



IDENTIFYING RISK PERCEPTIONS, LEVEL OF PREPAREDNESS AND COMMUNICATION CHANNELS FOR 'AT RISK' COMMUNITIES IN RESPECT TO NATURAL DISASTERS



Hunter & Central Coast
Regional Environmental
Management Strategy



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Table of contents

Executive summary	1
Recommendations	2
Community Engagement and Practical Preparation	2
Information and Communication	3
Future planning and Research	3
Background	5
Aims of the research	6
Key research questions	6
What we have learned from the literature	8
Method	17
Participants	17
Analyses	19
Understanding the Results.....	19
Results.....	22
Risk perception regarding natural disasters within `at risk` communities	22
Level and nature of preparedness for natural disasters by `at risk` communities..	25
Planning.....	25
Practical preparedness.....	29
The primary means via which `at risk` groups receive natural disaster warnings and barriers to communication with `at risk` communities	36
Information	36
Communication.....	40
Missing Groups	44
The Role of Emergency Services and Human Service System	45
Co-ordination and Communication	45
Community Development.....	46
Discussion and Recommendations	47
Further planning and research directions: where to from here ?	50
Appendix A.....	51
Appendix B.....	53
Appendix C.....	54
References	63
Table 1: Summary of at risk groups' planning, preparation & response capacity.....	35
Table 2: Main ways 'at risk' groups receive information about natural disasters.....	39
Table 3: At risk community groups' preferred communication means in a time of natural disaster	44
Figure 1: Geographical area for the research	7
Figure 2 : Number of participants per local area	18
Figure 3: Percentage of total sample represented by each `at risk` population	18
Figure 4: Caveats for understanding the findings.....	21

Executive summary

International and local literature supports the position that extreme climate events and associated natural disasters have both short and long term effects on individuals, families and communities. By capturing the awareness, understandings and lived experiences of 'at risk' community members, this research seeks to build the preparedness of 'at risk' communities to natural disasters across the Lake Macquarie, Wyong and Gosford Council areas, as a pilot for the broader HCCREMS region.

Detailed spatial analysis (HCCREMS, 2014) was used to identify geographical localities where communities are relatively more vulnerable to natural disasters and extreme climate events. Focus groups were then held in these localities for those community members considered most vulnerable, including low income families with young children and other low income earners, aged populations, people with a disability and CALD communities. Analysis of the discussions held reveals that consistent with the international literature, for these local communities risk of both short and long term adverse outcomes post natural disaster is exacerbated by the combination of exposure and vulnerability.

Primary outcomes identified from the research include:

1. Key **vulnerability** indicators for 'at risk' groups include:

- Social isolation or reliance on only one person for support and information in the event of a natural disaster.
- Communication challenges – both in being heard and in understanding and responding to messages regarding preparation before a natural disaster, as well as actions to implement during the event.
- Limited material resources limiting capacity to prepare and to respond to the immediate and longer term impacts of a natural disaster.
- Past trauma or current experience living in a crisis in terms of day to day living. These experiences left little capacity for managing further emotional crises such as the impact of a natural disaster.

2. Key **protective** or buffering factors for 'at risk' groups are:

- Experiences of past crisis events and successful recovery.
- Practical knowledge of their local area, of their own situation.
- Capacity to seek information and support from emergency and other human services.
- Connections and relationships with informal support networks including neighbours, family and friends.
- Thinking, planning and some level of action in preparing for potential risks.

Within 'at risk' groups those identified as being most vulnerable included:

- People aged 75 and over.
- People with a disability who experience communication challenges.
- People who were socially isolated – that is lived alone with little or no outside contact.
- New arrivals to an area – particularly members of culturally and Linguistically Diverse (CALD) groups.
- People with dementia who were living alone.
- People on low incomes – particularly in regard to longer term response and recovery.

Recommendations

Community Engagement and Practical Preparation

- Develop specific strategies to support the following groups in disaster preparation, response and recovery in addition to mainstream strategies. These should be developed in collaboration with human service providers, emergency services and support groups.
 - People aged 75 and over.
 - People with a disability who experienced communication challenges.
 - People who were socially isolated – that is lived alone with little or no outside contact.
 - New arrivals to an area – particularly members of CALD groups.
 - People with dementia who are living alone.
 - People on low incomes – particularly in regard to longer term response and recovery.
- Local government, service providers, community organisations and emergency services engage with local neighbourhoods and existing community groups to develop and implement collaborative community education strategies focused on safety in natural disasters.
- Develop and support loose local support networks designed to include those most 'at risk'. For example, where a person can only identify one support person in times of crisis, the network would aim for each person to have 5 possible support people who all knew and agreed to taking on this role. These could be an expansion of the work which the Red Cross is already doing.
- Improve co-ordination between human service providers and emergency services regarding 'at risk' groups. For example, Meals on Wheels clients who are most isolated are part of a register kept by that organisation and this register can be utilised for emergency support during the event of a natural disaster. Coordination of this nature would seek to ensure some people don't become invisible or unnoticed in a time of crisis.
- Develop a dispersed co-ordination plan which engages community organisations, service providers, voluntary community groups and local government in disaster

preparedness at both a very localised and regional level. Links between these levels are critical and were poorly understood by research participants.

- Develop and disseminate localised evacuation plans in neighbourhoods including clear signage.
- For low income earners develop pathways for assisting with access to insurance (e.g. what insurance alternatives really exist for these that would eliminate harm in a disaster).
- Work with General Practitioners (GP's) in relation to medication advice and warnings – including Webster packs. This is focused on heatwave advice given to patients and needs to include both the storage needs of the medication AND the effects the medication has on a person's body to cope with extreme temperatures – as both these issues were poorly understood by the majority of research participants in 'at risk' groups.

Information and Communication

- Community education programs should encourage people to have back up communication in the event there is no electricity.
- Engage with CALD community leaders to develop more effective communication strategies for new arrivals and those with limited English.
- Develop and distribute clear information to communities about how and when evacuation messages will be delivered.
- Communication and warning strategies must include radio and TV communication, phone apps, social media, SMS and phone calls as well as a strategy for face to face warnings. This reflects the multiple channels through which different 'at risk' groups have been found to source information.
- Investigate social media training for the 65 plus age group – this could include informal training such as families taking responsibility for older family members – as well as community centre programs.
- Make available a one page fact sheet that covers all disaster types similar to the one used in the research focus groups (refer Appendix 2). Add to this page information about communicating with neighbours prior to a disaster about your plans and theirs.

Future planning and Research

This project provides a snapshot of preparedness and response amongst a number of 'at risk' groups. Findings are consistent with the literature and raise a number of important questions for effective planning and support in relation to those most vulnerable in the event of a natural disaster. Areas for further investigation, planning and research are:

- Similar research (i.e. focused on community knowledge, preparedness and communication systems in disasters) with groups not included in the current study – particularly those who are homeless, those living in transient accommodation, women and children at risk of domestic violence (including the preparedness of

local services to provide increased assistance following natural disasters) and local Aboriginal communities.

- Further investigation focused on those most socially isolated within the 'at risk' groups including those with communication challenges, people with dementia and those with a mental illness.
- Further research with support workers and carers of those with a disability to ascertain current and future disaster preparedness plans they may have in place for those they are supporting.
- Further research focused on the role of informal networks, social capital and neighbourhood preparedness.
- Further investigation on effective co-ordination processes and mechanisms for human service providers to reduce the impacts of natural disasters on 'at risk' communities.

Background

A substantive body of evidence has established that climate change is likely to increase climate extremes and with it, the likelihood of climate induced natural disasters (IPCC, 2014).

Climate extremes are influenced both by anthropogenic climate change and natural climate variability. The Intergovernmental Panel on Climate Change (2014, p5) has warned that it is “virtually certain” that substantial temperature warming accompanied by increasingly frequent heavy precipitation, sea level rise and extreme high water levels for coastal areas will occur by the end of the 21st century. Concurrently and subsequently, it is also predicted that with time and climate change the prevalence of climate induced natural disasters including extreme heat events, bushfire, local flooding, and associated storm surge will also rise (IPCC, 2014).

Extensive scientific review of evidence and experience both internationally and locally, identifies that extreme climate events have a significant impact on population health, public health systems and the capacity of emergency service providers. Importantly, this evidence highlights that more vulnerable community sectors are disproportionately affected by extreme climate events, due to a reduced capacity to prepare and respond to their impacts both in the short term and over time.

The Intergovernmental Panel on Climate Change (2014) identified that the severity of risk posed to communities by natural disasters is determined by both exposure and vulnerability.

Severity of Natural Disaster Risk = Exposure x Vulnerability

Exposure: the degree that people, property and infrastructure by virtue of their physical location are adversely affected by an extreme event.

Vulnerability: the susceptibility or propensity of particular populations to suffer negative impacts from a natural disaster as a result of their characteristics or capacities

It is widely recognised that responding to disaster risk posed by climate extremes requires an iterative process of monitoring, research, evaluation, learning, and innovation. There is also robust evidence to suggest that the integration of local knowledge with scientific and technical knowledge can improve disaster risk reduction and climate change adaptation across communities. The resulting emphasis for government then is on prevention and preparation as key measures to limit and reduce the impacts and costs to communities affected by natural disasters.

Aims of the research

Recognising the need for local knowledge and understanding to inform disaster prevention and preparation efforts the Hunter and Central Coast Regional Environmental Management Strategy (HCCREMS) team, in partnership with member Councils (Lake Macquarie, Gosford and Wyong), NSW Health and the Australian Red Cross, received funding through the Natural Disaster Auxiliary Grants Scheme (a joint initiative of the NSW and Commonwealth Governments) to implement the 'Natural Disaster Resilience Project – Building Community Preparedness'.

Consistent with national, state and regional priorities, this initiative aims to identify and build the preparedness of communities considered most 'at risk' from climate induced natural disasters across the Lake Macquarie, Wyong and Gosford Council areas.

Particular objectives include:

- Using existing spatial information and data to understand the interface between 'at risk' communities and natural hazard exposure
- Exploring the risk perceptions and preparedness of 'at risk' communities
- Increasing the emphasis on heat wave planning within the region.

Key research questions

One of the core components of the Natural Disaster Resilience Project has included the delivery of social research to identify:

- risk perception regarding natural disasters within 'at risk' communities
- level and nature of preparedness for natural disasters by 'at risk' communities
- capacity of 'at risk' groups to respond and recover from natural disasters
- the primary means via which 'at risk' groups receive natural disaster warnings and barriers to communication within 'at risk' communities

For the purposes of the project 'at risk' communities have been defined as:

1. Low income households
2. Very young and elderly communities:
3. People with disabilities; and
4. Culturally and Linguistically Diverse (CALD) communities.

The geographical area in which the research has been completed includes the local government areas of Lake Macquarie City Council, Wyong Shire Council and Gosford City Council (see Figure 1 following).



Figure 1: Geographical area for the research

What we have learnt from the literature

Australian and international literature provides insights into the risk and protective factors associated with disaster preparedness and resilience for vulnerable community members. This literature review focused on extreme weather events including bushfires, floods, extreme heat, severe storms and the related impacts on vulnerable groups including older people, young children, people with disabilities, people with low incomes and culturally and linguistically diverse populations groups in Australia and other Organisation for Economic Cooperation and Development (OECD) countries.

An individuals' resilience to natural disasters is influenced by a number of interrelating factors including age, ability, ethnicity, gender and their economic and social resources.

Two recent Australian natural disasters feature heavily in the Australian literature, the 2009 Black Saturday Fires in Victoria and the 2010-2011 Floods in Queensland. These events have valuable lessons to inform future preparedness activities and approaches. A consistent theme throughout the 2009 Victorian Royal Commission into the bushfires was the failure of communication systems in providing accurate and timely information in order to evacuate (Martin, 2010, p.7).

Community participation and empowerment in disaster planning and preparedness is important

Studies in the US have also commented on the vulnerability of large percentages of the population who are both unprepared for natural disasters and of the belief that emergency services will arrive within a few hours of a disaster occurring (Baker & Cormier, 2013, p. 111; Burke, Bethel & Britt, 2012, p. 3117). Instead of this individualised reliance on external systems there is a growing recognition of the importance of social capital in disaster preparedness and resilience (Deloitte Access Economics, 2013, p. 15; Hartel & Latemore, 2011, p. 870).

At the core of the resilience focus adopted in Australian Government disaster policy is recognition of the importance of SOCIAL CAPITAL

The critical role that building social capital plays in disaster preparedness is reflected in the way the Australian Red Cross have incorporated social capital into their community education tool, the REDiPlan (Deloitte Access Economics, 2013, p. 15).

The REDiPlan educational booklet devotes one quarter of their preparedness strategy to building connections with neighbours and the broader community (Australian Red Cross, 2012, p. 17).

Community members who are socially isolated have been shown to be more vulnerable in extreme weather events (Hajat, O'Conner & Kosatsky, 2010, p.858). Population groups who are at risk of social exclusion are also particularly vulnerable in disasters (Martin, 2010, p. 4).

While much work is being done by community organisations to provide services to vulnerable people, an assumption that community service organisations will provide timely assistance during disasters is not consistent with the capacity of these organisations nor with their current perceived role (Mallon, Hamilton, Black, Been & Abs, 2012, p. 4; Zakour & Harrell, 2003). A recent study into the Australian community sectors ability to cope with extreme weather events suggests that community service organisations are highly vulnerable and unprepared to respond to natural disasters in regards to their physical infrastructure and systems, therefore worsening the vulnerability of people experiencing poverty and social exclusion (Mallon et al., 2012, p. 1).

Factors that place older people at risk can include physical and mental wellbeing, disability, social isolation, access to resources, communication methods and inability to use modern technologies. During periods of extreme heat older people can be adversely affected by heat due to diminished thermoregulatory functions and the presence of acute and chronic diseases (Bennet, Capon, McMichael, 2011, p. 10). Extreme heat has been shown to exacerbate anxieties in older people (Hansen et al., 2011, p. 4723).

Older people in our community are at particular risk during natural disasters.

Reliance on essential medications also places many older people at risk in a disaster requiring evacuation if they leave without their medications or can't return home expectantly (Tomio, Sato, & Mizumura, 2011, p. 328). Visual and auditory impairment can place older people at risk in accessing information and alerts in disasters (Lowe, Ebi, & Forsberg, 2011, p. 4638). Many older people's inability to drive and/or lack of access to a vehicle due to low income limits independent evacuation options in disasters, and in extreme heat can prevent them travelling to a cooler venue (Zakour & Harrell, 2003, p. 29). Additionally qualitative research in Australia has found older people who have air-conditioning units frequently have problems understanding the control panels on these units (Hansel et al. 4751). Many older people live on low incomes and are prevented from owning or using air-conditioning during periods of extreme heat. Another Australian study however found that older people have more flexibility in time than many other populations groups; this allows them flexibility to manage extreme heat by undertaking activities in the cooler parts of the day. This study also found the use of the telephone to keep in touch with people was also a strategy that older people expressed using in extreme weather events (Banwell et al., 2012).

Another vulnerable population group mentioned regularly in the literature are people with disabilities. Some of the risk factors mentioned above that can exist for older people also apply to people with disabilities; these include lack of access to financial resources, lack of independent private transport, and the reliance on medications (Tomio, Sato, & Mizumura, 2011, p. 328; Zakour & Harrel, 2003, p. 29). As with older people, these issues can cause serious problems for people with disabilities responding and evacuating in extreme weather events. Without adequate planning and preparation many people with disabilities are less able to recover quickly from natural disasters due to the reliance on specialist equipment, housing modifications, and support systems (United Nations, 2013).

People with a disability are disproportionately affected by disasters due to a lack of preparation and planning as well as inaccessible services, facilities and transport

The United Nations body, UN Enable, highlights the need to mainstream disability in disaster preparedness and to make people with disability visible in emergency plans. "Several studies show us that including the needs and voices of persons with disabilities at all stages of the disaster management process and especially during planning and preparedness can significantly reduce their vulnerability and increase effectiveness of the government response and recovery efforts"(United Nations, 2013). Abbott and Porter (2013) argue that

the lived experience of people with disabilities has valuable contributions to make to natural disaster preparation and response but that their voices are frequently marginalised. At an individual level barriers in planning and preparation for people with intellectual disabilities can include the associated learning difficulties. Difficulties arise retaining information and skills that are not used on a regular basis (Bergstrom, Elinder & Wihlum, 2014, p. 269). These researchers suggest the importance of including caregivers in preparation education and interventions, and to collaborate with the person with disabilities to put the ideas into place, care givers also need to be informed to support the person with intellectual disabilities to practice the new skills (Bergstrom, Elinder & Wihlman, 2014, p. 269).

The intersection of gender, disability, ethnicity, age, geographical community and low income can further contribute to an individual's wellbeing and survival from a natural disaster. International and Australian literature has documented the way recent large scale natural disasters have impacted poor communities and individuals. The 2010-2011 Queensland floods had a disproportionate effect on people living on low incomes (Mallon, et al., 2013, p. 147).

Living in poverty and lacking access to and control over resources and capital impacts on an individual or a families' capacity to prepare, respond and recover from a natural disaster

A low income can make insurance inaccessible (Zakour & Harrell, 2003, p. 28) and can increase the likelihood of substandard housing that is difficult to prepare for climate risks (Mallon et al., 2013, p. 147). Employment can be disrupted as a result of natural disasters, which places further stressors on low income household's ability to recover (Mallon et al., 2013, p. 149). Some people on low incomes have social and community networks who are also in the same circumstances as themselves and have limited financial and material resources to help (Zakour & Harrell, 2003, p. 28).

As with the other vulnerable population groups, people on low incomes may lack access to private transport, adversely affecting their ability to evacuate in an emergency (Zelinsky & Kosinski, 1991: Martin, 2010, p. 6).

In the context of disasters access to modern communication tools such as computer, internet and smart phone technology are key assets to receive timely warnings. In the 2009 Victorian bushfires one of the communities hit the hardest had only just over half the households with access to internet, additionally these connections were mostly dial-up connections (Martin, 2010, p. 6). The cost of computer and internet can be prohibitive for people living on low incomes, lessening their options to get information and alerts.

CALD Communities can be particularly vulnerable to extreme climate events as a result of not sharing the dominant language or cultural identity of the area

Studies in the USA reveal that minority cultural groups are less likely to feel prepared for an emergency and less likely to have an emergency plan than the general public (Burke, Bethel & Britt, 2012, p. 3117). An action research project with Latino migrant farm workers in the USA found that lack of information in Spanish contributed to this poor level of preparation due to the migrant farm workers not knowing what to do in a natural disaster. The study also revealed that poor knowledge of the local geography resulted in the migrant farm workers not understanding where a particular disaster was, this meant that at times these workers in trying to escape a disaster had instead put themselves closer to the risk (Burke, Bethel & Britt, 2012, p. 3126).

Effective protective factors identified in the study included the broadcasting of emergency warnings in Spanish, using local schools and migrant clinic as trusted places for assistance, introduction of culturally appropriate community education, and the inclusion of migrant community members in developing disaster response plans (Burke, Bethel & Britt, 2012, p. 3128). An Australian study (Hansen et al., 2013) has looked at the issues experienced by culturally and linguistically diverse communities in responding and preparing for periods of extreme heat. The study found that CALD workers were at risk in heatwaves by not knowing their right to not work in extreme heat, while being on casual contracts increased this vulnerability. Another issue raised was the sense of exclusion from communal air conditioned spaces such as libraries and shopping centres. Lack of swimming skills was also a problem in using public pools and beaches to cool down (Hansen et al, 2013, p. 35). Poor quality housing with no insulation or air-conditioning was also raised as a concern for some CALD community members, as was the power costs of air conditioning (Hansen et al, 2013, p. 26).

For some, the use of air-conditioning was new and recent migrant and refugee community members sometimes did not understand how to cool a house with air conditioning, leaving the door and windows open (Hansen et al., 29). Cultural specific practices sometimes were perceived to place CALD community member at risk in periods of extreme heat, including the practice of not drinking during Ramadan. Additionally there was concern of over dressing in the Australian heat, creating greater risk in periods of extreme heat. Suggestions resulting from this study include the provision of information about extreme climate events in the language of CALD community members. This was also important for older migrant residents as the reversion back to the home country language makes understanding instructions and warnings difficult (Hansen, Nitschke, Pisaniello, Newbury, & Kitson, 2011, p.4724).

Additionally it was seen as important to provide information and education in a bi-cultural way, not simply translated but instead delivered in a way that takes onto account the cultural context (Hansen et al, p. 43, 44). The need was also identified to educate and support the general neighbourhood about how to help out CALD neighbours in cases of extreme weather events (Hansen et al.44,).

Children have unique needs in relation to disasters including physical security, emotional stability and family unity (Bullock, Damon & Coppola, 2010, p. 3). Young children lack the ability to communicate their physical and emotional health conditions and needs. Without access to specialist paediatric staff in a disaster, a first aid or general practitioner may not be able to respond adequately.

This problem is amplified for children with special needs (Baker & Cormier, 2013, p. 107; Bullock et al., 2010, p. 11). Children are emotionally vulnerable in disasters and may experience fear and trauma. A young child is dependent on the wellbeing of their primary care giver. This can create problems where a young child is separated from their caregiver or when their caregiver is emotionally unavailable due to their own trauma from the disaster. Additionally changes can occur in parenting after a disaster causing over protective and hyper vigilance, thus removing the autonomy required for normal play and development (McDermott, 2014, p. 11).

*Due to their size
and stage of
development,
young children are
more susceptible to
injury, disease and
death during
extreme climate
events and natural
disasters*

Evacuation places are also often difficult for young children to spend time in; with inadequate places to play and lack of safe outdoor environments away from roads, car parks and other dangers (Community Capability Eastern Metropolitan Region, 2014, p. 19). Without the security of home and regular routines young children can experience problems with sleeping and eating, affecting their development and health (Bullock et al., 2010, p. 5).

In evacuation young children are more at risk of exposure to extreme elements and also due to the fact that they are reliant on parents or caregivers for evacuations. This risk is even greater for children of single parents or caregivers with more than one child in their care (Zakour & Harrell, p. 2003, p. 29). Parents of young children may also find their caring responsibilities interfere with the ability to get updated accurate information about upcoming extreme weather events. For example a parent commented about fire information meetings in Victoria Australia, "Community meetings are great if you can get to them but as a parent of two small children getting to a 7pm meeting is impossible" (Community Capability Eastern Metropolitan Region, 2014, p. 19).

There is agreement in the Australian and international literature that there needs to be a greater emphasis on the needs of children in extreme weather and disaster preparedness planning (Daughtery & Blome, 2009, p. 483; Bullock et al., 2010, p. 2; Clemens, Berry, McDermott & Harper, p. 2013, p. 554, Clemens, 2014, p. 11; Baker & Cormier, 2012, p. 111).

A study undertaken with survivors from the Victorian Black Saturday fires showed an increase in the incidence of domestic violence, homelessness, unemployment and substance misuse after the fires. These researchers also found that during the recovery period there was a community silencing of women speaking about domestic violence (Parkinson & Zara, 2013). Researchers in Canada with a community recovering from a devastating wildfire found that media article post disaster, in the recovery period, were dominated by economic and material concerns and silenced the suffering (Cox & Perry, 2013, p.401).

Extreme weather events can have lasting long term impacts on the wellbeing of individuals and communities via post-traumatic stress disorder, increased rates of violence, substance abuse, and unemployment

While the issue of personal trauma may be understood to be relevant to the recovery period it is also important to make a link with the impact of trauma in the disaster preparedness and planning stage. This may require information about mental health, substance misuse and domestic violence services to be included in the disaster preparedness information and education so that mental health issues are anticipated, mainstreamed and normalised rather than being silenced. The Australian Red Cross have developed two resources to help build psychological preparedness that can be incorporated into information provided to individuals, families and community groups; *Psychological Preparedness for disasters* and *Helping children and young people cope in crisis: Information for parents and caregivers* (Australian Red Cross, 2012 & 2010). At a structural level mental health and domestic violence services could be included in emergency services planning so that people at risk of domestic violence are considered and services are prepared.

To improve planning and disaster preparedness for 'at risk' community groups there needs to be a focus on community education, information and communication strategies that incorporate the needs of these population groups.

Several examples exist in the literature of possible ways to educate and communicate with vulnerable population groups regarding extreme weather events.

Baker & Cormier (2013) advocate the use of personalised education sessions to educate families with a child with a disability about potential disasters, complete an emergency preparation plan, compile a home disaster kit and provide information handouts including disability specific information (Baker & Cormier, 2013, p. 109).

Eisenman and colleagues found that small group discussion with low income Latino groups led by *promotoras* (local cultural educators) were the favoured way of increasing preparedness among this population group. The workshops held provided hand-on learning experiences and used low-literacy targeted materials that focus on a limited set of prioritized messages (Eisenman, Glik, Maranon, Gonzales & Asch, 2009, p. 341-342).

The use of social media is a valuable tool in providing information and alerts to respond to extreme weather events (Dufty, 2012, p. 43). In the Blue Mountains a pilot project is currently underway using a short TAFE course aimed at helping residents become familiar

with technology in order to increase their preparedness for bushfires and other emergencies. The course recommends websites and mobile phone apps for the Rural Fire Service, Blue Mountains City Council and police, and helps participants develop their own survival plan. Participants are taught to set up their own social media accounts and how to use websites. The course is specifically designed to be accessible to disadvantaged population groups with transport to the venue provided if required (Lewis, 2014). While this pilot project has not been evaluated at this stage it provides an example of the use of community development approaches to build disaster preparedness that are recommended in the literature and current government policy (Dufty, 2012, p. 41).

Another approach being used to build community disaster preparedness combines the use of social media, mainstream media and major high profile public events in Queensland. This approach is the *Three day survival challenge*. Over the period of the Ekka (the Qld show held in Brisbane) media personalities live in a mock lounge room with transparent walls surviving for three days on an emergency kit to simulate the experience of surviving after a natural disaster in which the roads, power and water were cut off. SES volunteers conduct community education on household preparedness at the live exhibit, while representatives from NRMA insurance operate a 'home safety check'. Additionally visitors are asked to engage with the exhibit through the use of social media to promote community discussion about disaster preparedness in the build up to the Qld storm season (Stormwise, n.d). The effectiveness of this program has not been evaluated however it is an example of the current collaborations across non-government and business organisations to help build disaster preparedness and community resilience.

In sum, the international and local literature emphasises that natural disaster risk is elevated for particular groups in the community. These include people with a low income, families with young children, elderly populations, people with a disability and CALD community groups. These groups are at increased risk due to limitations in their access to, and control over resources and capacities essential to plan, prepare and recover from disaster. These same limitations need to be considered by policy makers and program providers in working with at risk communities to prepare and respond to natural disasters.

Method

With ethics approval from the University of Newcastle Human Ethics Committee, the social research conducted for this project used a qualitative methodology to capture the awareness, understandings and lived experiences of 'at risk' community members across the Gosford, Wyong and Lake Macquarie local government areas.

For the purposes of this research community members considered to be 'at risk' or particularly 'vulnerable' to the impact of a potential natural disaster included:

- Low income households (living below or at the poverty line);
- Very young and elderly communities: (children < 5yrs, people over 65 / 75yrs):
- People with disabilities; and
- Culturally and Linguistically Diverse (CALD) groups.

Spatial data gathered by research partners was used to identify localities within the three local government areas where the intersection of natural disaster risk and vulnerable populations was most prominent. Potential participants for the project were then recruited in these areas via social media, newsletters and through the communication pathways of key service providers and community organisations in the area. Invitations to participate were distributed asking interested community members to contact the researcher to participate in a focus group in their area.

In total 17 focus group discussions, lasting between 1-2hrs each were facilitated. These discussions centred on a set of key focus questions (see APPENDIX A) designed to illicit participants' awareness, understanding, and perceived impact of a natural disaster as well as their capacity and plans for preparation and recovery. Focus group discussions were audio recorded and then transcribed for textual analysis. Written informed consent was obtained from research participants prior to focus group interactions and participants were given time to read an information package detailing the research procedure and ask questions of researchers prior to the focus group discussion (see APPENDIX B). All participation in the research project was voluntary and participants were reminded they were free to discontinue their involvement at any stage.

Participants

Basic demographic data collected via brief survey prior to focus group discussions provides us with the following insights into the demographic profile of participants. Overall 111 people participated in 17 focus groups across the three local government areas. Participants in the focus groups lived in 47 local communities with roughly equal numbers represented across the three local government areas (see Figure 2). The majority of participants (n=70, or 74.5%) lived in communities classified by spatial data analysis as at risk for multiple climate related natural disasters including flood, bushfire or extreme heat (HCCREMS, 2014).

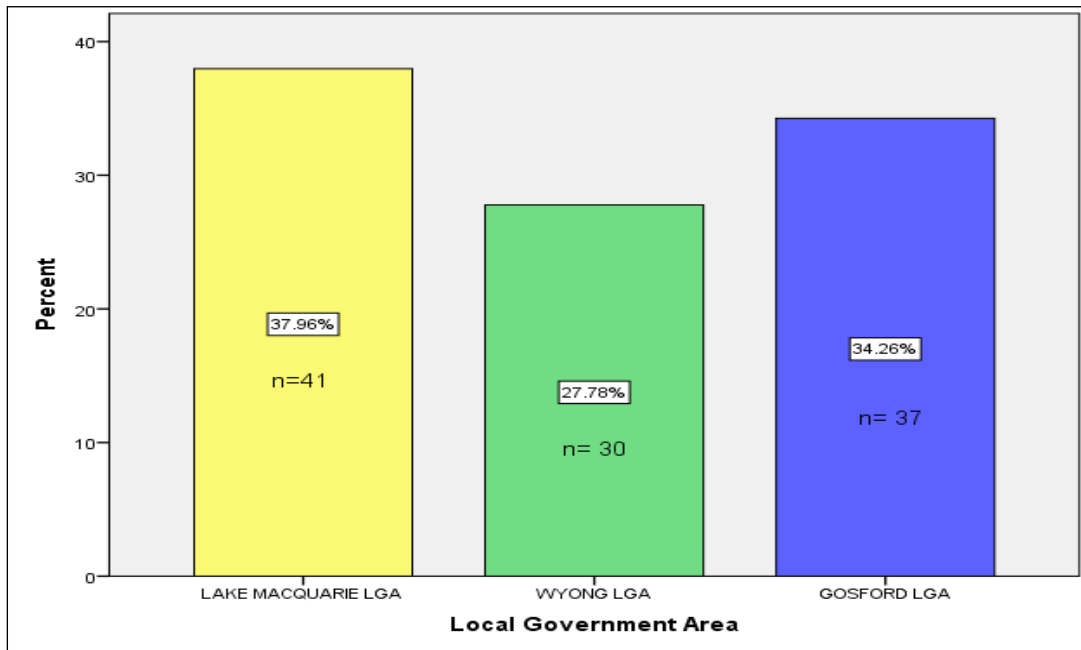


Figure 2 : Number of participants per local area

Consistent with many social research studies, the study sample consistently mostly of women (n=78, or 70.3%) rather than men (n=33, or 29.7%). However, the numbers of men participating in the study is adequate to represent male perspectives across the region. Those participating in the focus group discussions lived in households varying in size from sole occupancies (n=38, or 36.5%) to large households with 5 or more occupants (n= 6, or 5.8%). However, the majority of participants (n=75, or 72.1%) live in households of either one or two people. Highlighted in Figure 3, is the percentage of the total study sample represented by each identified 'at risk' community group. As shown, almost half of the participants (n=52, or 46.8%) in the collective focus groups reported having a low household income. Notably around one third of focus group participants were elderly community members (n= 41, or 36.9% aged 65-74yrs) and (n=32, or 28.8% aged 75 yrs or older). Similarly close to one third of the participants (n=35 or 31.5%) had a disability.

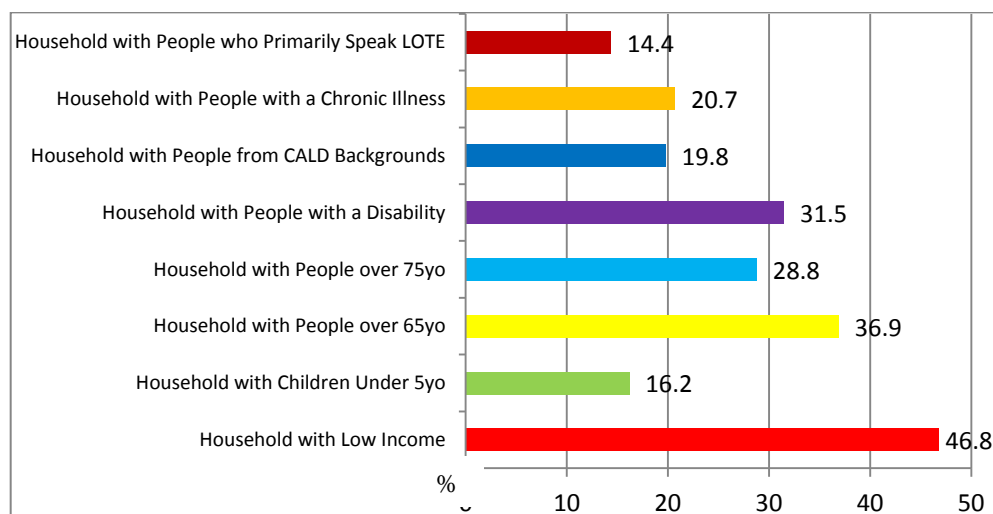


Figure 3: Percentage of total sample represented by each 'at risk' population

Analyses

The main data analysed for this report was that obtained from the focus group discussion. Focus group data was thematically analysed using a grounded theory approach. Data was coded for major and minor themes. A grounded theory approach involves the detailed analysis of transcriptions with themes identified, consolidated and linked with specific words, concepts and ideas. Transcript data is analysed to the point of saturation. That is, until no new themes emerge and existing themes are repeated consistently across focus groups.

In addition to themes across focus groups, differences between groups were analysed, and also some limited analysis of differences across local government areas was examined. As a focus group for each target population was not conducted in each separate local government area, any detailed analysis of differences between areas is of limited value. To supplement this qualitative analysis exploratory quantitative analysis was also undertaken of the demographic data collected prior to the focus group discussions. Given the small sample size, the quantitative data analysis presented is descriptive rather than predictive in nature, and serves to extend the qualitative understanding of those who participated in the study. It should be noted that as this is a qualitative research project, any reference to 'significant difference' does not refer to statistical significance but rather to a substantial qualitative difference.

Understanding the Results

Prior to considering the results of the research, it is important to recognise caveats or underpinning sample observations and their relevance to the findings. As summarised in Figure 4 these include recognition of differences between local government areas, differences between at risk groups, and gender differences.

Differences between LGAs

It is important to note that there is not a consistent data set across target groups for each LGA. This data set was beyond the scope of the project. Analysis of the data overall, however, does reveal a consistency in the experiences of all participants across LGA boundaries. While examples reported by participants tended to be localised and place based, the issues, questions and experiences discussed were consistent across all areas. Local geography such as proximity to water or bushland were significant markers of different experiences and preparedness whereas location in a specific LGA was not raised as a major theme. A number of participants spoke about and wanted to give feedback to their local Councils and specific local Councils were named, however, the issues raised were similar for all LGA's. These issues were focused on tree removal, tree lopping, weeds and bushland maintenance.

Differences between 'at risk' community groups

There were a number of significant differences between target 'at risk' community group responses across a number of key areas. Communication and information, capacity to activate informal networks and social capital, practical preparedness and local knowledge were major themes where differences between groups are significant.

Gender differences

Differences in the way men and women understood, planned for and acted on a natural disaster are important results from this research. Amongst all of the groups who participated in the research, women reported a high reliance on men (husbands/partners, sons, fathers or uncles) to co-ordinate the practical planning and preventative work in preparation for bushfires and floods in particular. This result was consistent across age and target groups and raises a number of questions about education and support for women in disaster preparedness. Major challenges were reported by older women who had lost their partner/husband. Many women reported suddenly having to take responsibility for disaster preparedness, preventative maintenance at home, organising insurance and making sure practical issues were addressed such as torches, gas bottles and an evacuation plan. This was not a role they had previously taken and for some, the focus group discussion was the first time they had thought through these issues. Across all age groups, men reported on aspects of practical preparation for natural disasters more frequently than women and men (of all ages) also reported that they would stay longer and defend their house from fire or flood. It is important to note that these are qualitative findings and indicate only a trend in the focus groups data but warrants further investigation.

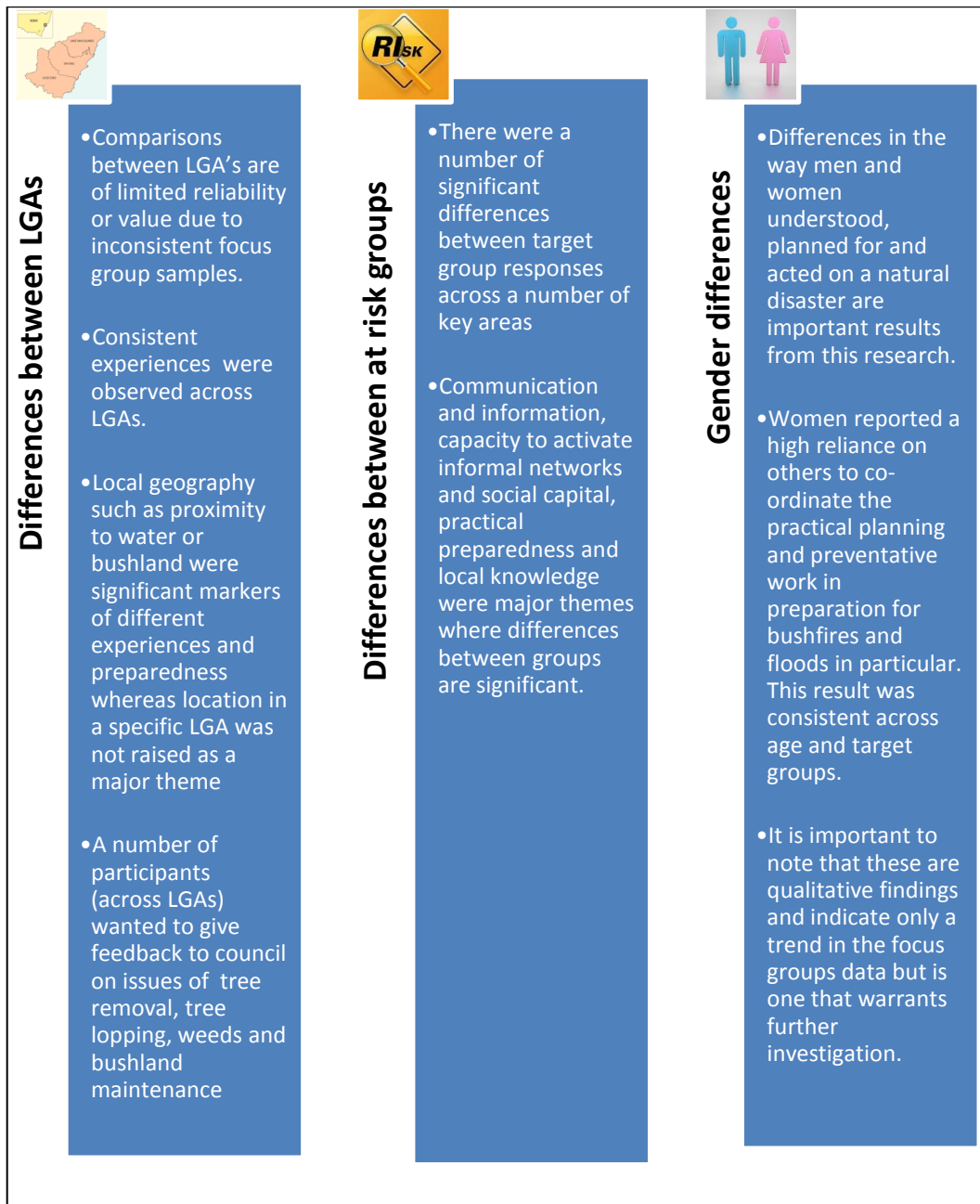


Figure 4: Caveats for understanding the findings

Results

The research results reported here are organised under the key reporting areas or research questions outlined in the project brief. Results against each area provide important baseline data upon which both future planning and further research can be developed.

Risk perception regarding natural disasters within 'at risk' communities

A key factor in the level of risk perception in relation to natural disaster impacts reported by participants was direct experience with a previous natural disaster.

"I think once you've been to a bushfire and that you get more conscious of looking after your own property, like clearing the gutters out and stuff. You tend to clear those a bit more than you would normally". **Male, Over 65**

This is an unsurprising finding but is important to note in relation to community education and information. A significant level of historical data was gathered from participants in all focus groups. Those who were able to recount an experience where they were directly impacted by a flood, bushfire, earthquake, storm or even war, were also more likely to articulate a realistic level of risk perception in relation to future natural disaster events.

Perception of risk varied significantly amongst participants overall with many expressing a heightened sense of risk for natural disasters which they were less likely to be impacted by. This was particularly the case with **tsunamis**, which were often the first natural disaster type mentioned by participants but the one which no participants had direct experience with.

Levels of risk perception in relation to disasters which were most likely, and/or had taken place in the local area were also variable with many of those across all target groups reporting a low level of bushfire risk because the bush was not beside their house but rather, across the road or 5 houses down.

Facilitator: But what about if there was a bushfire outside? Have you made plans for what you might do?
Female: *Wouldn't be much to get on fire. I could get out...*
Facilitator: So your house is not particularly exposed to bushfire?
Female: *No, there's only bush **across the road**.*

This result meant that younger people (people with disabilities, families with young children, those on low incomes) and those who had recently moved to an area (including CALD groups of all ages), were more likely to have less realistic risk perceptions in relation to natural disasters impacting on them, than older people who had lived for a long time in one area.

Overwhelmingly, research participants across all focus groups had **low or no** risk perception in relation to heatwaves.

Heatwaves were not viewed by most as a potentially dangerous event even though many participants described living in housing with no air conditioning or fans or housing which was poorly insulated.

There was also a very low level of risk perception in relation to the impacts of medication on your body in hot weather or the potential for medications to spoil if exposed to extreme heat. Although a significant number of participants described taking medication frequently, they almost **universally** had not considered any risks in relation to medication in extreme heat events.

Facilitator: So do you know if your medication's affected by the heat?

Female: Well I never even thought about it because I just take it, you know? They're in the kitchen. I'd never even - I take it in the morning and I take it late at night.

Over 75

CASE STUDY: Disability and low income

Martin lives on his own in a rental property with poor insulation. In summer the house gets very hot. Martin is susceptible to periods of extreme heat due to his body weight and the effects of his medication. Martin has passed out from the effects of heat in the past. While Martin is at high risk he doesn't perceive a heatwave to be a risk. He says that the air conditioner is too expensive to run. "It doesn't worry me so much. I'm one of those people that can sit in a boiling hot heat and it doesn't bother you."

Amongst participants who had young children there was a consistent idea expressed of **resignation** in the face of natural disasters.

“Prepared? I don't know. I never thought about that. I think the house where I live is made for anything. So I don't know what that includes. But I don't know. I don't think so”. Female, Families with young children/Low Income

This was linked to both risk perception and preparedness. Many of these participants expressed the view that they were powerless to do anything in the face of a natural disaster and as a result had not thought through risks, planning or preparation for either themselves or their children.

For many of these families, day to day survival took up most energy. Having the personal and practical resources to think through risks in relation to natural disasters was seen as overwhelming.

Participants aged 75 and over also often had unrealistic perceptions about their own capacity to respond to a natural disaster.

“I mean because no matter how much you prepare, like you see with the fires in the Blue Mountains and everything, one house is totally demolished and the house next door is standing up. So it's nature. It's like you can't control nature” Female, Families with young children

Some participants who were very frail as well as those with dementia described how they would defend their house in a fire or jump into the river to escape a fire. The combination of unrealistic risk perceptions and a determination to engage in high risk responses to natural disasters make this group highly vulnerable.

Male: If that was [unclear], I'd have the hoses out and keep your roof watered down and the gutters.

Facilitator: So you'd be outside you think, in that situation?

Male: Yeah. You're no good inside if it's coming over the top of you.

Facilitator: How would you know that you needed to evacuate if you thought...

Male: Evacuate?

Facilitator: Yeah, do you think you'd be in a situation where you might...

Male: Well I mean by the time - I assume there's some flyer eventually come around and warn you, telling you when to get out.

Facilitator: So you'd be waiting for someone to come and tell you to get out...

Male: Yeah, I mean you use your common sense. If you get too close, the heat would drive you out. Things like that. Male, Over 75

While a small number of participants across focus groups described both a realistic risk perception and plan of action in relation to likely natural disasters, most expressed **a reliance on factors outside their own experience** to tell them when they were at risk.

These factors included instructions from emergency services, the perceptions of family, neighbours or carers, the media or local services.

Participants who had not directly experienced a natural disaster, as well as having variable risk perceptions, did not tend to trust their own risk perception as a reliable indicator of danger. Significant trust was placed in others to know when danger was imminent. CALD participants and parents with young children articulated this clearly.

“Yeah, and evacuate I guess. Yeah, depending I guess how far and how close to the fires we are. Because, yeah, [unclear] one was not long ago and you can see it, you can see the smoke from where we were, you can see it - yeah, so I guess just keep an eye on the news and listen to what the fire brigade say. If they say evacuate then you evacuate.”
Female, Families with young children

Level and nature of preparedness for natural disasters by ‘at risk’ communities

Participants across all groups reported on preparedness at two levels. The first was in relation to longer term planning for natural disasters. This included having an evacuation plan, having insurance, thinking ahead about neighbours and having somewhere in place to go to and stay if you needed to. The second level focused on short-term, immediate practical preparedness. This included, preventative maintenance of gardens, clearing gutters, having documents in one place ready to take, preparing for times when there was no electricity by having torches, gas cooking equipment and extra food.

Planning

Some participants could articulate a well-formed and systematic plan for their own safety in the event of a natural disaster including when they planned to evacuate, what they would take, where they would go. This group was largely found amongst those aged 65-75 and some families with young children.

“Yeah from different things. You know because I have my grandson stay with me quite often. Every time he comes we always have an evacuation thing. Like nothing is going to happen but I don’t know. So I always do that. Because I grew up in the country and my mum and dad always said this is the evacuation plan so it’s just sort of been an automatic thing. All right so we’re not in the country but I still - and they do it because they’ve now moved to [placename] and they back onto the valley. So they’ve got an emergency plan.”
Female, Over 65

This group had often, but not universally, experienced a bushfire, flood or severe storm in the past and used this experience in future planning. For most participants, however, planning in relation to a natural disaster was vague and in many cases participants reported either not having thought about it or choosing not to think about what they would do in the event of a natural disaster.

During discussions many of these participants articulated poorly thought through and sometimes chaotic plans, many of which would place them in significant danger.

Specific and alarming examples of these included running out onto the street away from bush when you see the flames of a bushfire, waiting until you see flames to then drive out of a bushfire zone, waiting until a fire brigade official came to your house to tell you to evacuate and driving through flood waters with no information about road closures or safe evacuation routes.

Facilitator: So do you have a point at which you know - you've decided that that's when we pack the car?

Female: *I've packed it a few times.*

Facilitator: So what's the trigger that you think now is the time?

Female: *I can see flames coming. I kind of see smoke, its flames.*

Facilitator: So you wait til you can see flames to actually pack the car?

Female: *Yeah.*

Families with young children

"I personally think if the bushfire comes, run from the bush, on the street. It seems to be simple to me".

Female , CALD

For many, an evacuation plan was dependent on advice from emergency services or other service providers during the crisis. Proactive planning and self-reliance was more often discussed by those who had lived in rural environments. This group had an expectation that individuals and neighbourhoods would need to make independent decisions and act early using their own initiative. This group also tended to have more well-formed practical plans of action.

Women and older women in particular, were more likely to report that they planned to leave early in the case of bushfire. In relation to preventative planning, older people were more likely to have thought about and acted on issues such as clearing gutters, tree and garden maintenance around the house. A major challenge for this group, however, was the physical work required to undertake this maintenance.

While some participants reported paying someone or getting a family member to assist with clearing gutters and other preventative tasks, for those renting and for many in the over 75 age group, getting this work done presented a significant challenge.

CASE STUDY: People over 75yo

Michael lives at the base of a steep hill in bushland area with his wife, he is in his mid-70s. Michael knows the area well and is aware of the high fire risk. In order to reduce his risk he is careful to keep the house and yard clear of branches and leaves and has wire screens under the house. However Michael is concerned about the government owned land immediately adjacent to his yard. A large fence has been constructed, behind this fence regular trimming of overhead branches is completed by contractors who leave the branches behind. Michael estimate the pile of dead wood is now almost 2 meters in height. Michael has tried unsuccessfully to bring this matter to the attention of local council, the rural fire service, the rail authority, his local member and the contractors who cut the branches. No action has been taken.

Where participants had pets or larger animals, plans were also variable for the evacuation of both themselves and their animals.

Families with young children and older people in particular who had pets were able to articulate a practical plan for safe evacuation and mostly planned to act earlier because of the logistics of moving animals.

The evacuation of pets was reported as a priority for participants across focus groups. An area where there was less planning was alternative animal's accommodation.

Most participants had not thought about or had no information on where they could take their pets. Of some concern was the plan

of a small group who reported they would let animals out into the bush in the event of a bushfire as they had no plan in place for evacuation or their plan was not put into action until the last minute.

CALD participants were more likely to have a heightened sense of fear about natural disasters but also more likely to rely on being told by emergency services how to respond to a disaster event rather than have a longer term plan. This group had less knowledge of the local area, as did those who had moved recently from Sydney or elsewhere. This limited knowledge about local geography and context impacted directly on the capacity and inclination to plan for natural disasters.

If some, maybe, local police or something will patrol or - how to say in English that they can drive in the streets and warn people that this area became dangerous, please be concerned. Or if it required so, I should stay.

Female, CALD

People with a disability were more likely to rely on the plan of a support worker or family member. The reliance on one person who may not be living with or even close at hand to the person with a disability in the lead up to or impact of a natural disaster, meant that even if plans were in place, they were not necessarily feasible in practice.

CASE STUDY: People with a Disability

Justin has cerebral palsy. He uses a wheelchair and has limited mobility. Justin lives alone in a Housing NSW complex. Justin's neighbours also have disabilities or are older people, his immediate neighbour is in his 80s. Justin sometimes has a support worker who assists him in his home and in the community however there are large periods of time that he is on his own, including evenings. While Justin's housing complex is in a bushfire prone area he is physically unable to prepare his property, the gutters are so full of leaves they have plants growing in them. Justin has no plan in place to respond to a disaster and has not discussed this with his carer network. In the case of a bushfire it would be impossible for Justin to evacuate quickly without help, his immediate neighbours would also be struggling due to their disabilities and age. Justin identified communication as a major problem in case of a disaster; his speech is affected by his disability. Justin is keen to put plans into place for a disaster, the one page disaster preparedness information sheet would provide a good guide to start this process.

Practical preparedness

Participants across all focus groups spoke in detail about practical preparation for natural disasters. While most participants had done some thinking about issues such as having hoses close at hand, having their most important documents within easy reach, cooking with alternative sources of power and even insurance, the level of planning undertaken in these or other preparation areas was variable at best. A small number, however, reported that they had not thought about practical disaster preparation at all.

Of particular concern were people living on low incomes who reported a lack of resources for key planning activities. These included challenges in undertaking preventative maintenance at their house due to a lack of basic equipment such as ladders and inadequate long term food supplies as they only had resources to buy enough food for the week.

Facilitator: Do you think there's anything in place that it could withstand a bushfire?
Male: *No, not really. The bush is all round the place.*
Facilitator: Okay, and the gutters or...
Male: *Well, the gutters are up too high. It's a two storied house that I'm living in.*
Facilitator: So you can't access them to clean them out.
Male, Disability

Female 1: Also the high risk around bushfires - you drive down there, the gutters and the roofs are covered in leaf litter...
Female 2: Leaves.
Female 1: I don't know of any maintenance program that Housing have around...
Facilitator: So a lot of these are government housing...
Female 1: Yes.
Facilitator: ...and the families aren't able or don't maintain it?
Female 1: That's right, well it's often, do you have a ladder? Do you have a safe ladder to get up on a roof, you know that sort of stuff.
Low income

Within this group, those living in public housing or in mobile home villages were most vulnerable. In some cases people with significant physical and communication challenges (those with a disability and those aged 75+) who were living in the same housing complex (either units, townhouses or mobile homes) reported that there seemed to be no preventative maintenance program where they lived and no clear plan for disaster preparedness for themselves and their neighbours.

People on low incomes were also more likely to be in rental accommodation where they reported challenges in communicating with the landlord about preventative maintenance. This group also reported very variable insurance cover for their belongings and car (where they reported having a car).

Female 1: One of the biggest challenges - a lot of families in this area still don't have cars. They don't have their own transport and the area that - particularly the Bolton Point area, there's a lot of trees. It's a very hilly, awkward community. So for a lot of them just the ability to get out of the area. The potential for damage to houses by trees is huge.

Female 2: Absolutely. Absolutely.

Low income

While most participants, when provided with a list of specific practical actions they could take to be prepared for a natural disaster, reported having access to a BBQ or gas cooking appliance, very few had a means to keep food refrigerated if there was no electricity.

Older people tended to have torches, candles and battery operated radios at hand in case of an emergency. This was also the case for those who had previously experienced a natural disaster, particularly a flood or bushfire.

Across all focus groups clear and useful knowledge about evacuation routes and evacuation centres was largely absent.

Many participants spoke about living in an area where there was one route in and out and reported no real knowledge about how they would evacuate if this route was cut off.

Almost no one knew where local evacuation centres were. A number of people spoke about the local club or school as possible centres but overall, participant's knowledge in this area was minimal or non-existent.

Female 1: It's [the evacuation centre] usually a school hall or a school that is large enough to accommodate X amount of people. If it's that school or a big church hall.

Female 2: Does anybody know where it is on the coast? I wouldn't have a clue.

Over 65

One participant reported living near the local club which was used in recent bushfires, but where those with pets were parked outside in their cars with their pets as no provision had been made at the club for animals. Those with only limited local knowledge – particularly people who had recently moved to an area

including CALD groups – reported very low levels of practical preparedness for evacuation. This was expressed in its most poignant form in the following exchange.

<i>Facilitator:</i>	<i>So that gets me onto what kind of plans have you made? Have you made plans at all for what you might do in a natural disaster?</i>
<i>Female 1:</i>	<i>No.</i>
<i>Female 2:</i>	<i>No.</i>
<i>Facilitator:</i>	<i>So no?</i>
<i>Female 1:</i>	<i>I just hope.</i>
<i>Female 2:</i>	<i>We just hope.</i>

CALD

In relation to heatwave events, a number of people reported that they should stay inside or planned to go to an air conditioned shopping centre. Most, however, did not report any detailed preparation for this kind of event. For many participants, focus group discussions of practical ways to be prepared for a natural disaster were the first occasion when they had thought in any detail about the range of ways they could be prepared. Participants across all focus groups welcomed this discussion and reported that they would now act on some of the issues raised. The overall lack of practical preparedness amongst many of the most vulnerable in the ‘at risk’ groups was of significant concern.

Capacity of ‘at risk’ groups to respond and recover from natural disasters

Key factors identified in the focus group data with regard to capacity to respond to and recover from a natural disaster were relationships and informal support systems (social capital), past experience of a natural disaster, access to material resources and communication.

Groups most at risk, that is, those who are most likely to be unable to respond to a natural disaster and make themselves safe were those who were isolated, experience communication difficulties either as a result of a disability, limited English or difficulty expressing themselves, and those on low incomes already coping with a high level of crisis in day to day life.

Across all focus groups, a majority of participants reported that they would utilise their informal networks and relationships with family, friends and neighbours as part of their strategy for responding to and recovering from natural disasters.

Because I'm in a little, small community our street's really close, like pretty much everyone knows - some people know everyone. But I know for a fact that if something goes wrong, my neighbour would help me out. Or even if it's something big, like, massive the whole street will help out. I know that for a fact.

Female, Disability

A significant level of social capital was reported across all target groups with participants utilising relationships for mutual aid, tapping into resources they needed in a crisis, practical assistance and longer term recovery. Many participants also identified the role they would play in looking out for neighbours if a natural disaster was imminent. This was a feature across all focus groups.

It's the neighbours that we were worried about. She was a single mum with two girls.

We took them in. The girls came around and lived with us for a while.

Female, Over 65

I mean I was lucky that I had a gas stove so I was able to heat something up on the gas stove and lend my barbecue to a young couple next door who had a new baby because they had nothing...

Female, Over 65

A smaller number of participants reported that they did not have networks close by which they could rely on and this group also expressed less capacity to respond to and recover from natural disasters. People with a disability reported that they were relying on a support worker or family member who was not necessarily close by to assist them in responding to bushfires, floods or storms. Within this group, those who experienced challenges with communication were both most worried and most reliant on a carer or service provider to support them in responding to an imminent disaster.

Facilitator: If you needed to evacuate, have you got places to go that also are accessible?
Female: Yeah. My nan.
Facilitator: Okay. So you're nan's got a place set up. So if there was a fire near your house or a flood, you could go to your nan's and she's already got the ramps and everything?
Female: Yeah.
Facilitator: Anywhere else apart from her?
Female: No.

Disability

People on low incomes including parents and carers of young children expressed concern that they would struggle to emotionally cope if they had to respond to a natural disaster. Many spoke about being worried they could not think clearly if they had to respond to danger associated with a natural disaster, that they would panic and that they would be overwhelmed quickly in this kind of crisis situation.

"I have no idea. I have no idea. If it's around here and the whole family is here and we all have to go somewhere I guess I would go wherever they go."

Female, Families with young children

Facilitator: So having a look at those things is there anything on there that you think you just couldn't manage, couldn't do?
Female: I'd have a mental breakdown.
Facilitator: So you think emotionally wouldn't...
Female: No, I wouldn't. I - at the moment I wouldn't emotionally cope.
Facilitator: Okay.
Female: Yep.
Facilitator: So would you call on someone?
Female: Yeah.
Facilitator: Right. So who would you call on?
Female: Hubby.

Low income families

Food supplies after a few days were also a major challenge for low income earners in all age groups. For some, food supplies would not last more than a few days and for others, worries included that, carefully budgeted and stockpiles food supplies in the freezer would spoil and impact significantly on them should power be lost.

...I only got a bar fridge at the moment and plus I've got low income so I don't usually stock up a lot

Female, Low income families

Female 1: Yeah, that would kill me if my power went off for three days. I do Crisco and my freezer's full.
Female 2: Well the last - it happened the last heatwave, the fires did affect - many people did lose all of their Crisco stuff yeah.

Low income families

In the longer term, those on lower incomes who were renting accommodation reported that they were unsure how they would access alternative housing if they had to move as a result of a natural disaster. This group was also less likely to be insured or less sure about the scope of their insurance in the event of a natural disaster.

...where there's - you're on a pension. I know mum goes from - she's 92 - she goes from pay check to pay check and there's very little in that house. She wouldn't be able to get - she would not be able to survive for a week.

Female, Over 75

Facilitator: Okay so, but in terms of a fire you're saying if that happened you'd pretty much be homeless?
Female: Yeah, pretty much.
Facilitator: Okay, so have you made plans for what you would do in a fire or...
Female: No.

Low income families

A further significant factor in the capacity of participants across the focus group to respond to and recover from a natural disaster was the long term impact of trauma.

"Yeah because if it starts - like when it rains like that, especially that weekend, when it starts really heavy, I always think here it comes again. It's still really - and that was 2007 that that happened. It's still really in your mind. It really does come. That's me. That's not an older person that's sort of slight dementia or something like that. I'm sure it still triggers in their mind that oh God".

Female, over 65

A range of traumatic experiences was described by participants that then acted as triggers in the context of natural disaster response and recovery. The ongoing impact of trauma from previous natural disaster events or from other personal circumstances was discussed by participants as impacting on their capacity to cope short and long term.

"As soon as I smell the smoke anywhere it brings back all your memories. You forget about them in between, sort of thing. There's not a great deal - in town we were safe. It was all out in the bush where it happened. Somebody had lit a fire and had a cup of tea on the side of the road. That's how it started. They traced it right back to the exact spot where it started. We never did catch the people or that. The police were wonderful. They took fences down and gave me an escort out to [the farm] and that. Every time I smell a fire burning it reminds me of it. I don't think you ever lose it.

Female, Over 65

Table 1, below presents a global summary of the research findings on the capacity of the ‘at risk’ population groups to plan, prepare and respond to a natural disaster. The table uses a simple tick and cross rubric against each action to summarise the overall reports assessed.

As highlighted in the table below, older populations in our community reported as being the group most consistently capable of planning, preparing and responding to a natural disaster. As noted above, previous life experience may have contributed to this finding.

Mixed results were reported for families with young children. Examples of much organised planning and preparation were evidenced in discussion, but at the same time, other families demonstrated a lack of capacity in this regard.

Of note, is the fact that families with lower incomes, were the most likely to report significant lack of planning, preparation and response capacity. Across all aspects of disaster preparedness and response, people with a disability and those with a low income were consistently less able to report adequate planning, preparation and response strategies.

Table 1: Summary of at risk groups' planning, preparation & response capacity

“At Risk” population group	Planning	Preparation	Response
Family with child <5yo	 	 	
People with a low income			
People aged 75yo +			
People with a disability			
CALD communities			
People aged 65-74yo			

The primary means via which 'at risk' groups receive natural disaster warnings and barriers to communication with 'at risk' communities

Research results here are divided into two sections.

1. **Information** - refers to how and what participants found out from the focus groups which was useful to them in preparing for a natural disaster. Information here is focused on pre-crisis or danger times rather than when a natural disaster is imminent.
2. **Communication** - refers to the ways in which participants found out what was happening and how to act when a natural disaster was close and a crisis imminent.

Information

Basic information regarding emergency numbers was almost universally received by participants via a fridge magnet which they had variously acquired through local politicians, community events or council mail outs. This was reported as a clear and effective way to get specific information to people which was then accessible and easily drawn on in an emergency.

As part of the focus group process participants were presented with a 1 page summary of

Facilitator:	Does anyone have phone numbers of emergency services?
Female:	I've got mine on the fridge.
Facilitator:	What emergency services are on that?
Female:	They're all - the SES, the local council, the electricity.
Female:	Police.
Female:	Police, ambulance.
Male:	Fire brigade.
Facilitator:	So where did you get that one from?
Female:	It came in the letterbox. It was a magnet that you put on the fridge and it came in the letterbox.

Over 65

practical strategies for being prepared for a natural disaster and asked to comment on which strategies they had in place. After the focus groups participants were keen to keep this information and reported that this kind of 1 page format with clear, practical suggestions was a useful way to distribute information.

When a natural disaster such as a flood or bushfire was either likely to impact or was close enough to create concern, participants used a range of methods to gain information. Most people reported listening to the radio, with this being the preferred method of getting up to date and relevant information for participants over 65. Specifically, this group reported listening to ABC radio as the best way for them to know what was going on. While many in this age group reported having a battery powered radio which they could and did use if

there was no electricity, a number relied on electricity or said they would go out to the car to listen to the radio if there was no power.

Families with young children reported using computers and phone apps particularly to check on the locations of fires. For this group, although the TV was

on it was not used for information as parents said it was usually on children's channels. Some participants in the group reported listening to the radio but this was mostly when driving and it was not consistently reported as a key source of information. This group was more likely than others to seek information via the RFS website or on line weather sites. Any power outage for an extended period posed a significant barrier in accessing information, particularly once mobile phone charge was exhausted.

Male: I have ABC on pretty well...
Female: Yeah, me too.
Male: ...all the time.
Facilitator: So you would prefer it on radio?
Female: Yeah.

Over 65

Facilitator: You do have the bushfire app?
Female: Yes.
Facilitator: Was that helpful?
Female: Yeah, that was really good, especially in those fires, because you could look; see what roads were closed and all that kind of stuff.

Families with young children

For low income families and individuals, phone apps and Facebook were seen as important sources of information. These participants reported limited access to computers but used their pre- paid mobile phone to access information every day. An outage of electricity would be a significant barrier for this group as they reported relying almost exclusively on mobile phones. Car radios were mentioned but a number in this group did not have a car.

Facilitator: Is the social network like using Facebook?
Female 1: Facebook, things like that yeah.
Facilitator: So would then - would a message on Facebook sent...
Female 2: Oh shit yeah, a message - you'd see it all over Facebook wouldn't you...
Female 1: Yeah you would.
Female 2: ...if you turned on your Facebook.
Facilitator: So have you liked any of the emergency services on Facebook?
Female 1: I think the cop one, a police one I've done.
Female 2: Yeah - oh yeah actually I got a New South Wales one...

Families with young children

CALD participant responses were consistent with the age differences which were found in other groups. Older CALD participants reported relying on the radio and TV to a lesser degree. Younger CALD participants with children gained information from the internet, radio, TV news and mobile phone apps. For older participants from CALD backgrounds, other members of the community were also reported as sources of information. In some cases the similarity of place names eg Wyong, Woy Woy, and Wyoming, created confusion for CALD participants in determining exactly where reports of bushfires or floods or storms were coming from. For new arrivals social isolation and language barriers often combined to create significant barriers and consequent risks in planning and action for natural disasters.

Female:	But yeah, I'm also on Facebook too, people would write a status usually if something's coming up.
Facilitator:	So you've got a - is that on the phone or computer?
Female:	Phone.

Families with young children
















For those with a disability access to information was much less clear. Some participants reported listening to the radio or watching TV but many were largely reliant on carers or family members for both general information and specific details of a close natural disaster. Some of these participants reported that they would look outside or notice what animals were doing to inform them about a bushfire or flood. Most of this group had minimal, if any, information about the impacts of a heatwave. For this group text based information was not necessarily effective as some were not able to read.

One further theme which was identified regarding information focused on reliability and trustworthiness. Participants across all groups spoke about the importance of having information which they could trust as reliable and factual. This was one of the reasons radio was often preferred over TV as a source of information in a natural disaster. Participants across a number of groups identified sensational information about natural disasters in progress in the media, and specifically on TV, as both distasteful and suspect. Many reported that this information often created confusion when people were already in a state of crisis and that this was dangerous. Clear, simple and factual information was preferred across all target groups.







Table 2 below presents a visual overview of the main ways in which at risk groups reported they would *presently* find out about a natural disaster in their local areas. A legend to the pictures used to represent communication means is presented following the table. As highlighted, all at-risk communities mentioned the importance of fridge magnets with emergency numbers as a way that they would find out about a natural disaster in their area. CALD communities were the most likely to make use of a diverse range of communication methods to gain information about a natural disaster.

Older populations were the most restricted in the ways they would find out about a natural disaster. Families with young children reported TV and radio as less effective means of finding information out, as they would often be carrying out multiple tasks and not paying attention to background media.

Table 2: Main ways 'at risk' groups receive information about natural disasters

How 'at risk' groups receive information about Natural Disasters				
Families with a child <5yo	People with a Disability	CALD Communities	People with a Low Income	People aged over 65yo
				
				
				
				

Legend for table 2: Means for finding out about a natural disaster

		
Fridge Magnets	Mobile Phone Apps	Radio
		
Television	Computer	Facebook

Communication

Across all target groups participants reported they were most likely to wait until they were told by a person with authority (fire brigade, RFS, SES or other emergency service) to evacuate before they left. When asked about a situation where no official call to evacuate was received many participants reported that they would watch for the flames (in the case of a bushfire) then run. Across all focus groups a strong theme was a sense of uncertainty about when to evacuate and a consistent reliance on an organised and external warning system.

Most participants across the focus groups said they would call 000 in an emergency.

There was some confusion amongst a minority of participants about the correct emergency services number (999 was suggested by some participants) and this is worth noting. An observation from discussions across focus groups was that most participants expected to receive an immediate response from 000 and had not considered resource pressure on this service in a time of crisis.

I'd probably just start off with 000 and then whether or not it's fire or - yeah.

Female, Families with young children

The first person I would call is probably - actually find the number on the wall, I'd call Triple Zero because my mum makes sure there's the sticker on the wall.

Female, Disability

For many participants 000 was seen as a number you could call to both get information about a natural disaster near you, to ask whether it was time to evacuate and to report a crisis. While some participants reported easy access to SES and other numbers, most were intending to use 000 if a natural disaster was imminent.

But, I don't think the general public are still educated enough. I'm quite sure some of my elderly neighbours would not know where to go or what to do. Female, Over 65

Yeah, and evacuate I guess. Yeah, depending I guess how far and how close to the fires we are. Because, yeah, [unclear] one was not long ago and you can see it, you can see the smoke from where we were, you can see it - yeah, so I guess just keep an eye on the news and listen to what the fire brigade say. If they say evacuate then you evacuate.

Female, Families with young children

Results in relation to the way in which warnings could be most effectively communicated were the most diverse across different target groups. Preferred methods of communication varied considerably in relation to age. For those aged 65 and over, a call from emergency services to their home phone was the preferred method of communication when a crisis was near.

Facilitator: Yeah, okay. So who doesn't have a mobile phone?
 Female: I've got one but it's very rarely on.
 Female: She doesn't turn it on.
 Female: ...they were up in Mount Tomah and it all came on the mobile. They had to evacuate, they come to our place. They were keeping them in contact all the time on their mobile.
 Male: Yeah, see that pre-supposes you leave your mobile on, ours are almost never on.
 Female: It's an emergency thing. We don't use it very often.

Over 65

Female 1: I'd ring my son or he'd ring me...
 Facilitator: Okay so the best way for you is your mobile but what - like an SMS or a voice message or...
 Female 1: No, just ring.
 Female 2: She can't retrieve SMSs.
 Facilitator: So just a voice - someone calling...
 Female 1: I don't know - Sue does it sometimes for me [laughs].
 Female 2: She can't retrieve her SMSs.

Over 75

While many participants in this age group listened to the radio for information, they preferred to receive an official phone call regarding evacuation. Within this group, those aged 75 and over were more likely not to have a mobile phone at all. Those aged 65-75 reported having a mobile phone but leaving it off to conserve the battery or because they only intended to use it in an emergency. Of this group, most reported they either could not or did not use the text message option on their phone. While a number of participants reported that they intended to turn their mobile phone on if there was a natural disaster close, this was not seen as a reliable form of communication for important warnings. A number of participants in the 75 and over age group reported having a Vitalcall which they could use in an emergency as long as they were at home. This was discussed in some groups as a possible method for emergency communication.

For families with young children, a text message was consistently reported as the preferred method for communicating warnings and other crisis information during a natural disaster. Most parents reported not hearing their phone if it rang because they were distracted with their children.

Female: Probably SMS, because you know you're always busy with your children, so you could always miss it.
 Female: Sometimes I ignore my phone. If it's ringing and I don't know the number and she's...
 Female: That's it.
 Female: ...being naughty.
 Female: Yeah, especially if it's time...
 Facilitator: But an SMS you can read it and go, okay, I need to evacuate.

Families with young children

Facilitator: Okay, so you'd also use websites. Would anyone else here use a website?

Male: I wouldn't know how to turn one on.

Facilitator: Okay, do you have a computer?

Male: No.

*Low
income*

For low income families, the pre-paid mobile phone was their only phone. These families reported living in rental housing and having no landline phone. A number of parents with young children also reported using Facebook as a key communication tool. While many of these parents reported using Facebook as more of an information and day to day communication method, some said they would look on Facebook if a natural disaster was close to find out what was happening and connect with others about what to do.

For those with a disability - most cited reliance on support workers and family members to warn them that they needed to evacuate. Many in this group used the TV or radio for information and preferred a phone call on a mobile or landline for warnings. Phone apps and websites were not seen as effective ways to communicate in a crisis for participants with a disability.

For CALD groups, a phone call or face to face warning from an emergency services worker driving round was reported as the preferred method of communication in a crisis. Focus group participants spoke about the importance of simple information given directly by a person of authority or community members. Language difficulties, exacerbated by stress were also highlighted as key barriers to communication.

CASE STUDY: CALD Communities

Anna has recently moved to Australia, English is not her first language. She is married and has young children. In the recent fires throughout the coast Anna was confused and scared. She didn't know where to look for information about what to do. The place names being reported in the media were also confusing to her as they sound similar to somebody who is new to the area (Wyoming, Wyong, Wye, Woy Woy), she also didn't know the geography of the area well enough to understand if the fire was near her or not. "But for me it was very confusing, I don't know how far, how many kilometres and I was looking, are the neighbours leaving? I just didn't know what to do because the husband was on an overseas trip, I was at home alone with two children, I'm new to the area, I have no idea what's happening."

One further curious theme which emerged from focus group discussions was the idea that there would be a siren which people in all areas could hear when there was a natural disaster and know that it was time to evacuate. While this theme was not universally raised, it was discussed by a number of age and target groups. A number of people reported that the siren system was in place and they expected it to be activated if a natural disaster was near. One participant reported that in a town where she had lived there was a siren associated with the mine and this would also be used when bushfires were close.

Female: And also the siren. If it's really close I guess we would hear a siren.

Facilitator: A siren. Is there a siren in this area?

Female: I often hear it but I don't know where it's coming from.

CALD

Table 3 below presents a visual overview of the main ways in which at risk groups reported they would PREFER to find out about a natural disaster in their local areas. A legend to the pictures used to represent *preferred* communication means is presented following the table.

As highlighted, all at risk community groups reported their preferred means of finding out about a natural disaster was the presence, and personal communication or message from an emergency services worker. As discussed above, families with young children and/or low incomes reported the necessity and preference for text or Facebook messages or direct calls to their mobile phones.

People with a disability reported they preferred direct phone calls either via mobile or landline. Older people conversely noted only their landline should be called and that text messages or mobile phone calls would be of little use to them given their use of these means of technology.

CALD and older community members were also those most likely to talk about the preference for a community siren to alert them to danger of an impending natural disaster.

Table 3: At risk community groups' preferred communication means in a time of natural disaster

Preferred Communication Means in a time of Natural Disaster				
Families with a child <5yo	People with a Disability	CALD Communities	People with a Low Income	People aged over 65yo
				
				
				

Legend for table 3: Preferred means of finding out about a natural disaster

 Personal visit from emergency services	 Text Message to Mobile	 Call to Mobile Phone
 Siren	 Call to Landline Phone	 Facebook

Missing Groups

Before concluding the results section of this report it is important to note that during the focus groups discussions a number of ‘at risk’ groups or groups which directly impact on the vulnerability of ‘at risk’ groups were highlighted by participants. In addition to this, researchers began to notice a number of ‘at risk’ groups which were not included in the scope of the research but may be particularly vulnerable and are worth flagging for future planning.

Additional groups identified by research participants were the frail aged (including those with dementia) living alone or with a partner. Focus groups expressed a particular concern for this group due to their isolation and perceived lack of access to information, support and

effective communication in a crisis. Often Meals on Wheels deliveries were the only contact this group had with the community and no systematic support or plan appeared to be in place for them in the event of a natural disaster. One suggestion in relation to this group was to develop an 'at risk' person's register as had been done in some areas of Sydney to identify and support this group in the event of a disaster.

A second group identified were those with insecure accommodation. Those living in boarding house style accommodation or other transient housing were described by focus group participants as of particular concern. Where this transient group was located close to flood or bushfire zones, focus group participants expressed concern for children living with their parents on a low income and also for those with a mental illness. A third group identified by focus group participants were tourists and holiday makers. This group represents a significant seasonal population in all of the local government areas in the research and was seen by participants as vulnerable because they had limited local knowledge and were also not known to people in local neighbourhoods. There was a concern that this group would be invisible during a natural disaster.

Two groups which were not included in the scope of the research but who researchers identified as key future groups to include in discussions are the homeless and also carers and support workers of people with a disability. During the course of the research the importance of speaking and planning with those who are homeless was identified. Unfortunately this group was outside the scope of the current research, however, they represent a key missing group in any planning for natural disasters. This group includes large numbers of those with a mental illness, a disability and those experiencing challenges with addictions. Anecdotally we know that homeless families, often living in cars, are an invisible and growing population in the Hunter and Central Coast regions and this group is critical to include in future research and planning.

The Role of Emergency Services and Human Service System

There are two key result areas in this research which focus on emergency and human services; co-ordination and communication and community development.

Co-ordination and Communication

Many of those who participated in the research had either regular or semi regular contact with a range of support services and groups. In the event of a disaster almost all participants reported that they would contact 000 as their first or second port of call to both provide and get information. An important finding here is the need for significant work in co-ordinating support services to both connect with isolated people in the community and to develop an integrated disaster preparation and response system to both ease significant pressure on 000 in times of crisis and provide more planned and timely support for those most at risk from the impacts of a natural disaster. Participants made numerous suggestions including co-ordination of services such as Meals on Wheels with Red Cross, the development and maintenance of an 'at risk' register and co-ordination of support with emergency services during a crisis

Female: You're doing it automatically, that sort of thing. But there's no coordination but it works. Yes, I think that that would be the only way I could see it, to coordinate small groups...

Facilitator: Who are local...

Female: Yes. Someone who has got the information to tell...

Facilitator: Everyone.

Female: ...everybody, yes.

Over 65

Community Development

Significant stocks of social capital were evident in the discussions in most focus groups with social isolation highlighted by participants as a marker of vulnerability for people across the 'at risk' groups. It was clear from the narratives of research participants that this social capital is mobilised whenever a natural disaster event occurs. Depending on neighbourhoods and local relationships, this mobilisation tends to occur unevenly which is a problem as many research participants reported a heavy reliance on informal networks for critical support during and after a natural disaster.

A central question for future disaster preparedness planning is how this social capital can be encouraged, grown and co-ordinated to address some of the disaster event vulnerability caused by social isolation. Local relationships, good will and experience emerged as a major asset which has and can be used effectively to buffer some of the risks experienced by those participating in this research.

Facilitator: How would emergency services know that they needed to go to that person?

Female : Well someone should notify them, yeah.

Female: Surely a neighbour or somebody would notify them wouldn't they?

Female: There'd have to be some sort of communication set up between emergency services and all these other services so that they all communicate with each other. I think that's the issue at the moment, that they don't.

Over 65

Discussion and Recommendations

The findings from this research project provide five key messages which can be used in future planning to support 'at risk' groups in preparing for natural disasters. These messages and recommendations include:

There were clear factors contributing to better or worse preparation and response amongst participants within 'at risk' groups.

Participants in this research who reported being better prepared, better able to respond and to recover from a range of natural disasters mobilised different levels of knowledge, experience and relationships simultaneously:

- Experiences of past crisis events and successful recovery.
- Practical knowledge of their local area, of their own situation.
- Capacity to seek information and support from emergency and other human services.
- Connections and relationships with informal support networks including neighbours, family and friends.
- Thinking, planning and some level of action in preparing for potential risks.

Participants who reported being less prepared or not prepared at all shared a number of challenges:

- Social isolation or reliance on only one person for support and information in the event of a natural disaster.
- Communication challenges – both in being heard and in understanding and responding to messages regarding preparation before a natural disaster, as well as actions to implement during the event.
- Limited material resources limiting capacity to prepare and to respond to the immediate and longer term impacts of a natural disaster.
- Past trauma or current experience living in a crisis in terms of day to day living. These experiences left little capacity for managing further emotional crises such as the impact of a natural disaster.

These factors are central considerations in planning for and engaging with 'at risk' communities to prepare for, respond to and recover from natural disasters.

There were clear and diverse challenges faced by different 'at risk' groups leading to the need for diverse planning approaches.

From the findings of this research those most vulnerable to the impacts of a natural disaster were:

- People aged 75 and over.
- People with a disability who experienced communication challenges.
- People who were socially isolated – that is lived alone with little or no outside contact.

- New arrivals to an area – particularly members of CALD groups.
- People with dementia who are living alone.
- People on low incomes – particularly in regard to longer term response and recovery.

Specific strategies to support these groups in disaster preparation, response and recovery are required in addition to mainstream strategies. These should be developed in collaboration with human service providers, emergency services and support groups.

Practical planning and community engagement is a key area for further attention

Both the literature and the focus group results highlighted the critical role to be played by the development of local neighbourhood relationships and informal networks in creating a communication and support web for 'at risk' groups. There was strong evidence from focus groups across all 'at risk' populations of neighbourhoods and groups mobilising their relationships to support both those within the network and those at the periphery (including new neighbours people didn't know).

Linked with this is the need for more consistent practical planning support for 'at risk' groups. This includes clear, simple and engaging information (preferably integrated with experience) targeted to different groups using different methods.

Some of the opportunities in this area include:

- Local government, service providers, community organisations and emergency services engaging with local neighbourhoods and existing community groups in a community to develop community education strategies focused on safety in natural disasters.
- Development and support of loose local support networks designed to include those most 'at risk'. For example, where a person can only identify one support person in times of crisis, the network would aim for each person to have 5 possible support people who all knew and agreed to taking on this role. Those could be an expansion of work which Red Cross is already doing.
- Co-ordination between human service providers and emergency services regarding 'at risk' groups. For example, Meals on Wheels clients who are most isolated are part of a register kept by that organisation and this register can be utilised for emergency support during the event of a natural disaster. This is designed so ensure some people don't become invisible or unnoticed in a time of crisis.
- Development of a dispersed co-ordination plan which engages community organisations, service providers, voluntary community groups and local government in disaster preparedness at both a very localised and regional level. Links between these levels are critical and were poorly understood by research participants.
- Development and dissemination of localised evacuation plans in neighbourhoods including clear signage.
- For low income earners - develop pathways for assisting with access to insurance e.g. what insurance alternatives really exist for these that would eliminate harm in a disaster.

- Work with GPs in relation to medication advice and warnings – including Webster packs .This is focused on heatwave advice given to patients. and needs to include both the storage needs of the medication AND the effects the medication has on a person’s body to cope with extreme temperatures – as both these issues were poorly understood by the majority of research participants in ‘at risk’ groups.

Communication must be widespread and utilise methods tailored to specific groups

A very clear area of difference between ‘at risk’ groups was in the way they would most effectively receive warnings and crisis communication in the event of a natural disaster. Table 2 earlier in the report outlines the very different ways in which older people, CALD communities, families with young children and those with a disability are most likely to receive warnings. Any planning for natural disasters needs to account for these differences and tailor communication for a range of groups to ensure the message gets through. Areas for further work here are:

- Community education to ensure people have back up communication in the event there is no electricity.
- Engagement with CALD community leaders to develop more effective communication strategies for new arrivals and those with limited English.
- Development and distribution of clear information to communities about how and when evacuation messages will be delivered.
- Communication and warning strategies must include radio and TV communication, phone apps, social media, SMS and phone calls as well as a strategy for face to face warnings. This reflects the multiple channels through which different ‘at risk’ groups receive information.
- Investigate social media training for the 65 plus age group – this could include informal training such as families taking responsibility for older family members – as well as community centre programs.
- Make available a one page fact sheet that covers all disaster types similar to the one used in the research focus groups. Add to this page information about preparing to communicate with neighbours prior to a disaster about your plans and their plans.

Further planning and research directions: where to from here?

This project provides a snapshot of preparedness and response amongst a number of 'at risk' groups. Findings are consistent with the literature and raise a number of important questions for effective planning and support in relation to those most vulnerable in the event of a natural disaster. Areas for further investigation, planning and research are:

- Research with groups not included in the current study – particularly those who are homeless, those living in transient accommodation, women and children at risk of domestic violence (including the preparedness of local services to provide increased assistance following natural disasters), local Aboriginal community knowledge, preparedness and communication systems in disasters.
- Further investigation focused on those most socially isolated within the 'at risk' groups including those with communication challenges, people with dementia and those with a mental illness.
- Research with support workers and carers of those with a disability to ascertain current and future disaster preparedness plans they may have in place for those they are supporting.
- Further research focused on the role of informal networks, social capital and neighbourhood preparedness.
- Further investigation on effective co-ordination processes and mechanisms for human service providers.

Appendix A

Final Approved Focus group questions



Approval No. H-2014-0100

Identify and benchmark the existing level of risk perception in respect to the threat and potential impacts posed to property, health and wellbeing.

1. What type of natural disasters do you think might happen in the area that you live - that may directly affect you and your family? (for the purpose of this research we are including weather induced disasters including floods, extreme wind and storms, heatwaves & bushfires)
2. How do you think natural disasters could have an impact on you (and your family)?
3. If you have experienced a severe weather induced disaster:
 - a. What kind of disaster was it?
 - b. How were you affected?
 - c. How has it changed the way you now prepare for natural disasters?

Identify and benchmark the existing level and nature of preparedness to natural disasters by 'at risk' communities overall and within each subgroup.

1. Have you made plans for what you would do in a natural disaster? If so what type of plans have you thought of?
2. Do you think your place of residence is well prepared for a natural disaster? What kind of preparations are in place?
3. (COUNT RESPONSES Hands up if) Do you think you have insurance to cover the loss of your residence, contents or health from a natural disaster? Or how well are you insured to cover the loss of your residence, contents or health from a natural disaster?
4. (COUNT RESPONSES Hands up if) Are your key documents in an emergency kit or safe location that can be easily accessed in case of evacuation? Or how well are you prepared in regard to important documents in case of evacuation?
5. Have a look at the following recommended things to do to get ready for an emergency. (See Table below: Ways to prepare for natural disasters). What suggestions here do you think you can do on your own and what would you need help with?
6. What more could be done to help you be better prepared for disasters?

Identify and benchmark the capability of ‘at risk’ groups to respond and recover from a natural disaster (both overall and within individual subgroups)

1. Who would you call on for help in the case of a natural disaster (bushfire, storm, flood)?
2. Where would you go if your home was not safe in the case of a natural disaster? How would you get there?
3. Which emergency services would you contact in a natural disaster if you needed to? Do you know how to contact these services?
4. What could be done to help you respond and recover from a natural disaster?

Identify the primary means through which ‘at risk’ groups receive warnings of the likelihood of a natural disaster occurring?

1. How do you receive warnings and alerts about natural disasters?
2. What would be the best way to communicate with you to receive timely warnings and information on ways to prepare for natural disasters?
3. What suggestions would you have to improve communication with you about impending natural disasters and how to prepare for these?

Identify potential barriers to communication inhibiting ‘at risk’ communities both overall and within sub groups from receiving/accessing information on natural disasters occurrence and preparation?

1. What difficulties do you have in receiving warnings and information in a natural disaster?
2. What could be done to help overcome these communication barriers?

Appendix B.

Ways to prepare for natural disasters

All Natural Disasters
<ul style="list-style-type: none">• An emergency plan or evacuation plan is prepared in your home. Every member of your household knows about the plan.• Safe evacuation routes and places to evacuate to are known.• An emergency kit is ready in case you lose power and water. Kit could include torch and batteries, candles and matches, battery operated radio and spare batteries, emergency contact numbers, first aid kit.• There is adequate food, water and medicine supplies in your house to last up to a week.• You have access to alternative sources of power for cooking and refrigeration in the event of power failure.• You have alternative accommodation for you and your family if you need to evacuate.• You have alternative accommodation for your pets if you need to evacuate.• Your insurances (home, contents, car, health) are up to date and adequate to cover loss in a natural disaster.• You know where to access up to date warnings and information.
Bushfire
<ul style="list-style-type: none">• Leaves are regularly cleaned from gutters, roof and downpipes.• Woodpiles are kept away from the house.• Overhanging trees are cut back, grass is kept short, flammable leaves, twigs and cuttings are rakes up and disposed of.• Garden hoses are long enough to reach the property boundary.• Fire pumps, hoses and accessories are in working order.• Fire hydrants near the home are easily located and not obstructed.• You have a bushfire survival plan? You know if you will stay and defend or evacuate?
Flood
<ul style="list-style-type: none">• You know the height at which your home could be affected by floodwater.• Household items are above flood level or can easily be moved above flood level.• You know the safest route to travel should you need to evacuate. You know the flood height at which your evacuation route may be cut off.
Extreme Storm/ Wind
<ul style="list-style-type: none">• Your yard or balcony is maintained and items are secured to prevent them blowing around.• Gutters, down pipes and drains are regularly cleaned to prevent blockages.• Tree branches have been trimmed that could potentially fall on your home.• The roof is free of damage (eg. no broken or missing tiles).
Heatwave
<ul style="list-style-type: none">• You know whether your medication can be affected by extreme heat and how to reduce the risk of this happening.• Your fridges, freezer, fans and air-conditioners work properly.• You have cool packs in the freezer to help people cool down.• Your home can be ventilated without compromising security.• Windows have curtains and blinds to block out the sun's heat.• West facing windows have external shading (trees, blinds, shutters).• The house is insulated (particularly the ceiling).• You have a cool room or place to go during a heatwave.• You have alternative ways to cool down in case of a blackout.

Appendix C.

Supporting documentation: Approval – Human Research Ethics Committee

HUMAN RESEARCH ETHICS COMMITTEE



Notification of Expedited Approval

To Chief Investigator or Project Supervisor:	Doctor Amanda Howard
Cc Co-investigators / Research Students:	Doctor Tamara Blakemore Mrs Miriam Bevis
Re Protocol:	Identifying risk perceptions, level of preparedness and communication channels for 'at risk' communities in respect to natural disasters.
Date:	17-Apr-2014
Reference No:	H-2014-0100
Date of Initial Approval:	17-Apr-2014

Thank you for your **Response to Conditional Approval (minor amendments)** submission to the Human Research Ethics Committee (HREC) seeking approval in relation to the above protocol.

Your submission was considered under **Expedited** review by the Ethics Administrator.

I am pleased to advise that the decision on your submission is **Approved** effective **17-Apr-2014**.

In approving this protocol, the Human Research Ethics Committee (HREC) is of the opinion that the project complies with the provisions contained in the National Statement on Ethical Conduct in Human Research, 2007, and the requirements within this University relating to human research.

Approval will remain valid subject to the submission, and satisfactory assessment, of annual progress reports. *If the approval of an External HREC has been "noted" the approval period is as determined by that HREC.*

The full Committee will be asked to ratify this decision at its next scheduled meeting. A formal *Certificate of Approval* will be available upon request. Your approval number is **H-2014-0100**.

If the research requires the use of an Information Statement, ensure this number is inserted at the relevant point in the Complaints paragraph prior to distribution to potential participants You may then proceed with the research.

Conditions of Approval

This approval has been granted subject to you complying with the requirements for *Monitoring of Progress, Reporting of Adverse Events, and Variations to the Approved Protocol* as [detailed below](#).

PLEASE NOTE:

In the case where the HREC has "noted" the approval of an External HREC, progress reports and reports of adverse events are to be submitted to the External HREC only. In the case of Variations to the approved protocol, or a Renewal of approval, you will apply to the External HREC for approval in the first instance and then Register that approval with the University's HREC.

- *Monitoring of Progress*

Other than above, the University is obliged to monitor the progress of research projects involving human participants to ensure that they are conducted according to the protocol as approved by the HREC. A progress report is required on an annual basis. Continuation of your HREC approval for this project is conditional upon receipt, and satisfactory assessment, of annual progress reports. You will be advised when a report is due.

- *Reporting of Adverse Events*

1. It is the responsibility of the person first named on this Approval Advice to report adverse events.
2. Adverse events, however minor, must be recorded by the investigator as observed by the investigator or as volunteered by a participant in the research. Full details are to be documented, whether or not the investigator, or his/her deputies, consider the event to be related to the research substance or procedure.
3. Serious or unforeseen adverse events that occur during the research or within six (6) months of completion of the research, must be reported by the person first named on the Approval Advice to the (HREC) by way of the Adverse Event Report form (via RIMS at <https://rims.newcastle.edu.au/login.asp>) within 72 hours of the occurrence of the event or the investigator receiving advice of the event.
4. Serious adverse events are defined as:
 - Causing death, life threatening or serious disability.
 - Causing or prolonging hospitalisation.
 - Overdoses, cancers, congenital abnormalities, tissue damage, whether or not they are judged to be caused by the investigational agent or procedure.
 - Causing psycho-social and/or financial harm. This covers everything from perceived invasion of privacy, breach of confidentiality, or the diminution of social reputation, to the creation of psychological fears and trauma.
 - Any other event which might affect the continued ethical acceptability of the project.
5. Reports of adverse events must include:
 - Participant's study identification number;
 - date of birth;
 - date of entry into the study;
 - treatment arm (if applicable);
 - date of event;
 - details of event;
 - the investigator's opinion as to whether the event is related to the research procedures; and
 - action taken in response to the event.
6. Adverse events which do not fall within the definition of serious or unexpected, including those reported from other sites involved in the research, are to be reported in detail at the

time of the annual progress report to the HREC.

- *Variations to approved protocol*

If you wish to change, or deviate from, the approved protocol, you will need to submit an *Application for Variation to Approved Human Research* (via RIMS at <https://rims.newcastle.edu.au/login.asp>). Variations may include, but are not limited to, changes or additions to investigators, study design, study population, number of participants, methods of recruitment, or participant information/consent documentation. **Variations must be approved by the (HREC) before they are implemented** except when Registering an approval of a variation from an external HREC which has been designated the lead HREC, in which case you may proceed as soon as you receive an acknowledgement of your Registration.

Linkage of ethics approval to a new Grant

HREC approvals cannot be assigned to a new grant or award (ie those that were not identified on the application for ethics approval) without confirmation of the approval from the Human Research Ethics Officer on behalf of the HREC.

Best wishes for a successful project.

Professor Allyson Holbrook

Chair, Human Research Ethics Committee

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Linked University of Newcastle administered funding:

Funding body	Funding project title	First named investigator	Grant Ref
Hunter and Central Coast Regional Environment Management Strategy (NCCREMS)/Natural Disaster Social Research(**)	Identifying risk perceptions, level of preparedness and communication channels / barriers for 'at risk' communities in respect to natural disasters	Howard Amanda,	G1400534

APPENDIX A

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Participant Information Package

Version 2. 9th April 2014

Identifying risk perceptions, level of preparedness and communication channels for 'at risk' communities in respect to natural disasters

As a resident in the Wyong, Gosford, or Lake Macquarie Local Government Area you are invited to participate in the above named research project. This research is looking at how people in the community perceive they are at risk from natural disaster, how they prepare for a natural disaster and the barriers and their needs in doing this. The research is also looking at ways people in the community receive information about natural disasters such as bush fires, floods, severe storms, and heatwaves.

The research is particularly focussing on the specific needs and circumstances of the following population groups, low income households, households with children under 5 years, older people (above 65 years), people with disabilities, & people from culturally and linguistically diverse backgrounds.

The research will be conducted by a research team from Newcastle University made up of Dr Amanda Howard, Dr Tamara Blakemore, and Ms Miriam Bevis.

Why is the research being done?

The research is part of the Hunter and Central Coast Regional Environmental Management Strategy as has been funded through the Natural Disaster Auxiliary Grant Scheme. It aims to build knowledge that will help identify and build the preparedness of communities most 'at risk' from natural disasters. The research will help inform emergency preparation in the region to better cater for the needs of specific population groups.

Who can participate in the research?

You are eligible to participate in the research if you are a resident in the Wyong, Gosford or Lake Macquarie Local Government Area and if you are part of one of the following population groups;

- Low income household OR
- Household with children under the age of 5 years OR
- Household with a person with a disability OR
- Above 65 years of age OR

- You are from a culturally and linguistically diverse background.

What choices do you have?

Participation in the research is voluntary. Whether or not you decide to participate in the research, your decision will not disadvantage you. Only those people who have given their written consent will be included in the research project.

You may withdraw from the project at any time until your data has been coded. You not have to give any reason for withdrawing.

What would you be asked to do?

You will be invited to participate in a recorded focus group to discuss your level of preparedness for natural disasters such as flooding and bushfires. The focus group will be held in an accessible and private venue in your local area.

How long will it take?

Focus groups will take between one and half to two hours.

How will your privacy be protected?

The information provided during the focus groups will be audio recorded. These recordings will be transcribed by a professional transcription service. This service will be known to, and previously used by the University of Newcastle. The professional undertaking the transcription task will be required to sign a confidentiality agreement. In the process of transcription, the information you provide in the focus group will be assigned a code, permanently de-identifying you in the study. During the active phase of the research, electronic and hard copies of the transcripts will be held on the University of Newcastle. Electronic records will be password protected and hard copies will be secured in a locked filing cabinet. Only the aforementioned researchers will have access to these records except where required by law. Once the research is completed the electronic files and transcripts will be secured by the Chief Investigator for a period of five years beyond final publication.

What are the risks and benefits of participating?

The benefits of participating in the research include the opportunity to discuss local strategies to prepare for natural disasters with people who may share similar circumstances as you. You will also be provided with information and contact details regarding local emergency services and preparation tips. Participating in the research provides you with a chance to contribute to the local disaster management preparation and response and to articulate your perceived preparation and recovery barriers and needs.

There is a possibility that speaking about your experiences of natural disasters or your risks regarding natural disasters may be upsetting. If you do feel upset, you can withdraw from the focus group at any time, and the interviewer can refer you to an appropriate support service. A list of counselling groups are also attached for your information.

How will the information collected be used?

The study results will be presented in a written report to the project partners, which include Hunter and Central Coast Regional Environmental Management Strategy, Lake Macquarie, Wyong and Gosford Councils, NSW Health, and Red Cross Australia. The study results may also be published in academic books and journals as well as presented at workshops and conferences. Non-identifiable data may also be shared with other parties to encourage scientific scrutiny and to contribute to further research and public knowledge. Individual participants and the information they provide will not be identified in any reports, publications or presentations arising from the research.

You will be sent a summary of the results of the research by email or post. You can request a summary of the results by contacting one of the research team by email or telephone.

What do you need to do to participate?

To begin, please read this Participant Information Statement and be sure you understand its contents. If there is anything you do not understand, or have questions about, contact one of the research team members. We welcome your participation in the focus group discussions as part of this research. If you prefer a researcher to read the information statement aloud just ask one of the researchers to do this.

If you would like to participate in the focus group discussions please complete the attached Consent Form and return it to the researchers on the day of the focus group.

Further information

If you would like further information please contact one of the following research team members:

Amanda Howard Amanda.Howard@newcastle.edu.au
Tamara Blakemore Tamara.Blakemore@newcastle.edu.au
Miriam Bevis Miriam.Bevis@newcastle.edu.au

Thank you for considering this invitation

Signature

Dr Amanda Howard
Chief Investigator

Complaints about this research

The project has been approved by the University's Human Research Ethics Committee. Approval No. H-2014-0100. Should you have concerns about your right as a participant in this research, or you have a complaint about the manner in which the research is conducted, it may be given to the researcher, or, if an independent

person is preferred, to the Human Ethics Officer, Research Office, The Chancellery, The University of Newcastle, University Drive, Callaghan NSW 2308, Australia, telephone (02) 4921 6333, email Human-Ethics@newcastle.edu.au

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Focus Group Consent Form

Identifying risk perceptions, level of preparedness and communication channels for 'at risk' communities in respect to natural disasters

Version 3 April 2014

I agree to participate in the above research project and give my consent freely.

I understand that the project will be conducted as described in the Participant Information Package, a copy of which I have retained.

I understand I can withdraw from the project at any time until my data has been coded and do not have to give any reason for withdrawing.

I consent to:

- Participate in a focus group discussion which will be audio recorded
- Maintain the confidentiality of the focus group discussions
- Researchers using quotes from my participation in the focus group, without identifying me, for the purpose of publications, workshops and conferences.

I understand my personal information will remain confidential to the researchers.

I have had the opportunity to have questions answered to my satisfaction.

Print name: _____

Signature: _____

Date: ____ / ____ / ____

Contact details:

Mobile: _____

Ph: _____

Email: _____

Matrix for identifying priority locations for delivery of Focus Groups – Natural Disaster Social Research

Local Government Area	Localities of Relatively High Combined Risk	Flooding	Sea Level Rise	Bushfire	Extreme Heat	Comments
Lake Macquarie	Toronto (north of area)					
	Swansea					
Wyong	Wyong (& immediate surrounds)					Bushfire risk predominantly on periphery bit also pockets within
	Budgewoi					
	Long Jetty / Killarney Vale					
Gosford	Woy Woy					For flooding mixed levels of risk For fire risks are mainly on periphery
	Davistown					Borderline for fire given potential isolation during a fire
	Narrara					For sea level rise South East area only
	Empire Bay					Only a relatively small locality to draw people from

	Predominantly contains SA1's classified as 'Most At' or 'Elevated' risk levels
	Predominantly contains SA1's classified as 'Average' to 'Lesser' risk
	Borderline between above green and orange categories
	Predominantly contains SA1's classified as 'Least at Risk' to 'No Exposure Recorded'

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