long-term disaster resilience.

A qualitative approach included semi-structured interviews with residents and landholders of the district and others who responded to the fires in an official or unofficial capacity. Whittaker undertook his research three years post event and so fits with the timeframe for our review. However, some residents' reflections occurred 12- 18 months post event. For example, one resident reported health impacts 12-18 months after the fires and at a time when most recovery programs had ended. That these programs ended too early for some residents, we interpret this as a possible barrier to successful long-term disaster resilience.

Based in the Wulgulmerang district of East Gippsland, Victoria, the 2003 bushfires devastated the small isolated farming population, destroying homes, agricultural assets and public infrastructure. The fires adversely affected the health, livelihoods and social lives of many local people. The paper demonstrates the fundamental importance of sustainable livelihoods and regional economic vitality to the long-term goal of vulnerability reduction or in the terms of this review long-term disaster resilience.

#### **Winkworth, 2009, Community Capacity building: Learning from the 2003 Canberra Bushfires**

This research provides an academic framework to interpret the 2007 report Recovering from the 2003 Canberra bushfire: A work in progress, noted in Camilleri below. This paper uses Woolcock and Narayan's 'synergy model of social capital' to analyse how individuals and communities help themselves and each other after a disaster and how governments can enable or impact negatively on these processes. Three elements of this theoretical model were utilised: 'bonding' networks with family and friends, and 'intra-community bridging' to other networks and 'linking' to sources of formal power.

Camilleri describes the methods for this research below. This paper differs from Camilleri in that it uses a theoretical framework to analyse the data. However, this review relies on data from the Camilleri Report due to its extensive reporting as compared to the shorter and more theoretical published paper.

### **Grey Literature**

In this section, we briefly provide a synopsis of the grey literature papers reviewed in the analysis.

#### **Regional Institute Australia, 2013, From Recovery to Renewal**

The inclusion of this case study relates to its insights to community-led recovery, reconstruction masking problems and the unforeseen consequences of good intentions.  
+++

#### **Camilleri, 2007, Recovering from the 2003 Canberra bushfire: A work in progress**

This research investigated the process of individual and community recovery from a natural disaster, looking particularly at the medium to long-term recovery process following the 2003 Canberra bushfire. The particular research strands related to this literature review include individual and community recovery and resilience. The report focused on finding out what was most helpful and was not helpful to individuals on the path to recovery. This report specifically notes a considerable research gap about the

medium to long-term nature of recovery, and, like resilience, the disaster-trauma literature and disaster management policy widely uses the term recovery, yet 'it remains poorly conceptualised' and generally without definition<sup>2</sup> (Camilleri 2007:5). The research team used multi-strategy methods comprising two strands:

A community survey sent to 1600 households registered with the Recovery Centre and others affected by the 2003 Canberra bushfire – referred to as 'respondents' (n=500),

An interview study with a smaller number of participants who subsequently expressed an interest in being contacted about Strand B of the research and who consented to participating in an interview – referred to as 'interviewees' (n= 40)

Survey respondents for strand A were ACT residents and others who had registered with the Bushfire Recovery Centre/Support Unit (approximately 1600 households with 500 responses) or bushfire-affected ACT and nearby New South Wales residents. Respondents were 15 years of age or over to ensure late high-school age people could participate in the research. Researchers selected 40 interviewees from 137 survey respondents returning an Expression of Interest Sheet and selected according to key socio-demographic categories. This sample size enabled researchers to select people from diverse ages and gender, who lived in different locations, and had different family situations (i.e., with and without children aged between four and 17 living in their households).

The MUDRI review team recognised that recovery per se shifted the focus away from resilience. However, the report acknowledged that the principles of recovery suggest they represent the broader context of emergency management, and most importantly, that definitions and principles use concepts of resilience and community. Indeed, quoting Sullivan (2003), the report explains that models of integrated recovery management imply resilience for individuals and communities, and further states that resilience and community became central concepts that helped the researchers understand how study participants made sense of their experiences. In a later paper, the authors (Winkworth 2009) suggested that definitions of 'recovery', 'resilience' and 'community capacity' in the disaster management context become interchangeable concepts: 1) as a desired outcome and 2) as a process leading to a desired outcome. As the authors note, the concepts share common factors that contribute to the wellbeing of a community, such as trust, support and social networks, or lack of, all of which were critical to wellbeing, recovery and resilience following a major event.

The 2007 Progress Report provided the most extensive research that complied with the search strategy for this review, particularly being three years post-event, and focusing on intermediate and longer-term recovery. In reviewing this, the reviewers took care to avoid retrospective reflections and memories about the Canberra fires. Rather, they focused on data that could help or hinder recovery, and as such could help or hinder resilience in the longer term. Without a clear definition of long-term disaster resilience, the researchers extrapolated key elements of recovery from the report that could offer a potential insight into what might help or hinder long-term disaster resilience. In so doing, we acknowledge we make presumptive interpretations, but do so in light of the very limited research on this topic.

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<sup>2</sup> The meaning of resilience, like vulnerability, 'are highly varied, even within disciplines' (Whittaker,2012:162).

Of interest to this review was that many more respondents expressed interest in participating in an interview than the project resources permitted. Consequently, this outcome enabled a representative sample of equal males and females, a good representation of ages and households with and without children.

## Thematic Analysis

A thematic analysis of the seven papers revealed six overarching themes:

- Technology
- Relationships
- Age and Experience
- Shifting knowledge
- Health and Well-being, and
- Government and Insurance

Part of our brief was to explore the gendered analysis of the lived social experience for men, women, boys, girls and volunteers. However, our review did not identify disaggregated reports. Where possible, our review points to the experiences of men and women. The Camilleri report mentioned girls and boys, but as reported by adults. The MUDRI team believe it pertinent to note the expertise of the team excludes any specialty with a gendered analysis. The team brings to this analysis, expertise in anthropology, emergency management and disaster risk management.

## Technology

Brockie's (2017) research about the stories from older adult's disaster lifecycle experiences of the 2011 and 2013 Queensland floods reveals how newer forms of technology intended to help people during a disaster actually disadvantage this cohort of people. The value of this research is how it draws on the experience of older Australians during the 1955 and 1974 Queensland floods and compares their experience with those that occurred in 2011 and 2013. Particularly relevant to this review is how new technology influenced their disaster preparation and response, and subsequent resilience. During the earlier floods, older people relied on informal communication and support from friends, whereas in the later floods communication shifted to technology, officials and strangers. On receiving text messages and automated phones calls advising them to evacuate in 2013, this new technology left older Australians uncertain about the severity of the floods. As one respondent explained, their flood experience moved from 'chat to a text; friends to friendly strangers.' As the researchers reported, for these older Australians, the use of newer large-scale social media to disseminate flood information presented certain limitations because they simply avoided the new forms of technology, leaving them unable to access flood information. Likewise, recalling their experience from the 2011 and 2013 floods, these older Australians explained how they relied on support and knowledge from other local residents to make decisions about when to evacuate. A decision made more difficult because most wanted to remain for as long as possible to reduce damage to their only major asset — their home. The prompt to evacuate was text messages from family and neighbourhood chats, rather than an authority figure appearing on mass media. This factor exemplifies how the use of new technologies that shifted communication from 'chat to text' could hinder older people during a disaster, as compared to in the past when friends and neighbours provided help and support. Instead, new technologies isolated older people from important information and contributed to their frailty, thus weakening their previously strong resilience during the earlier floods. As this research identified, how authorities disseminate disaster or

emergency information challenges recent emergency disaster management policies. While emergency service organisations intend to improve their communications to help communities, the unintended consequence of new technologies not only undermined older peoples' resilience but also placed them in a position of higher risk and at the mercy of friendly strangers and emergency responders.

### **Social Relationships**

Brockie's (2017) research on older Australians and their avoidance of new technologies for important flood information also revealed the importance of social relationships during disasters. Particularly, older Australians preferred to trust family, friends, neighbours and local knowledge, rather than authority figures or social media for making decisions about when to evacuate. Thus, a lack of family, friends or trusted neighbours could have led to isolation and weakened their resilience. Added to these changes from earlier floods was the influx of 'friendly strangers' or 'unfriendly strangers' who, in some cases, provided the only social support which left older residents feeling isolated and alone, and which led to increased vulnerability and a sense of panic. A shift from trusting family, friends, neighbours and local knowledge to trusting 'friendly strangers' or 'unfriendly strangers' may well hinder long-term resilience of older Australians. Indeed, this research noted that with Australia's older population demonstrating a strong preference to 'age in place', older homebound people might become invisible to neighbours leaving them vulnerable in a disaster. Additionally, fragmented connections with family and friends along with losing a strong sense of community may well have exacerbated their sense of social isolation. Research participants reported feeling 'lost' or 'forgotten' during the response, evacuation and recovery process. The lack of trusted social relations throughout the disaster cycle and during the preparation stage when participants needed to make critical decisions about risk assessment, asset and home protection and evacuation plans stands to hinder the long-term resilience of older people to disasters.

Curiously, and surprisingly, Harm's (2015) research identified that strong social relations created before the Black Saturday fires could hinder long-term disaster resilience. Participants experienced accumulative stress and distress from exposure to multiple deaths after the event. This exposure reflected the strength of their local and predominantly rural community networks and the many people they knew. Nonetheless, survey results showed that the vast majority experienced no prolonged grief reactions, possibly because bereaved participants experienced a lower rate of family loss as compared to a higher number of friends who died. Yet the analysis strongly indicated that the mental health impacts extended beyond the loss of immediate family members to include friends and community members. Consequently, they experienced repeated exposure to loss that led to participants describing a strong need to protect themselves and others in the community from the distress of these losses. A second consequence of these multiple losses resulted in post-event stressors, rather than their initial stressors immediately following exposure to the event itself. The researchers quoted Winkworth and suggested that the silencing of these losses created further stress, but provided no information as to how or why the silencing occurred. They added that memorials and anniversaries might help community people reflect on the loss of their members. The researchers concluded that 'some five years after Black Saturday, people continued to live with the complex impacts of both their bushfire and post-bushfire experiences'. In light of these findings, what could these grief experiences teach us about long-term disaster resilience? A presumptive interpretation could be to first better acknowledge the reality of long-term grief and then understand its multiple dimensions as a way to improving longer-term resilience of communities.

The strength of social relationships following the Black Saturday fires emerged in a different way after those in the Wulgulmerang district of East Gippsland. Following the Wulgulmerang fires Whittaker (2012) reported that residents and landholders who previously endured longstanding divisions experienced a newfound sense of social cohesion that emerged from enduring the shared fire experiences and enabled a more cooperative, inclusive and efficient approach to the allocation and distribution of resources. However, after an initial period of increased cohesion, people began to recover and, the pre-existing divisions gradually re-emerged. This research demonstrates how different communities recover in diverse ways, which makes it difficult to determine the factors that underpin resilience over the long-term.

As noted above in the synopsis of the research papers presented in this literature review, the Camilleri Progress Report (2007) on recovering from the Canberra bushfire provided the most extensive research that met search strategy criteria. The most relevant part of this report that relates to this review is the way people perceived how the bushfire affected their personal relationships and circumstances. Respondents and interviewees assessed the effects the bushfire had on their housing and living situation, their overall health, their mental health and well-being, their work, their finances, their relationships with family, friends and neighbours, the well-being of their children, and their connection to their neighbourhood and local community. The stories from the research respondents and interviewees reflect a rich data from which we extrapolate our presumptive interpretations. We focus on factors that relate to the longer-term and draw out thoughts that we think could strengthen the resilience of communities and their people.

*Social relations at home*

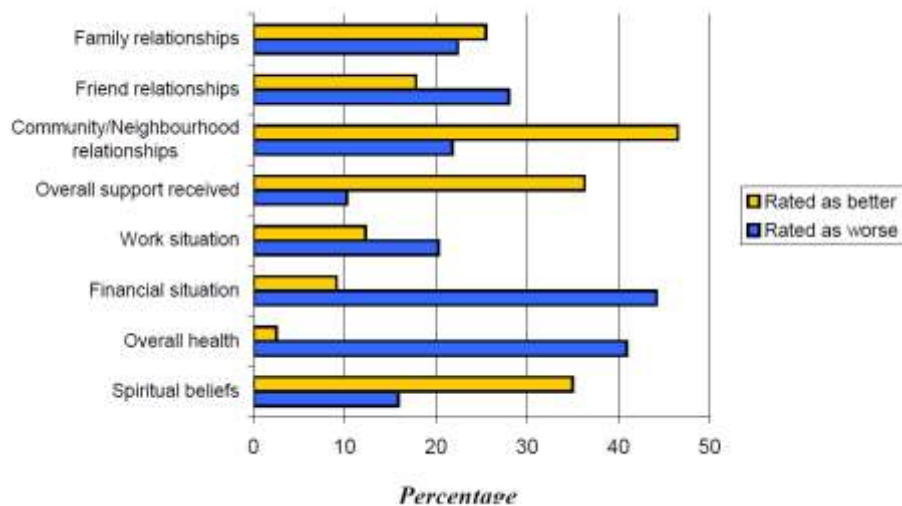


Figure 1 Self-report of lasting positive and negative effects of the bushfire

Figure 1 from the Report demonstrated how respondents perceived a positive or negative lasting effect on different aspects of their lives. Specifically relevant to this review, is respondents' perceived positive effects that appeared most likely for community and neighbourhood relationships, overall support received, and spiritual beliefs. From the MUDRI perspective, each of these positive effects could enhance resilience in the short and longer term, while the perceived negative effects that appeared most likely for relationships with friends, work situations, financial situation, and overall health could achieve the converse.



### *Social relations and settling into new homes*

Following the fire, Camilleri (2007) reported that many respondents moved a number of times, with 34% moving three times or more, 5.6% moving six times or more. Despite this enormous effort, 83% were satisfied or very satisfied with accommodation at that time. The importance of social relations was evident in people's choice to rebuild and their need to return to their previously valued neighbourhoods. With the fire destroying 43% of respondents' homes under half of the original owners had rebuilt or intended to rebuild, and just over half sold their block and moved elsewhere at the time of writing the report in 2007. Of these eighteen people, who rebuilt, recreated their family home, seventeen maintained neighbourhood connections, and ten were for school and community connections. Each of these points to the need for respondents to maintain previously established connections and so strengthen their networks and resilience by returning to a neighbourhood they love.

Conversely, adversity provided an opportunity for people who lost their homes in the fires to better their circumstances. They took advantage of the situation to improve the design and size of their homes to better suit their present requirements by rebuilding or deciding to purchase elsewhere in Canberra or even interstate, while others took longer to finalise their accommodation needs to reach a desirable outcome. Such an opportunity, we believe, would not only enhance people's wellbeing but also enhance people's longer-term resilience. Comparing this with the experience of people who reported unresolved issues and later became dissatisfied might substantiate this claim as those who purchased in a rush did so to feel more emotionally stable. Adding to this sense of dissatisfaction was that respondents reported losing friends and associations because of moving to another area and environment. In strengthening resilience over the longer term, these stories again demonstrate the diversity of needs following an event. Better understanding these diverse needs in the immediate aftermath of an event and knowing how and who should manage this diversity may well lead to a better outcome in the longer term.

The data reported in the Camilleri Progress Report (2007) indicated how the rebuilding process challenged social relations. He reported residents' concerns about the new and shifting aesthetics of the respondents' environment and with new people coming to live in the neighbourhood. Conflict with a 'prickly' neighbour in a dispute over a boundary fence resulted in one resident deciding not to rebuild on their block. While for others, who did not lose their homes to the fires, they lived in a dusty, windy, noisy environment with no trees and with big houses overlooking them. Such rebuilding issues led to some residents feeling a loss of community or an altered ambience, which we believe would influence a good recovery and undermine long-term disaster resilience. The flipside was the opportunity to facilitate recovery and share the practical aspects of rebuilding with neighbours, together with the ongoing social contact that occurred naturally between neighbours. These neighbourly bonds strengthened because people survived the same disaster together and helped each other.

### *Social relations at work*

A supportive work environment following the fires suggested people performed better at work (Camilleri, 2007). Positive work experiences would have to led to improved recovery and better long-term outcomes. A number of people experienced outstanding generosity and understanding from their work colleagues along with the flexibility that allowed people to choose between either taking leave, or not taking leave. This enabled some to take short to medium amounts of leave to manage relocating or rebuilding while others chose not to take leave to maintain a work routine and to help with their

recovery. However, for this latter group, they later learned their work performance suffered.

#### *Social relations with family*

In relation to the bushfire influencing family relationships, 50.8% reported no lasting effect; 25.5% reported a lasting effect for the better and 22.4% a lasting effect for worse (Camilleri, 2007). People experienced strengthening bonds with family members or stronger mutual respect for people's capacity to manage serious difficulties and stress. Conversely, one respondent noted how her relationship weakened with her husband because of his vehement need to replace material possessions. Similarly, some people who experienced prolonged depression or anxiety, expressed concern for those who cared for them and the difficulties caring caused them. These variable figures again indicate diverse responses from respondents. That 50.8% reported that they experienced no lasting effect would suggest the possibility of a positive longer-term outcome. However, this would also suggest that 49.2% people experienced a lasting effect from a negative longer-term outcome.

#### *Social relations and children*

Camilleri (2007) reported the difficulty of determining how many children experienced bushfire-related problems. However, he further noted that 33 respondents knew of a least one child who had experienced trouble. The researchers acknowledged that respondents could be reporting on the same child, which contributed to not knowing the exact number of children affected by the fires. For example, 117 respondents reported on 200 children. Of these approximately 42 of the 200 were thought to have experienced bushfire-related difficulties. Of these, 26 were girls and 16 were boys. Six children reportedly had difficulties before the fire and these became worse after the fires. The average age of these children was approximately 12 years of age. Respondents identified 13 of the children as 14 years old and these children would have been 11 years old at the time of the bushfires. With no follow-up research on these children, we would find it difficult to report on the strength of resilience these children might have experienced. The inclusion of this cohort relates to the need for this review to report on children. Extrapolating something meaningful from these stories perhaps points to the possibility that the bushfires weakened the resolve of young people at an important time in their development and were perhaps less able to cope with growing up as young teenagers. Indeed, later in the report, 28 parents identified that their children used school-based counselling for support after the fire, which made this service the most commonly accessed form of help among the Recovery Centre's listed options.

#### *Social relations with friends*

In regards to the respondents' relationships with friends, the bushfires also appeared to have no lasting effect for 52.8% of respondents, while 28% reported a lasting effect for the better and 17.8% reported for the worse (Camilleri, 2007). Many spoke of receiving 'magnificent' support and generosity that deepened and strengthened friendships and in some cases led to significant new friendships, while for others the bushfire experience led to losing previous friendships. As with other areas of this review the diversity of views points to the very individual ways that people cope with adversity. Of note here, is that the majority of respondents continued to maintain friendships, which ought to strengthen friendships and resilience over the longer term.

#### *Social relations with neighbours and others in the community*

Similarly, respondents reported on their relationships with neighbours and others in the community with approximately 46.5% recounting how the bushfire experience resulted in a positive and lasting effect on their relationships with these groups, while 30.5%

recounted no lasting effect (Camilleri, 2007). Twenty-two percent recounted a lasting effect for the worse and 1.2% reported multiple responses to the question. Since the fire, the researchers noted that people socialised more and knew their neighbours better, which they suggest probably related to having a shared experience of the horror and fear of the day and feeling more comfortable in the period after the fire with people who understood that horror. People who shared this bond with neighbours thought it was very important and helpful in both practical and emotional ways. The importance of neighbours and community members appears to increase the resilience of these respondents. Later in this report, a statement substantiates this claim. Local people organised street and neighbourhood events, events which proved the most popular to assist people get back in touch with their shared experiences, and discuss common issues. Sixty-one respondents attended the events and 91.7% found them helpful or very helpful. Some respondents found these events easier than talking to a counsellor.

A close ex-forestry community portrayed the strengthening of resilience whereby the fire reinforced an already strong group of villagers who shared a commitment to fight for rebuilding their communities. However, their relocation across Canberra resulted in a sense of dislocation with losing the whole of their rural lifestyle and community, in addition to losing homes and possessions. A long delay in deciding whether to re-establish their villages and for some the physical separation from their neighbours and friends exacerbated their dislocation with limited opportunities to talk through their shared experiences. While banding together at the beginning strengthened the villagers' resilience in the short-term, their relocation appeared to weaken their longer-term resilience.

#### *Social relations and spiritual belief*

The impact of the bushfire on spiritual beliefs appeared to have little lasting effect and tended to strengthen belief (Camilleri, 2007). The researchers reported that 49.1% of respondents experienced no lasting effect on their spiritual beliefs or on their belief in humanity. Thirty-five percent experienced stronger beliefs and 15.9% experienced weaker beliefs. The generosity and kindness of others and the 'random acts of kindness' that respondents experienced strengthened beliefs and thus could very likely strengthen resilience in the longer term.

#### *What helped and hindered recovery*

Factors that frequently helped people recover included family, friends and neighbours:

- Practical and emotional support from family
- Family support
- Talking with family, expressing feelings and sharing emotions with them
- Support from friends
- Support/talking/kindness
- Neighbours coming together, helping each other
- Sitting down as a family and talking about it all the time and letting our children talk openly about it
- Understanding each other's feelings and talking about them within your own fire-affected family
- Friends and neighbours helped one another (Camilleri, 2007).

People's relationships and the level of support and understanding they received through those relationships signify the importance to helping the recovery process.

Just as family, friends and neighbours appear to help build resilience so too did they contribute to weakening resilience or hindering recovery. Hurt and disappointment created tense relationships after the fire whereby the support people needed from family, friends and neighbours was unavailable:

- Returning to a community that is completely different and without many of the original neighbours
- Being isolated physically and emotionally
- Lack of support from family and friends
- Lack of support from within your own family
- Loss of friends
- Lack of close support and people who will listen to your pain
- Friends not understanding your situation
- Lack of understanding by the bushfire victim's own family of the bushfire experience (Camilleri, 2007).

We feel confident in suggesting that these issues would contribute to hindering long-term disaster resilience.

A factor that appeared to strengthen resilience in the short-term, and we would suggest in the longer-term was sharing the experience of the fire and its subsequent difficulties. This brought people closer, strengthened their relationships, and helped them recover. Equally, losing all material possessions refocused perspectives to the importance of family. The support of patient, non-judgemental friends, who understood that it would take a long time fully recover from the experience, proved helpful for people affected by the bushfire. Others drew strength from informal groups. Two examples that reflect longer-term recovery include:

- people who were formerly neighbours and experienced the fire together who still get together to socialise or take their families camping;
- one group that emerged found their recovery was helped by the creative activity involved in putting together a publication of poetry and photographs about the bushfire and its effects.

Respondents reported that 'random acts of kindness' promoted recovery. These acts significantly touched people by creating turning points that helped people come to terms with their losses. These kind acts of support showed that people understood and cared.

Conversely, negative factors affecting people's relationships that complicated and impeded recovery, included:

- post-traumatic stress, depression or persistent anger with public authorities about the circumstances of the fire;
- financial hardship,
- disagreement about whether to rebuild
- different ways of dealing with loss and grief resulted in relationship breakdown.

The cumulative loss and trauma from the fire, and the effects of other non-fire related issues such as illness or a death in the family, caused relationships to deteriorate, and would thus weaken resilience. In contrast, the researchers found that commemorative events such as the first anniversary commemoration contributed to a better recovery with memorial services for animals who died in the disaster or a dedication of the bushfire memorial. Of the 191 respondents who attended commemorative events, 165

found them helpful or very helpful, while others found lower key commemorations, such as in their local church, more to their liking.

### **Age and Experience**

Over the years, Brockie's 2017 research about older adults' experiences of floods changed markedly. As noted previously, increasing age-related frailty and ill health hindered preparation/recovery and thus would weaken resilience. However, experience from the 1974 floods helped older Australians make decisions. This was evident when discussing how high the river might go and deciding when would be a good time to go because as one man explained he remembered the level where all the floodwaters came to. While at one level aged decreased their resilience, experience strengthened it. For the older women reported in Carra's 2017 research paper on floods, they refocused their daily routines to improve their sense of well-being, but we cannot determine whether they maintained such habits in the long-term. We might presume that the women may have returned to their previous routines or they may have adjusted their routines to reflect their new sense of self-discovery. Indeed their reported increased knowledge about themselves as people, their personal characteristics, their strengths and weaknesses and priorities would suggest their lived experience following the floods shifted to a greater engagement with their local environment, families and community. For example, as one respondent noted:

I know people from the whole area, having taught there and having been involved for many, many years with families, and sports, and so suddenly people started putting up their photos [on Facebook] ... I decided that I would contact them, and said when we have finished with this; I would love a copy of your photos and a bit of your story. So I'd actually go around and interview people and talk about their photos and just write their story of the flood.

In essence, the 2010-2011 flood experience of these six farming women demonstrated factors over the long term that we argue contributed to resilience following a disaster. These factors included faith, interpersonal relationships and empathy and for some a greater appreciation of life and feeling more connected to the local community. These factors led to increased self-understanding and increased personal strength, or in the terms of this literature review increased their adaptive capacity or resilience resulting from the flood disaster.

### **Shifting Knowledge**

Between the 1974, and 2011 and 2013 flood events, older Australian residents experienced a sense of shifting knowledge that most likely weakened their resilience built long ago (Brockie 2017). During the 1974 floods, people used golf clubs and school halls for evacuation but these options were unavailable during 2011 and 2013, and Brockie gave indication as to why. In 2011, one woman was unaware of the evacuation centre location until she arrived on the other side of the city. Exacerbating her sense of displacement during the second flood event were 'unfriendly strangers' who complicated leaving as did people taking photographs, ogling, obstructing roads, watching floodwaters while offering no help to carry furniture. Other residents, too, remembered some 'unfriendly strangers' while most remembered the kindness of 'friendly strangers' but one third felt isolated and unsupported. They felt a need for support from community, government and/or family, and feared that some of the strangers might rob, rather than support them. These lived experiences of older Australians indicate again how their flood experiences shifted significantly between the two flood events. The experience of older Australians' different knowledge base together with their increasing age would also contribute to weakening these once resilient residents.

## Health and Well-being

The MUDRI team included health and well-being in this review because the team considered the impact the fire could have on resilience, and thus would have the potential to either strengthen or weaken long-term resilience. In this section, we extrapolate aspects of health and well-being from the Camilleri Report that could influence resilience. We reiterate that these are interpretive presumptions. As per the research brief, we excluded research related to psychosocial issues and post-traumatic distress.

Of interest here was that 56.4% of survey respondents believed the bushfire had no lasting effect on their overall health, while 2.5% believed their overall health was better than before. In contrast, 40.9% believed they experienced a lasting negative effect on their overall health from the bushfire. Sixty-nine percent of the 33 respondents reported their overall health was *poor* at the time of the research, and believed the bushfire left a lasting effect. Respondents indicated how they or someone close to them had experienced specific health-related problems that could have related to the bushfire two and three years' post-bushfire. The most prevalent was mental illness/emotional crisis with 28.6% experiencing these issues. The next prevalent were serious illness at 10.6% and alcohol or drug problems at 10.5%.

### *Effects on own health and well-being*

The MUDRI review team believe that the negative effects on health and well-being would hinder resilience. Particularly in light of respondents feeling more anxious and nervous; less optimistic or depressed; having a pervasive sadness or insecurity; a loss of *joi de vivre*, or a loss of optimism, experiencing post-traumatic stress, being more reactive to stress, feeling resentment and anger or having difficulty dealing with loss and grief. Of particular concern and interest were their particular feelings:

- A negative outlook on life; bitterness; cynical and sceptical
- A pervasive sadness has overtaken our lives
- Loneliness and depression continuing
- Having since developed a 'couldn't care' attitude
- Their health had deteriorated significantly because of overwhelming stress and little support.
- They could never be carefree again after losing everything. Life is now more serious.
- They have gone from being happy helpful and trusting to one who is very bitter believes nothing they are told and trusts no one.

These negative portrayals bode badly for people trying to strengthen their resilience. Rather, such negative effects of health and well-being, being different to post-traumatic stress, could present significant hindrances to strengthening resilience. Similarly, as the researchers noted, the physical and emotional anxiety, or emotional scarring, reduced their threshold for tolerating pressure and stress. Fire and smoke reminded respondents of the bushfires and made them feel at-risk or on-guard while the changed physical environment caused them to feel a diminished interest or interest in participating activities they previously enjoyed.

Interestingly, and in contrast to the negative effects on respondents' health, some experienced positive effects and benefited from managing health-related adversity. One reported a better outlook on life and a greater understanding of fires and another saw the fire allowed them to refocus on family and friends. Three years after the bushfire, most respondents' day-to-day life had gradually improved and their difficulties reduced

while for a smaller number life became more difficult. That most respondents' day-to-day lives gradually returned to a similar or to even better level than before the bushfire would suggest that for these, the initial increase in distress and disruption reduced their resilience in the short term but returned to their previous strength, and would mostly likely increase the longer-term resilience. The smaller number who reported their day-to-day lives were much more difficult than before the bushfire would most likely decrease their short and longer-term resilience.

## **Government and Insurance**

Following an emergency, for those people exposed to the outcomes of an adverse event, many require assistance from not only friends and neighbours, but also government and insurance companies, to help them overcome the immediate aftermath and to deal with the longer-term impact of rebuilding their homes and lives. Unlike friends and family, government officials and insurers provide the necessary essentials, perhaps in the form of specialist health care needs or replacing destroyed possessions or repairing or rebuilding homes. Access to these service providers in the short and longer term should auger well for creating an environment with the best outcomes.

### *Insurance*

While people have access to these service providers following an event, a number of factors appear to decrease people's ability to create the best possible outcome for themselves. Firstly, insurance presented as a barrier to increasing resilience. In Brockie's Queensland flood research (2017), she reported that lower-income older adults, who lived in a flood-prone area, simply could not afford to move to a safer, more flood resilient area and found it difficult to pay the increasing insurance premiums associated with covering their house and contents. Secondly, Whittaker (2012) reported in his research in the Wulgulmerang district of East Gippsland that while residents and landholders purchased insurance for homes and contents, many were uninsured or underinsured for damage to livelihood assets. The financial impact of drought meant that purchasing feed for livestock became a higher priority than maintaining a high level of insurance. Additionally, the increasing size of landholdings and stagnant farm incomes meant affordability became a barrier to building long-term disaster resilience. Affordability, or the high cost of insurance stands to hinder long-term disaster resilience.

Insurance presented as both a convenience and an inconvenience in Camilleri's research (2007). He commented that respondents' experiences when dealing with insurance companies varied from very helpful, sympathetic and attentive to very unhelpful, unsympathetic, argumentative assessors. Of the respondents, 168 had adequate insurance for bushfire-damaged homes, but 127 had inadequate insurance in cases where fire destroyed homes. Some companies penalised respondents for over-insurance and argued their case strongly to get resolution. Significant to this review, was the observation that people were not emotionally strong enough to make major decisions, which insurers insisted upon at the time. However, one elderly male made the following observation on the importance of insurance:

Having insurance means that even though you have no control over natural disasters, at least you have control over what happens next.

Insurance reflects an important aspect for mitigating against disasters and one would imagine an important factor in helping recovery and long-term disaster resilience. The emotional strength of affected people following an event together with the approach insurance companies chose to take, may well determine the strength of resilience for individuals and the community over the longer-term.

### *Government*

As with insurance, people needing to access government services experienced a range of issues. Whittaker (2012) reported that while residents used a range of strategies to cope and adapt to the impacts of living with fire, the formal procedures for accessing government assistance presented as a barrier because some people were discouraged from applying in the first instance. Older, farming men most often experienced frustration with the application process while women took responsibility for seeking and accessing assistance. Male-only households demonstrated a lower capacity to access official channels for resources. A person's ability to access government services in the aftermath of an event could predict their longer-term recovery and resilience.

The Camilleri Progress Report (2007), at face value, looked helpful for understanding how government services helped or hindered, but on closer examination, it reported largely on Government services and the Recovery Centre, rather than the people's experience of the services. While a good recovery centre would contribute to long-term disaster resilience, we extrapolate information from this report that might help or hinder people seeking help. Of Camilleri's respondents, 295 respondents identified barriers to seeking help from professionals or services. Of these, 182 indicated that they did not seek help from professionals or services because they talked things over informally with friends, relatives or neighbours and/or benefited from informal neighbourhood support, both practical and emotional. One hundred and fifty three felt others had needs that were more serious; 84 people did not need help; 71 did not like asking for help and 45 did not think that services could help. Camilleri stated that from the respondents' comments the reason people did not access particular services was they were unaware of the available service, which pointed to a lack of communication, rather than a lack of services.

Of interest as to what helped residents in the Camilleri Progress Report (2007), was how residents described the importance of Residents' Associations, rather than government services, in contributing to a sense of empowerment and self-determination among residents. Both Camilleri and Winkworth (2009) used the same quote in the report and the later paper:

There are difficult messages for governments in this: encouraging and empowering the social activism of these groups is important for the greater good but often means sustained and highly vocal criticism of government's role in both disaster response and recovery. (Camilleri, 2007 and Winkworth, 2009)

In contrast, the Regional Australia Institute (2013) in its Case Study on Alexandra and Marysville, Victoria, following Black Saturday commented that various levels of Government recognised the ongoing emotional impact of the fire. Despite community members needing to plan and decide on recovery in the immediate term, they were not necessarily in the right frame of mind to undertake such activities, as Camilleri noted earlier. The Victorian government provided community engagement officers, case managers and business recovery officers to help community groups in the recovery process. Feedback indicated government officers, such as community and business engagement officers embedded in the community provided better assistance than those who drove in from Melbourne and interfered with the process. Embedding government officers within the community and managing spontaneous volunteers might go some way to strengthening the recovery process for community and government alike.

### *The unintended consequences of reconstruction and good intentions*

As the Regional Institute of Australia (2013) suggested, the reconstruction phase of recovery in the aftermath of a major disaster drove significant development with the



government building 'things' to re-establish Marysville. While the intention of reconstruction helped break the negative employment-business cycle in the region and contributed to sustaining long-term economic growth, an excessive focus and over-expenditure on a single infrastructure, such as the Marysville Conference Centre, resulted in a building that did not serve the long-term needs of the community. The community debated its merit. Some favoured it; others loathed it and doubted the Shire Council's capacity to maintain it. The Conference Centre, while built with honourable intentions, detracted attention from the broader business recovery, and instead created a white elephant that local government representatives identified as a significant increase in maintenance and insurance liabilities. The long-term impact of the Centre would serve little in providing a positive outcome for the residents of Marysville. Rather it stands as a constant reminder of hasty decisions that burdened the community in the longer term. Likewise, the unintended consequences resulting from the original good intentions would equally disappoint and burden successive governments.

### **Additional Literature from the Research Committee**

The Research Committee provided a further eighteen papers for the MUDRI team to consider. Again, two researchers reviewed each of the eighteen papers and both found one paper that fitted with the inclusion criteria. At the request of the Research Committee, we include two book chapters. The MUDRI team acknowledges that book chapters fit within the exclusion criteria and therefore include the chapters at the request of the Research Committee.

Following the earlier format, we provide a summary of the three peer reviewed research papers reviewed in the analysis as per the approach of the narrative literature review.

#### **Parkinson 2014 Emotional and Personal Costs for Men of the Back Saturday Bushfires in Victoria, Australia (Book Chapter)**

Following the utter devastation and trauma of Back Saturday, this research with men builds on first-hand accounts from women in previous research and confirms that gender role expectations become more rigid during and after disasters. Increased male violence against women became the 'hidden disaster' as women were silenced from speaking out or seeking help, in attempts to protect men who became 'heroes' and were now traumatised and suffering. Living-up to 'ideal' hegemonic masculinity proved harmful and ultimately inhibited men's long-term recovery. Expectations that men protect and provide for those they love, while women sacrifice equal rights to employment, resources and safety for the greater good reinforced gender roles. Participants' narratives revealed that gender conditioning is often lost in the life and death moment as men and women react as individuals – sometimes living up to their own (and others') expectations, and sometimes failing. Gendered expectations of men and women on Black Saturday shaped their vulnerability during and after this disaster. The disaster damaged men's health and wellbeing. Men's reluctance to seek either help or the inappropriate nature of the support offered compounded their situation. This research points to positive change that involves identifying these points of vulnerability and reshaping our understanding of how men and women 'should' behave in and after a disaster.

#### **Gibbs 2015 Children and young people's wellbeing post-disaster: Safety and stability are critical**

Four to five years after the 2009 Black Saturday bushfires, and as a part of the *Beyond Bushfires* (Gibbs, 2016) research, researchers interviewed children, young people and parents from affected areas to explore their sense of place and community at that time. This research sought to increase understanding of the experiences and needs of children

and young people after a disaster that emerged from interviews to explore current sense of place and community with children, young people, parents and grand- parents. Analysing their stories revealed how children and young people sought safety and stability in the aftermath of a disaster experience in their home, school, social, recreational and work environments. Safety and stability became a significant factor for some families in a decision to move away from affected communities, while for others, familiarity of the local environment and community members counteracted the post-disaster disruption. The interplay of mutual support and protection between child, parent and grandparent was evident, with friends, schools and communities providing important support in creating safe environments for children.

### **Lisa Gibbs 2017 Post-bushfire relocation decision-making and personal well-being: A case study from Victoria, Australia (Book Chapter)**

The requested inclusion of this paper refers to the reported relationship between a sense of community and relocation as it relates to personal well-being and particularly in relation to decision-making about staying or relocating from disaster-affected communities. This research explores the impact of post-disaster relocation through an Australian case study of bushfires that occurred in February 2009 in Victoria. The research focuses on decision-making in relation to moving out of a disaster-affected community and the impact of that decision on personal wellbeing. For this case study, the researchers conceptualise personal wellbeing as a combination of life satisfaction both current and anticipated, personal resilience, and subjective overall health rating. The paper also explores the psychological sense of community and its relationship to relocation decisions and experiences.

## **Thematic Analysis of Additional Papers from Research Committee**

Of the previous six overarching themes, we were able to use only Health and Well-being.

Parkinson's research addresses neither long-term disaster resilience nor recovery. Once again, while the research occurred more than three years after the event, it describes memories, reflections and recollections immediately following Black Saturday. Nonetheless, the research embeds revealing stories that could tie into aspects of long-term disaster resilience and recovery. Thus, based on the research committee's request to include this research, the research team make interpretive presumptions.

This unique gendered sociological research explored 32 men directly affected by 'Black Saturday', the worst bushfires in Australia since settlement and was classified 'catastrophic'. Specifically the research documented men's reflections on gender in this context and spoke at length about their terror, exhaustion, and often, of their powerlessness. Having survived the disaster, the event's long-lasting impacts plagued their recovery. This research followed prior researchers' on a women-focussed study that identified an increase in domestic violence following Black Saturday (references noted in their research).

This research argues that because men in Western society benefit from a gender empowering hierarchy that this enables men to embody and enact versions of ideal manhood thus contributing to the level of privilege they enjoy. The public image of strong men asserts the gender hierarchy of men in control and in charge, and never more so than in an emergency or a disaster, an event which exposes any pretence of a 'natural' fit between sex and gender. On Black Saturday, any semblance of control disappeared and gender conditioning fell away in the face of death. Learnt behaviours of manliness

became secondary as men spoke of publicly crying in response to such immense fear and tragedy. Big, burly, fire-fighting men were seen crying, 'breaking out in tears' 'bursting into tears' and 'exploding into tears'. Black Saturday tested men's ability to live-up to the impossible and measuring up to the firestorm, to be brave, decisive, unemotional and stoic, and not to break down in its aftermath.

Implications for long-term disaster resilience/recovery for men in the aftermath of Black Saturday relate particularly to well-being. Relationships either deteriorated as men hid the effect of fires or felt constrained in talking to their partners, with three of sixteen couples in a friendship group remaining together at the time of the research. Against relationship breakdown, recovery stories occurred in the public domain with either 'capricious proclamations of heroic status for some men and for others judgements of failure'. Some threw themselves into work or found distractions; others undertook community leadership roles, thus emphasising to the community positional power, while others embraced traditional, masculine activities to build, clear or apply for grants and permits. For many men, these activities effectively blocked emotional responses and denied partners and families the support and intimacy they needed.

Further exacerbating recovery and thus longer-term resilience for men following Black Saturday was that work provided a short term refuge, particularly for those who could not live up to the hegemonic masculinity that emergency service organisations typify. Indeed, ESOs offered little debriefing and penalised men who could not cope, by demoting or removing rather than offering alternative work roles. The ESOs and bureaucracies forged ahead on the flawed assumption of men being men, robotic, in control and resistant to emotion and denied the lack of employee support services. This research notes the ill effects on the well-being of men, particularly the repression of feelings and constant efforts to live up to Western ideals of manhood that can lead to stress, illness and early death. Men experienced poorer physical and mental health than women with higher levels of alcohol abuse and loneliness with several men attributing the emergence or worsening of chronic or life-threatening illnesses to Black Saturday. Reluctance to seek help followed their perceived failure to live up to hegemonic male roles, not realising that few men ever do with some becoming violent towards women. The suppression of men's feelings compounded recovery and impaired resilience while women, refrained from speaking about men's violence. Men struggled with anger being aggressive or physically provocative, yelling and domineering with two men speaking of first-hand knowledge of domestic violence they linked to the disaster.

Curiously, four years post-event, individual men struggled to understand the violence and six years on, many continued to struggle. With each passing year, people remembered less about the inadequacy of gender role constructions, incorrectly assuming men protect women. Socially constructed patterns of masculinity historically position men in the front line for harm during disaster in Australia, while the designated role for women brings different risks. The research reports on how females comprised 42% of those who died on Black Saturday, many of whom were evacuating alone or with children. Gendered analysis shows that a similar proportion of bushfire deaths were recorded over the previous 50 years: 40% female and 60% male.

To improve longer-term resilience and recovery the research suggests broadening the range of acceptable behaviours for men and women along with men taking on their share of domestic and caring duties before tasking women with further work in disasters to avoid burdening women with further expectations while relieving men of theirs. Further, this research suggests positive change involves identifying points of vulnerability to

reshape our understanding of how men and women 'should' behave during and after a disaster and provides a four-step process:

1. reduce gender stereotyping
2. reduce vulnerability of emergency services workers and other first responders
3. improve individual support for survivor physical, mental and emotional health, and
4. offer equal opportunities and respect to all disaster survivors.

These suggested recommendations could reduce the compounding effects of gender during disasters and improve long-term resilience following a disaster.

Gibbs (2015) explored the bushfires that occurred in February 2009 across Victoria affecting all participants in this research that focussed on issues relating to the experiences of children and young people. Of significance to long-term disaster resilience/recovery and this review was that the researchers deliberately focussed on the present to give participants control over what they discussed and to minimise reoccurrence of traumatic memories and distress related to their bushfire experiences. Despite this effort, many participants provided detailed reflective accounts of their Black Saturday experience and their recovery as an essential part of their story about their current lives. Children and young people gave vivid accounts of their exposure to fires. These experiences became an ongoing part of family life history, even for children born after the fires. As the research notes, one four-year-old boy mentioned his house burning down, when his brother said, 'No, it's not his house because he wasn't alive when that happened', and the younger brother responded, 'I was in Mummy's tummy'. Another four-year-old child at the time of the fires, told strangers 'his story' but in fact reported the experiences of his friend who was the same age and had lost his home and toys and was talking of suicide. The research team interpret these stories as memories and reflections of Black Saturday and unrelated to the three-year post-disaster event. However, because the interviews took place more than three years after the Bushfires, we also acknowledge the long-term impact these stories have on the future resilience of these children and young people in terms of their well-being, but offer little in understanding long-term disaster resilience recovery.

Of particular note, is that the research reports that children felt a lost sense of safety. An interpretive presumption is that such a loss would influence long-term recovery and resilience. As one mother noted, her eight-year-old son lost his house, school friends, school and pet and despite his mother reassuring him, the young boy had lost the concept of safety as noted in her comment:

'I wouldn't have let anything happen to you Thomas', and then he said, "Well I bet so and so's parent said that" and they were the child that died' (Gibbs 2015:197).

His sense of concern about whether someone would, in fact, care for him could present constant worry for a young boy fearing the next event. In contrast, an older sixteen-year-old boy felt unaffected while acknowledging that Year 11 exams kept him occupied but hot weather in subsequent years affected him and made him feel concerned about fire taking his home. Children had to make post-disaster adjustments to cope with their disrupted routines, whether it was constant change over custody arrangements with separated parents or needing to make school adjustment and change between their old, temporary and new schools. Children and young people had problems coping with key transitional stages such as starting school or the final year of secondary school, whereby parents did not always report this as a bushfire related issue. In some cases, parents found it difficult to determine the difference between 'normal' and 'fire-related'

behaviour for their child. Difficulties coping with schooling or taunting from other children meant parents moved their children to new schools to situate them in a supportive connected community. Likewise, children and young people showed concern for community level adjustments showing delight for services returning to normal but expressing nostalgia for the loss of old buildings, dismay over new buildings that replaced the old yet affectionately hoping for advances in the new town development. A recurring theme alongside these concerns was the importance of familiar people, routines and expectations. For example, when the local football club closed, one boy refused to join a new football club outside his local area, but a year later would consider joining a new team in his local area. Another chose to move out of home and wanted to return home once her father's behaviour stabilised and returned normal. Grandparents provided family with a reciprocal caregiving with children and parents, providing a contact reassuring presence while children gave grandparents a sense of purpose and continuity.

The 2015 report discusses how children and young people were often involved in significant decisions that affected their lives and those of their family. This demonstrated their capacity to engage actively in dealing with adversity that supports the potential for children to develop a sense of self-efficacy and to be 'competent survivors' or model citizen capable of contributing to decisions affecting their lives. The authors also quote research that promotes the idea that a loss of safety and stability promotes children's capacity to resolve problems and deal with change and advocates for agencies to work with families and communities to restore social structures. The authors' own research supports the findings whereby decisions made by and for children and young people post-bushfires reflected the need for a restoration of routines and familiar social and physical environments. Minimising change achieved this by replacing household items and choosing locally based schools and sporting clubs and involved familiar people. For some, a strong attachment to place was central to the child's development of identity that could encourage continuation of the familiar in times of stress while for others, children needed change to maintain a sense of emotional safety and security by reducing demands and high expectations, and reducing exposure to the significantly changed built and natural environment.

To support a positive nurturing environment for children and young people, a clear reliance on family and community connections emerged from this research, as did strong ongoing supportive emotional bonds for children of different ages with their friends. Reported bullying-related behaviour post-event emphasised the worth of teaching affected children and their peers how to deal with the emotional intensity of their respective experiences and responses. Within this setting, the research describes the important role that schools, recreational organisations, and the broader community played in supporting positive outcomes for children and young people. Restoring safety and stability to reduce stress for this cohort resulted in some families moving away from the continual community disruptions while for others remaining in the familiar environment helped them counteract the negative disturbances of the bushfires.

An important outcome of this research demonstrates how the authors were able to propose multifaceted interventions and appropriate strategies that involved and could help children and young people to build safety and stability in post-disaster settings. Nonetheless, the authors acknowledge that they were unable to interview all the children and young people due parents choosing to protect their children from further suffering, but that the consistency of their findings provided insights into safety and stability within the context of family, school and community-level interventions designed to support positive outcomes, and thus better health and wellbeing.

The Australian bushfire case study (Gibbs et al 2017) focused on decision-making and the experience of relocating to explore the importance of a psychological sense of community for individuals and families following a major bushfire. For those who had a strong affection to their current community, a decision to stay would likely prove supportive of personal wellbeing. For those who had a disrupted sense of community, relocating would likely reduce the influence of subsequent financial and relationship stressors on personal wellbeing, and they would need to build social connections in their new community. These differences created complex community-wide challenges for people to make an informed decision about whether to relocate or not. A decision that may well impact health and wellbeing.

The research reported that for those who relocated, exposure to the bushfire created a strong stronger tie to wellbeing while for those who remained within their community, exposure to subsequent negative life stressors, created a more distinct connection to well-being. The interview data supported this outcome, which showed how the post-disaster community environment provided the motivation for leaving and that relocation was generally a positive experience in terms of reducing exposure to repeated negative visual and social bushfire related encounters. People appreciated the positive physical and social environment of their new communities and actively sought opportunities to become involved. However, while relocation may have effectively circumvented the impact of exposure to the bushfire, stressors lingered, which the report suggests may have been due to fewer opportunities to share the processing of the disaster experience and less access to recovery services.

For those who stayed in the community, exposure to the bushfire created an increased sense of community. The research suggested that people might have been more able to think about their need for community and the common fate they shared with neighbours. The interview findings indicated a strong sense of community among those who stayed, enhanced by the shared disaster experience.

Importantly, for long-term disaster resilience/recovery, the interview findings showed that individual experiences of the post-disaster community influenced the sense of community over the actual exposure to the bushfire. The shared experience of the disaster and the rebuilding processes helped enhance a sense of community for some while for others it was lost through the damage, disruption, and disharmony. Interestingly, the research model indicated that a stronger link with initial exposure to bushfire and having a stronger connection to their new sense of community, those who relocated were at greater risk for reduced wellbeing. However, the moderating influence of a reduced impact of life stressors partially offset these increased risk factors thereby apparently interrupting the effect that subsequent stressful life events had on personal wellbeing, to the point where relocated individuals report similar levels of subjective wellbeing to those who stayed.

For those who stayed in their community, they associated their current sense of community with recollections of community belonging pre-2009, whereas those who relocated experienced no association between a current sense of community and sense of belonging to their prior community. The report suggested that this indicated that a psychological sense of community is not a constant, behavioural, or personality attribute, but that one's emotional and behavioural attachments to place keenly linked to a particular community. To re-establish oneself elsewhere would be a demanding process requiring careful consideration, but those who decided to leave the challenging disaster-affected community appeared to embrace the experience that could improve health outcomes.

What this case study highlighted was the need for different recovery services between those who stayed in their community versus those who relocated. For those who stay or relocate from their community, targeting service provision after bushfires would support a resilient recovery. To achieve a better recovery for those who relocated, geographical planning for service delivery could help. Likewise, to support individuals and families to make informed decisions about staying or relocating, and to maximise positives and minimise potential risks, a disaster-impacted communities could benefit from information about the impacts of staying or relocating on personal wellbeing.

## Understanding the Dearth of Australian Literature

The *National Strategy for Disaster Resilience* (COAG, 2011) does not refer to understanding long-term disaster resilience/recovery. The *National Principles for Disaster Recovery* (Social Recovery Reference Group, 2018) identifies six principles for disaster recovery, one of which describes 'successful recovery recognises supports and builds on individual, community and organisational capacity and resilience' and should 'be evaluated to provide learning for future and improved resilience'. However, the principles are cast in 'should' statements of which only one refers to a long-term sustained effort.

The *National research priorities for natural hazards emergency management: Issues, priorities, directions* (2017a) auspiced by the Bushfire and Natural Hazards CRC considered and noted by the Australia-New Zealand Emergency Management Committee in June 2017 identifies four major issues key to advancing the state of natural hazards emergency management in Australia. These were:

- Shared responsibility and community engagement
- Communicating risk and understanding the benefits of mitigation
- Impacts of climate change, and
- Predictive services and warnings

In elaborating and identifying key issues that need to be addressed within each of these four priorities, no mention exists of long-term resilience or recovery although, from first principles many of the suggested activities could be seen to enhance resilience and/or recovery. Of more value to this review is an examination of the Information Guides that underpinned the process for establishing these national research priorities. Three of the sixteen Guides illuminate this review, namely: Community Resilience (BNHCRC 2017c), Recovery (BNHCRC 2017d), and Diversity (BNHCRC 2017e). Each Guide provides background to the respective theme. Under a range of applicable sub-themes, each Guide identifies a targeted range of research questions with an explanation. Their main value to this review is highlighting the sector's research priorities for examination in the short to medium term.

The BNHCRC research future-scope provides no comfort to the objectives of this review as the *BNHCRC Research Achievements and Outcomes* (2017b) identify five of the forty-seven listed research projects that mention resilience in their title and a further two of the forty-seven mention recovery in their title. None specifically refers to long-term resilience or recovery.

At the AFAC Annual Conference held in Perth in September 2018, of the research posters presented under the banner of the *BNHCRC Research Posters 2018*, seven of the sixty-eight posters mentioned resilience in their topic and none of the sixty-eight posters

mentioned recovery, although the overarching themes included 'resilience people, infrastructure and institutions' and 'resilience to hazards'. Again, the content of a number of the posters could be interpreted as informing resilience and/or recovery, if examined through those lenses.

This dearth of research engagement through the BNHCRC is further evidenced by a review of the One-Day Research Forum auspiced by the BNHCRC at this year's AFAC Conference in which five of the forty-six presentations mentioned resilience in their title, none mentioned recovery in their title and one considered 'long-term effectiveness'. In the main two-day, AFAC Conference, four of the seventy presentations mentioned recovery in their title and four mentioned resilience in their title. Notably, one presentation referred to the 'lived experience', of emergency service volunteers. However, in the concurrent program for the Inaugural Disaster Resilience Conference, auspiced by the Australian Institute for Disaster Resilience, conducted as a stream within the main AFAC Conference, fourteen of the sixteen presentations mentioned resilience in their title.

A 2017 Discussion Paper that EMV released entitled *Resilient Recovery* outlines an attempt to reform 'relief and recovery' arrangements in the emergency/disaster setting. Informed by deficiencies in 'relief and recovery' identified in a number of Victorian Reviews and Inquiries and underpinned by the emergency management reform process, this model attempts to provide a 'pathway from recovery to resilience'. EMV has adopted the whole of Victorian Government common definition of resilience as

'the capacity of individuals, communities, institutions, businesses and systems to survive, adapt and thrive no matter what chronic stresses and acute shocks they experience' (EMV, 2017:11).

This resilient recovery model has at its centre 'community connection' and is underpinned by four elements/pillars/domains/environments: namely, wellbeing, viability, sustainability and liveability'. The discussion paper provides further description of these elements along with enabling operating arrangements. However, this model is fundamentally different to the model underpinning the recently released *National Community Recovery Handbook* (2018) and *the Monitoring and Evaluation Framework for Disaster Recovery Program* (2018) adopted by the Australian Government. The Victorian Discussion Paper aims to 'shift our thinking to mobilise and activate the diverse range of stakeholders to collaboratively create a relief and recovery system for the future' (EMV, 2017:10). The Research Committee for this project has an opportunity to influence 'resilient recovery' in Victoria.

A National Recovery Workshop, convened by Red Cross Australia in partnership with AIDR, hosted eighty people from around Australia over two days in Melbourne to 'undertake discussion and debate with the aim of refreshing the Australian Recovery Agenda' (AIDR & ARC, 2017). Of interest to this review, is that there is no mention in the Workshop Report of 'long-term resilience/recovery'. The Report does note that, as Problem Statement 4, 'recovery is not well integrated with preparedness, response, and broader resilience efforts' (AIDR & ARC, 2017:10). A closer examination of the issues identified within the Workshop Report would suggest that many items would be related to long-term resilience/recovery if examined through that lens. Given earlier statements in this section about the BNHCRC Research Agenda, the Workshop Report recommends 'BNHCRC needs to invest a larger portion of their available funds to recovery focused research' (AIDR & ARC, 2017:4). This would be consistent with our earlier observations in this review.



From another perspective, the BNHCRC funded major thematic analysis of *Major Post-Event Inquiries and Reviews: Review of Recommendations – A Tactical Research Fund Project* (Cole et al, 2017). This extensive review analysed fifty-five of over 140 Australian Post Disaster Reviews and Inquiries published since 2009, and undertook a thematic analysis of their respective recommendations. Of the total 1,336 recommendations from all Reviews and Inquiries, 3.1% related to relief and recovery. The Report does not identify recommendations specifically relating to resilience although many of the recommendations could be examined through that lens. A useful sub-analysis considered the top five most frequent themes mentioned in recommendations. Most recommendations are operational or policy in nature and it is hard to see if they relate to resilience or recovery. However, the third most common theme for these recommendations related to community warnings and communications. Surprisingly, two of the least five frequent themes were about the role of business and industry, and, personal responsibility. Both themes reflect key elements of the *National Strategy for Disaster Resilience* (2011), and we remain left uncertain as to whether this observation reflects a lack of consideration by the processes of the Reviews and Inquiries, or shows their satisfaction with these themes in the events reviewed. We suspect it is the former. One final observation from this comprehensive Review is that 2.5% of the total recommendations related to research – there is no further qualification on this observation. Perhaps this observation demonstrates that resilience and recovery are yet to find their way onto the operational or research agendas within the sector.

Our review suggests that research reports based on ‘the lived experience’ emanating from this sector reflect an oversight of this perspective. Interestingly, the early American-based researchers in disaster studies brought a sociological approach to disaster research. They believed that ‘they needed better knowledge of what happened in disasters so that better planning for disasters could be instituted’ (Quarantelli, 1987:285). These early researchers asked applied or practical questions that focused on crises, both conflict and civil, that was American-centric. Being from the discipline of sociology, these early researchers included fieldwork and longitudinal methods in their various studies. We suggest that this original sociological orientation in disaster research fell behind new paradigms such as medical/clinical care, public health, emergency preparedness and homeland security over recent years. Interestingly, an anthropologist leads this MUDRI review to inform a research project led by a sociologist. This reorientation of disaster-based research may be timely but we think has an uphill challenge.

Due to the literature dearth available to the MUDRI team, to value-add to this literature review, we studied all Australian Jurisdictions’ plans, guidelines and arrangements for disaster recovery for references to long-term recovery. Overall, the topic has received no substantial coverage or mention. A small number of jurisdictions mentioned the term, but most did not. Mention of detailed plans, guidelines, checklists or arrangements for long-term recovery was not forthcoming. Where addressed, the various arrangements highlight the relevance of long-term recovery mainly in terms of financial reimbursement from the Commonwealth to States in the context of the Natural Disaster Relief and Recovery Arrangements (NDRRA).

To overcome this inertia, a thoughtful, strategic plan will be needed. However, the research team for this project has the capacity to challenge the status quo and lead into the future.

### **Insights from the international literature**

MUDRI previously undertook a literature review entitled ‘*What does good or successful recovery look like?*’ (Archer 2015) prepared for the Australian and New Zealand

Emergency Management Committee, Recovery Sub-Committee, Monitoring and Evaluation Project Steering Group. Although this current review has a different focus, some of the findings of our previous review provide further insight into the dearth of literature. Our previous review was an extensive literature review of the international recovery literature that considered 1,320 peer reviewed and 540 grey literature papers from which just over 100 were included in the review. Some selected key findings and commendations from this review are included here.

“The (international) literature findings, in the Australian context, suggest:

- The strategic documents are of limited their value in helping define ‘good recovery’;
- The Australian-based literature is relatively ‘silent’ on recovery outcome studies;
- A limited systematic approach to a comprehensive understanding of evidence-based good recovery outcomes;
- Most recovery literature is ‘process’ orientated, not ‘outcomes’ orientated;
- There is little depth of research on ‘good recovery’ - most Guidelines / Frameworks are not ‘evidence-based’;
- No co-ordinated or generally accepted ‘theory of recovery’ has been identified at present
- Two clear themes emerge: (1) the need for community-led activities in recovery, and, (2) the importance of community and individual networks to facilitate recovery; and
- There was no literature located that helps identify when a community has the capability and capacity to manage and/or facilitate their own recovery.

We commend

- Funding Australian-based recovery outcome evaluation studies to contribute to the evidence-base for recovery in the Australian context;
- Establishing a process to develop guidelines for consistently reporting, disseminating and collating case study reports of recovery following major events;
- Bringing community development professionals and disaster professionals together to develop a shared lexicon;
- Promoting recovery ‘impact evaluations’ of specific interventions, as a step towards building the evidence base for ‘good recovery’ – what INTERVENTIONS actually work?;
- Establishing an evidence gap map based on the Australian Community Recovery Handbook; and
- Establishing a National repository of ‘evaluation’ studies”. (Archer et al 2015)

No overarching theory of recovery was identified, although there are some attempts (Alaniz, 2010) (Joakim, 2013) but these mainly related to a specific ‘lens’: economic recovery (Chang, 2012); political economy (Smith & Wenger, 2006); and, social networks (National Academies, 2012). Comprehensive text books (Shaw, 2014) and the World Disasters Report (2001) provide a broad framework to examine recovery but do not specifically consider parameters of ‘good recovery’. *(Note: Primary sources quoted by Archer et al 2015 are listed in their bibliography and not listed in this review)*

Further, in a context of the inclusion/exclusion criteria for this review, significant reports by FEMA (2011) USA, Johnson (2013) USA, and Thornley (2013) New Zealand were excluded primarily because of the short timeframe between the events studied and the data collection. *(Note: Primary sources quoted by Archer et al 2015 are listed in their bibliography and not listed in this review)*

One contemporary descriptive definition of 'recovery' by Smith and Wenger (2006) is particularly insightful. We have chosen to include in full, text that provides a contemporary definition by Smith and Wagener describing a balanced approach to a definition of 'recovery' which they believe describes the potential to attain sustainable recovery. It also helps understanding of why it is 'so hard' to find consensus.

"Early definitions of recovery emphasized that recovery was predictable, made up of identifiable parts occurring in a sequential manner; choices and decisions were value driven; and outcomes (i.e., paths to recovery) emphasized a return to normalcy or the incorporation of those actions that have become more recently associated with sustainability—a reduction of future vulnerability (post-disaster mitigation), equity, and amenity (Haas, Kates, & Bowden, 1977, p. xxvi).

However, this definition is an oversimplification of reality and fails to recognize that recovery is not uniformly achieved by all members of society, nor does it always follow a clearly defined path (Quarantelli, 1989a; Sullivan, 2003; Wilson, 1991). In reality, recovery is messy and uncertain. Factors such as power, race, class, gender, past disaster experience, and access to resources, including information, can all play a role in shaping the process for social units ranging from households to societies (Barry, 1997; Bolin, 1985; Francaviglia, 1978; Peacock, Morrow, & Gladwin, 1997; Platt, 1999).

Several definitions of recovery have focused on the repair and restoration of the built environment as well as the temporal differentiation between short- and long-term recovery or reconstruction, including an appreciation of pre-disaster actions such as land use and recovery planning (Rubin & Barbee, 1985; Schwab et al., 1998).

Other scholars, such as Nigg (1995a), have argued that recovery involves more than the reconstruction of the built environment. Rather, it is more appropriately defined as a social process shaped by both pre- and post-disaster conditions.

Thus, an alternative definition of disaster recovery is one that describes the numerous challenges faced by people and the impacts of disaster on human constructs (i.e., families, groups, organizations, communities, governments, and economies) as well as a description of how natural systems are impacted and "recover" from disaster.

It is therefore suggested that disaster recovery can be defined as

**'the differential process of restoring, rebuilding, and reshaping the physical, social, economic, and natural environment through pre-event planning and post-event actions'.**

While this definition describes the outcomes associated with a sustainable disaster recovery, it also recognizes that people, groups, and institutions are affected differently by disasters, and as a result, the overall recovery process is not necessarily linear, nor is it driven predominantly by technical challenges, but rather by social parameters (Nakagawa & Shaw, 2004; Nigg, 1995a.) As a result, people, groups, organizations, communities, governments, economies, and the environment often recover at differing rates, and in some cases fail to reach their pre-disaster condition. Conversely, opportunities exist to recover in a manner that results in recognizable (social, economic, and environmental) improvements over those conditions that were prevalent prior to the event." (Smith & Wenger, 2006) (Note: Primary sources quoted by Smith and Wenger are listed in their bibliography and not listed in this review)

Interesting, this same quotation has been heavily referenced and highlighted in the recently released Australian Community Recovery Manual (2018). Further, this illuminating perspective helps highlight some of the tensions between the physical, environmental and infrastructure elements, which commonly captures the recovery attention, and the people & community's perspective which is of greater interest to this current review but less commonly referenced.

Other key themes identified in our previous review, for example, that recovery extends across all phases of the disaster cycle (Leonard, 2009) and planning for long-term recovery before disaster strikes (Abramson, 2011) are also reflected as principles in the updated Australian Community Recovery Handbook. Interestingly, Abramson who studied long-term recovery process following major disasters in four mid-sized American cities reported that many of their respondents:

*'... were readily able to describe and discuss preparedness, response, and mitigation efforts, but often struggled to articulate their vision or plans of long-term recovery. The discourse around long-term recovery – including a standard, fairly universal vocabulary – has not evolved as it has in the other phases in the hazard continuum. Nor has the policy environment'. (Abramson, 2011) (Note: Primary sources quoted by Archer et al 2015 are listed in their bibliography and not listed in this review)*

As a part of this current review, the MUDRI team conducted a focused update of the international literature, 2014 – current, limited to Google Scholar but using similar search terms and criteria as the main search strategy for this current review. We experienced the same definitional issues: where 'long-term recovery' is seen by some as short as 3 months after the event; and, the resilience – recovery definitional conundrum. While it is recognised that there is no generally accepted definition of 'resilience' in the international literature, the term is now embedded in the disaster lexicon. Further, discussion around 'resilience' should have a context for meaning and interpretation. 'Resilience' is seen by some authors as a 'unifying theme', as a 'metaphor', or in the context of 'social capital'. Some see 'resilience' as applying across all phases of the disaster timelines whilst others see it as synonymous with 'recovery'. We all need to be mindful that 'resilience' has specific meanings within a range of professional disciplines and needs to be respected in those contexts when used in those settings. Its use in the disaster context requires further refinement, rather than its current use as a 'borrowed term'. There appears to be little appetite in the policy arena or in the literature to resolve this definitional conundrum. It behoves on all investigators to site their resilience studies in a stated context.

There are 'few examples of qualitative studies assessing the effects of disasters on quality of life' (USA) (Annang, 2014). Long-term recovery is seldom discussed by the media or policy makers (UK) (Whittle, 2012). Of the three studies identified (Stough, 2015) (Whittle, 2012), only one met the inclusion criteria for this review, i.e. data collected greater than 3 years post event (Annang, 2014). Annung and colleagues studied a small, rural town in the USA seven years following the collision of a freight train close to the town. The researchers specifically focused on 'the lived experiences, particularly of individuals whose voices are not typically heard in regard to promoting social change and policy development'. Whilst most of the research findings related to economic and infrastructure issues, the need to address wellness, rehabilitation and safety were overarching themes identified. Specifically, was the finding of 'an undertone of disempowerment by several participants reflecting on the impact of the disaster on their quality of life' (Annang, 2014).

At the risk of transgressing the consistency of our approach to this review, one of these studies is worth a mention and a follow-up (Whittle, 2012). This study examined a UK flood event and collected data 2 years post event, concentrating on the process of managing emotions as a part of the process of disaster recovery. In discussing their study, the researchers provide some poignant insights when they suggest:

- “much of the work of disaster recovery is hidden, un-noticed both in research and policy evaluations of the process;
- once attention is paid to such hidden work, it becomes less obvious who is affected by a disaster;
- the emotional work of recovery can generate new vulnerabilities; and,
- once attention is paid to emotional work, then it becomes clear that disaster recovery operates over much longer timescales than research and policy normal envisage.” (Whittle, 2012)

This research has some similarities with the findings from the Case study by Gibbs (2017). These UK-based researchers conclude that ‘the main physical work of rebuilding (and moving back into their homes) may be completed but, for the residents involved, the recovery process is far from over as they engage in the emotional and practical work needed to reclaim their homes and lives.’ (Whittle, 2012) Gibbs’ study provides further insight into some aspects of this ‘emotional work’. None of these additional three studies incorporated a gender lens.

#### *Emergence of recovery indicators*

Like the Australian recovery literature, the international literature also focuses on the short-term, initial, or early recovery and relief and recovery rather than on the long-term or sustainable recovery. However, literature from both sources suggests an attempt to identify factors that may lead to effective or good recovery. This approach has evolved into developing and validating indicators of disaster recovery. In the USA, Jennifer Horney has led an extensive process to validate key indicators for disaster recovery (Dwyer & Horney 2014). In the Australian setting, a set of outcomes, indicators and standards of successful recovery are referenced from the Australian Monitoring and Evaluation Framework for Disaster Recovery Programs (Argyrous G, 2018). It is hard to identify specific long-term recovery indicators in either of these, nor identify attributes of the lived experience. However, they are shaping the direction of data collection and measurement in this sector. The Australian model is already into version two and AIDR is calling for submissions from recovery studies based on the Framework. Again, the research committee for this project has the opportunity use this Framework to lead further studies on long-term recovery/resilience and to influence further amendments to these national indicators.

#### *Emergency management and community development*

One important philosophical advance introduced into the Australian Monitoring and Evaluation Framework for Disaster Recovery Programs (Argyrous G, 2018), when defining ‘disaster recovery as an outcome’ is the introduction of the terms ‘sustainable’ and ‘resilient’ which they define in the following way: ‘

1. **A sustainable community has the capability to manage its own recovery,** without government disaster-related assistance. In other words, if government disaster-related programs are withdrawn, the recovery process in a sustainable community will continue; the gains achieved during the government-assisted phase will not stop or reverse.

2. **A resilient community is better able to withstand a future disaster.** A successful recovery process “promotes practices that minimize the community’s risk to all hazards and strengthens its ability to withstand and recover from future disasters, which constitutes a community’s resilience” (FEMA 2011, National Disaster Recovery Framework, 11). (Argyrous, 2018)

The MUDRI team believes this conceptual framework is leading edge and will ultimately influence recovery and resilience practice in the Australian setting. This approach suggests that any investigation of long-term resilience/recovery from a particular event needs to include not only consideration of recovery from the event under study but also the communities capacity to ‘withstand and recover from future disasters’, and, probably, to prevent/mitigate/reduce vulnerability and exposure to future events.

The literature also identifies a suggestion of change in the context of recovery/resilience. EMV has introduced the concept of ‘resilient recovery’. Both Victoria and Queensland, following their respective major disasters of 2009 and 2010/11, imposed Recovery Authorities over the existing recovery arrangements in their states, both of which had short-term operational lifetimes. Continued disquiet about linking together ‘relief and recovery’ confounds the synonymous reference to resilience, which is frequently tagged as disaster resilience, or community resilience, or infrastructure resilience. The above definitions may help resolve this conflicted environment. However, they may introduce continued confusion if the national environment sees ‘a resilient community’ as being better able to manage their future while ‘a sustainable community’ has the capacity to manage its own recovery, which many would see as an element of resilience.

A sentinel event has recently occurred in the Australian scene with the move of Emergency Management Australia from the Australian Government’s Attorney General’s Department to the Department of Home Affairs, and the concurrent formation of a new companion entity, the National Resilience Task Force. Whilst the initial focus for this new National Task Force is publically stated at being on developing a **National Mitigation Framework**, it opens the possibility for a new look at resilience in the emergency/disaster setting. Little information about the new Task Force is available in the public domain at present. It is thought that the main driver for this change is economic, to shift and reduce the excessive costs of the ‘response and recovery’ phases to ‘prevention, mitigation and resilience’.

The Australian Community Recovery Handbook (AIDR 2018), the *American National Disaster Recovery Framework: Strengthening Disaster Recovery for the Nation* (FEMA, 2011), the New Zealand’s *Strategic Planning for Recovery: Directors Guideline for Civil Defence Emergency Management Group* (DGL, 20/17) (CDEM, 2017), are all contemporary national documents providing governance for this theme. The New Zealand Guideline is in the format of strategic planning and is heavily systems orientated, mentions long-term recovery in passing and is silent on the lived experience. The American Framework has many similarities with the *Australian Community Recovery Handbook* (AIDR, 2018) and links successful recovery as having resilience and sustainability elements. This Framework is community-centric and has extensive reflection on community considerations. The *Australian Community Recovery Handbook* maintains the resilience and sustainability themes but very early in the Handbook under the topic of ‘community-led recovery’ introduces the following graphic.

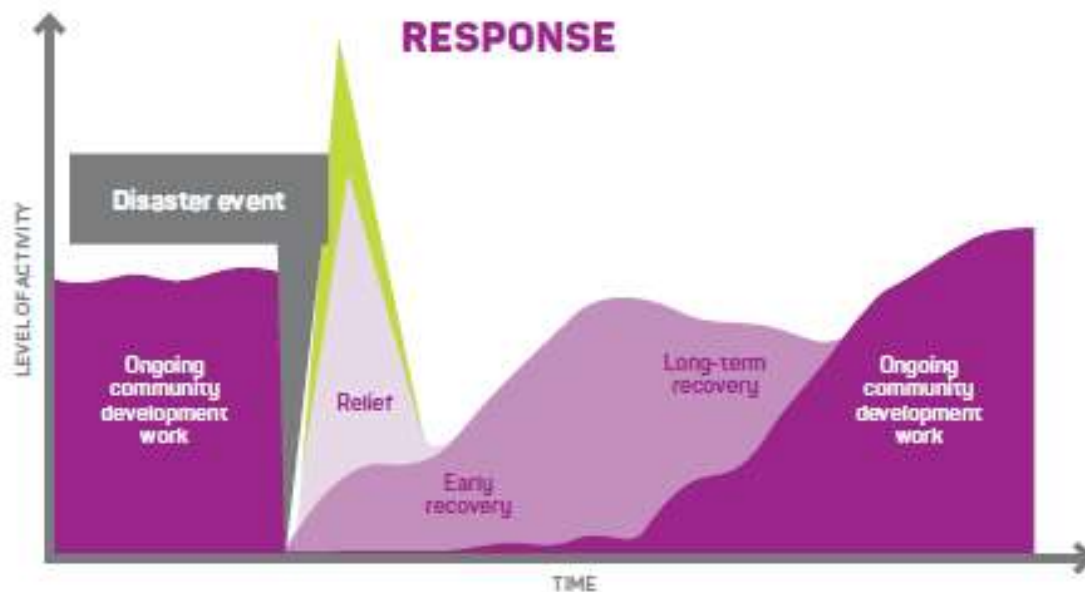


Figure 5 Effect of disaster on ongoing community development and interface with relief and recovery  
Source: Sally McKay

Of interest here is that a disaster event and the consequent relief, response, early recovery and long-term recovery are set in the context of a community development paradigm, existing before the event and continuing after the event. The Handbook outlines key principles of community development considering both their relationship to community resilience and sustainable communities. In the Australian setting, the leading agent in community development could be seen as the community/neighbourhood house network represented in most Australian states and territories. This community development sector has been closely engaged and influential with recent emergencies/disasters, for example the:

- Hazelwood Fire of 2014 and the leadership shown by the Morwell Neighbourhood House (Deloitte Access Economics, 2018);
- Victorian 2009 Bushfires and the subsequent *Whittlesea Community Emergency Plan* led by the Whittlesea Community House (2016);
- Dungog Floods of 2015 and their Dungog Community Centre (NSW) (2018);
- Emerald Community House and their self-created Centre of Resilience, in response to multiple, prolonged power outages (2018);
- *'A Silver Lining: community development, crisis and belonging'* exploring the role of community development in Queensland's recovery from the January 2011 floods. Caniglia F & Trotman A, 2011);
- *Strengthening people and places: the role and value of community and neighbourhood centres*, prepared by a collective of community groups after the Brisbane floods of 2011 (Hurley J, 2011); and
- *Toolkit 2-3 Community Recovery Case Studies*, published as a companion volume to the recent Australian *Community Recovery Handbook* (2018), includes 21 case studies, none of which relate to communities greater than 3 years after their respective events.

Again, the lived experience reported by these communities is outside the inclusion criteria for this review. However, we need to be cognisant that this graphic outlined in the *Australian Community Recovery Handbook* places the lived experience of the community central to the continuum of the pre- event, event and post-event phases of an emergency/disaster. Some may see this as the true focus of our endeavours, while the emergency services could be seen as sort-term intruders of these communities, yet it is this later group that has the voice and resources.

A valuable resource for engaging with the rich diversity within our communities are the resources publically available off the Gender and Disaster Pod, an initiative of WHGNE, WHIN and MUDRI, specifically the Issues Paper and Outcomes Statement from the April 2018 Diversity in Disaster Conference held in Melbourne attended by over 350 participants, available at <https://www.genderanddisaster.com.au/diversity-in-disaster-conference/>. These resources provide a contemporary snapshot of diversity in our communities and include an impressive range of thoughtfully prepared **'Strategies and Practical Steps for Diversity in Disaster'** that would be a valuable starting point to consider future studies in long-term resilience/recovery.

## Conclusion

This literature review aimed to identify protective factors that inform resilience for individuals, family, community, organisational volunteers and unaligned volunteers for women and men, girls and boys in future disasters. A gendered perspective of the lived experience provided the central focus of long-term resilience at least three years after disasters such as Ash Wednesday in 1983, the Victorian floods in 1993 and 2010-11 & the 2009 Black Saturday fires.

The MUDRI review team conducted a comprehensive, systematised literature search of peer reviewed, grey and secondary literature. The result was a dearth of relevant literature, and particularly a notable lack of gender focused literature, which confirmed and strengthened the need for research into long-term disaster resilience as it relates to the gendered experience of recovery. Most research related to the immediate aftermath, or within three years of an event, which reflects short-term recovery /resilience. The review analysed seven papers, which identified factors that may increase or hinder long-term individual and community disaster resilience. While the papers conformed to the search strategy, they did not explicitly specify attributes that might enhance the lived experience of long-term disaster resilience, a good recovery or the gendered nature of recovery. Consequently, the review team drew factors from these sociological studies and made 'presumptive interpretations', or common-sense judgments, about the ways these factors *may* provide insight into the social and contextual issues that could enhance the lived experience of long-term disaster resilience or contribute to a good recovery.

We acknowledge our heavy reliance on the Camilleri Report, which provided the most comprehensive information that we could use, and note that had more research been available to us, that the results of this review might have told a different story.

That said, the review team conducted a thematic analysis of the seven papers and identified six overarching themes:

- Technology
- Relationships
- Age and Experience



- Shifting Knowledge
- Health and Well-being, and
- Government and Insurance

The most striking conclusion drawn from these themes tells how people perceived the way a disaster and the ensuing period affected their personal relationships and circumstances. Overall, positive experiences strengthened their resilience while negative experiences hindered their resilience. The literature demonstrated how respondents perceived a positive or negative lasting effect on different aspects of their lives. Specifically relevant to this review, was respondents' perceived positive effects that appeared most likely for community and neighbourhood relationships, overall support received, and spiritual beliefs. Each of these positive effects could enhance resilience in the short and longer term, while the perceived negative effects that appeared most likely for relationships with friends, work situations, financial situation, and overall health could achieve the converse. These rather simplistic results perhaps belie the multiple complexities of those exposed to disasters and the long after effects, but points to the importance of the early development of resilience, and how best to create positive experiences, whether from friends, family, community or government.

In the main, the literature demonstrated how different communities recovered in diverse ways, which makes it difficult to determine the factors that underpin resilience over the long-term.

While in some ways this review resulted in a disappointing outcome, the dearth of research and literature that considered long-term recovery and resilience and lacked any reference to gender, identified, and confirmed the need for further relevant research to fill the gap that WHGNE identified. Further research might include longer-term research, which extends beyond the short-term or first three years that researchers commonly investigate, and fund follow-up research needed to **understand the gendered factors involved** in the long-term recovery process that could strengthen long-term resilience.

## References

- Annang L, Wilson M, Tinago CB & Svendsen ER. (2014) *Photovoice: Assessing the Long-Term Impact of a Disaster on a community's Quality of Life*. *Qualitative Health Research* 26(2) 2412 - 251
- Archer F, McArdle D, Spencer, C. Roberts F. (2015) Literature Review: What Does Good Or Successful Recovery Look Like? MUDRI, Unpublished
- Argyrous G (2018) *Monitoring and Evaluation Framework for Disaster Recovery Program* Australian and New Zealand School of Government, Carlton South, Victoria
- Australian Institute for Disaster Resilience (2017) *National Recovery Workshop Report* AIDR & Australian Red Cross, Melbourne, Vic
- Australian Institute for Disaster Resilience (2018) *Community Recovery Handbook* Available from <https://knowledge.aidr.org.au/resources/handbook-2-community-recovery/>
- Australian Institute for Disaster Resilience (2018) *Community Recovery Handbook Toolkit 2-3 Community Recovery Case Studies*. Available from <https://knowledge.aidr.org.au/resources/handbook-2-community-recovery/>
- Brockie L, Miller E., (2017) Older adults' disaster lifecycle experience of the 2011 and 2013 Queensland, floods, *International Journal of Disaster Risk Reduction* 211–218.
- Birnbaum ML, Adibhatla S, Dudek P, Ramsel-Miller J. (2017) Categorization and Analysis of Disaster Health Publications: An Inventory, *Prehospital and Disaster Medicine*, <https://doi.org/10.1017/S1049023X17006525>
- BNHCRC (2017a) National research priorities for natural hazards emergency management Issues, priorities, directions Available from <https://www.bnhcrc.com.au/nationalpriorities>
- BNHCRC (2017b) BNHCRC Research and Outcomes Available from [https://www.bnhcrc.com.au/sites/default/files/1706\\_projects\\_final1.pdf](https://www.bnhcrc.com.au/sites/default/files/1706_projects_final1.pdf)
- BNHCRC (2017c) *Information Guide: Community Resilience* Available from <http://www.bnhcrc.com.au/nationalpriorities>
- BNHCRC (2017d) *Information Guide: Recovery* Available from <http://www.bnhcrc.com.au/nationalpriorities>
- BNHCRC (2017e) *Information Guide: Diversity* Available from <http://www.bnhcrc.com.au/nationalpriorities>
- BNHCRC (2018) BNHCRC Research Posters 2018, Bushfire and Natural Hazards Cooperative Research Centre, Melbourne
- Camilleri P, Healy C, Macdonald E, Nicholls S, Sykes, J, Winkworth G, Woodward M, (2007) *Recovering from the 2003 Canberra bushfire: A work in progress* Emergency Management Australia, Canberra
- Caniglia F & Trotman A (2011) 'A Silver Lining: community development, crisis and belonging' exploring the role of community development in Queensland's recovery from the January 2011 floods. West End Community House Brisbane.
- Carra K A. & Curtin M., (2017) Posttraumatic Growth Among Australian Farming Women After a Flood, *Journal of Loss and Trauma*, 22 (5), 453-463
- COAG (2011) *The National Strategy for Disaster Resilience* Available from <https://knowledge.aidr.org.au/resources/national-strategy-for-disaster-resilience/>
- Cole L, Dovers S, Eburn M, & Gough M. (2017) Major Post-Event Inquiries and Reviews: Review of Recommendations – A Tactical Research Fund Project, BNHCRC, Melbourne, Vic
- Deloitte Access Economics. *Social Impact analysis: Morwell Neighbourhood House Final Report*. (2018) Available at <http://www.morwellnh.org.au/social-impact-analysis-by-deloitte-access-economics/>
- Dwyer C, Horney J. (2014) Validating Indicators of Disaster Recovery with Qualitative Research *PLOS Currents Disasters*. Edition 1 doi:10.1371/curents.dis.ec60859ff436919e096d51ef7d50736f

- Dungog Community Centre (NSW) (2018): Available at: <https://www.dscc.net.au/>
- Emerald Community House Centre of Resilience (2018). Available at: <http://www.emeraldcommunityhouse.org.au/centre-of-resilience-cor/>
- Emergency Management Victoria (2017) *Resilient Recovery: Discussion Paper*, Emergency Management Victoria, Melbourne
- Ferrari, R (2015) *Writing narrative style literature reviews* Medical Writing 24 (4), 230-235
- Gibbs L, Block K, Harms L, MacDougall C, Baker E, Ireton G, Forbes D, Richardson J, Waters E. (2015) Children and young people's wellbeing post-disaster: Safety and stability are critical *International Journal of Disaster Risk Reduction* 14:195-201
- Gibbs L, Bryant R, Harms L, Forbes D, Block K, Gallagher HC, Ireton G, Richardson J, Pattison P, MacDougall C, Lusher D, Baker E, Kellett C, Pirrone A, Molyneaux R, Kosta L, Brady K, Lok M, Van Kessel G, Waters E. Beyond Bushfires: *Community Resilience and Recovery Final Report*. November 2016, University of Melbourne, Victoria, Australia. Available from <http://beyondbushfires.org.au/>
- Gibbs L, (2017) *Post-bushfire relocation decision-making and personal well-being: A case study from Victoria, Australia* in Adenrele A A, editor. Post-bushfire relocation decision making and personal wellbeing in Planning for community-based disaster resilience worldwide: learning from case studies in six continents, Routledge London
- Green BN, Johnson CD, Adams A, (2006) *Writing Narrative Literature Reviews for Peer-Reviewed Journals: Secrets of the Trade* Journal of Chiropractic Medicine 3 (5) 102-117
- Harms L, Block K, Gallagher H C, Gibbs L, Bryant R A, Lusher D, Richardson J, MacDougall C, Baker E, Sinnott V, Ireton G, Forbes D, Kellett C, & Waters E., (2015) *Conceptualising Post-Disaster Recovery: Incorporating Grief Experiences*, British Journal of Social Work 45, Supplement 1, i170-i187 doi:10.1093/bjsw/bcv122
- Hurley J. (2011) *Strengthening people and places: the role and value of community and neighbourhood centres*. West End Community House, Brisbane.
- Moreton M R J., (2016), A study of four natural disasters in Australia: how the human response to fire, flood and cyclone contributes to community resilience and recovery. A thesis submitted for the degree of Doctor of Philosophy of the Australian National University
- Ostadtaghizadeh A, Ardalani A, Paton D, Jabbari H, Khankeh HR. (2015) *Community Disaster Resilience: a Systematic Review on Assessment Models and Tools*. PLOS Currents Disasters. Apr 8. Edition 1. [0.1371/currents.dis.f224ef8efbdfcf1d508dd0de4d8210ed](https://doi.org/10.1371/currents.dis.f224ef8efbdfcf1d508dd0de4d8210ed)
- Quarantelli EL. (1987) *Disaster Studies: An analysis of the Social Historical Factors Affecting the Development of Research in the Area* International Journal of Mass Emergencies and Disaster, Vol 5:No3 285-310
- Regional Australia Institute, (2013) *FROM RECOVERY TO RENEWAL Case Study Report*, April 2013, Available from <http://inform.regionalaustralia.org.au/rai-research/item/from-recovery-to-renewal-case-studies>
- Rubin, Claire B. (2009) *Long Term Recovery from Disasters - The Neglected Component of Emergency Management*, Journal of Homeland Security and Emergency Management: 6(1), Article 46. DOI: 10.2202/1547-7355.1616
- Social Recovery Reference Group (2018) *National Principles for Disaster Recovery* Available from <https://knowledge.aidr.org.au/resources/national-principles-disaster-recovery/>
- Stough LM, Sharp AN, Resch JA, Decker C & Wilker N (2015) Barriers to the long-term recovery of individuals with disabilities following a disaster. doi:10.1111/disa.12161
- UNISDR, (2015) *The Sendai Framework for Disaster Risk Reduction 2015-2030*, Available from <https://www.unisdr.org/we/inform/publications/43291>
- Whittle R, Walker M, Medd W & Mort M, (2012). *Flood of emotions: emotional work and long-term disaster recovery*. Emotion, Space and Society 5, 60-69

- Winkworth G, Healy C, Woodward M, & Camilleri P., (2009). *Community capacity building: Learning from the 2003 Canberra bushfires*. The Australian Journal of Emergency Management, 24 (2), 5-12.
- Whittaker, J et al (2012) *Vulnerability to bushfires in rural Australia: A case study from East Gippsland, Victoria*, Journal of Rural Studies 28:161-173
- Whittlesea Community Emergency Plan* (2017) Whittlesea Community House. Available at <http://wchi.com.au/emergency-plan/>