Ku·ring·gai Council

Climate Wise Communities
RESOURCE MANUAL

In 2009 the Council of Australian Governments (COAG) agreed to adopt a whole-of-nation resilience-based approach to disaster management, and tasked the National Emergency Management Committee (NEMC) to develop a National Strategy for Disaster Resilience.

The Strategy focuses on priority areas to build disaster resilient communities across Australia. It recognises that disaster resilience is a shared responsibility for individuals, households, businesses and communities, as well as for governments.

To succeed, it is important that business and community leaders, as well as the not-for-profit sector, embrace this shared responsibility approach.

It is hoped that, when implemented by state, territory and local governments, all Australians will develop a shared understanding of the critical part they play in developing their own disaster resilience and that of their communities.

Adapted from: COAG *National Disaster Resilience Statement* (2009)

NSW GOVERNMENT

Funded under the joint State/Commonwealth Natural Disaster Resilience Program.

CONTENTS

CLIMATE WISE COMMUNITIES

Climate Wise Communities (CWC) is a Ku-ring-gai Council initiative that is designed to build local resilience and preparedness to extreme weather events such as bush fire, drought, storm and heat stress.

The program's key objectives are to:

- Raise awareness of local risk factors
- Promote resilience using a shared responsibility approach
- Deliver tools that utilise a shared responsibility response to climate change, and
- Investigate potential benefits of communication/social networks that build neighbourhood capacity to prepare for, respond to and recover from extreme weather events.

To achieve these objectives the program:

- Targets the members of the community that are most 'at risk'
- Assists people to self-assess their personal, property and neighbourhood vulnerability to extreme weather events
- Builds an ongoing partnership between councils, emergency management agencies, NGOs and community groups
- Develops and utilises materials and methods to engage the community in planning, preparation and response to extreme weather events
- Conducts targeted workshops to assist people to determine their options and the benefits of improving their personal, property and neighbourhood multi-hazard resilience.

The Climate Wise Communities program has been enhanced by working in partnership with emergency combat and support agencies, as well as other related community services, to design and deliver the program. In terms of the extreme weather events of bush fire, drought, storm and heat stress, the relevant emergency services are NSW Rural Fire Service (RFS), State Emergency Services (SES), Police and Fire and Rescue. Organisations such as Australian Red Cross, Department of Health, and Department of Education and Communities also have strategic roles in the response to and recovery from emergency events. It is important that the activities and objectives of the CWC program complement and add value to the existing programs of these agencies, and combine efforts to build resilience in homes, businesses and communities.

In 2014–15, Ku-ring-gai Council received funding under the Police and Emergency Services' Community Resilience Innovation Program (CRIP) to refine the program's methods and resources, ensuring that it can be adapted as a multi-hazard approach applicable for use in other local government areas.

To achieve this aim, in 2015 Ku-ring-gai Council worked with seven councils who, with emergency service and recovery agencies, acted as an advisory group to test and evaluate the community engagement model. The final output is a set of online digital resources, including this resource manual, to support local government and other agencies' community engagement activities that aim to improve community resilience.

The development and publication of these resources was funded under the joint State/ Commonwealth Natural Disaster Resilience Program.

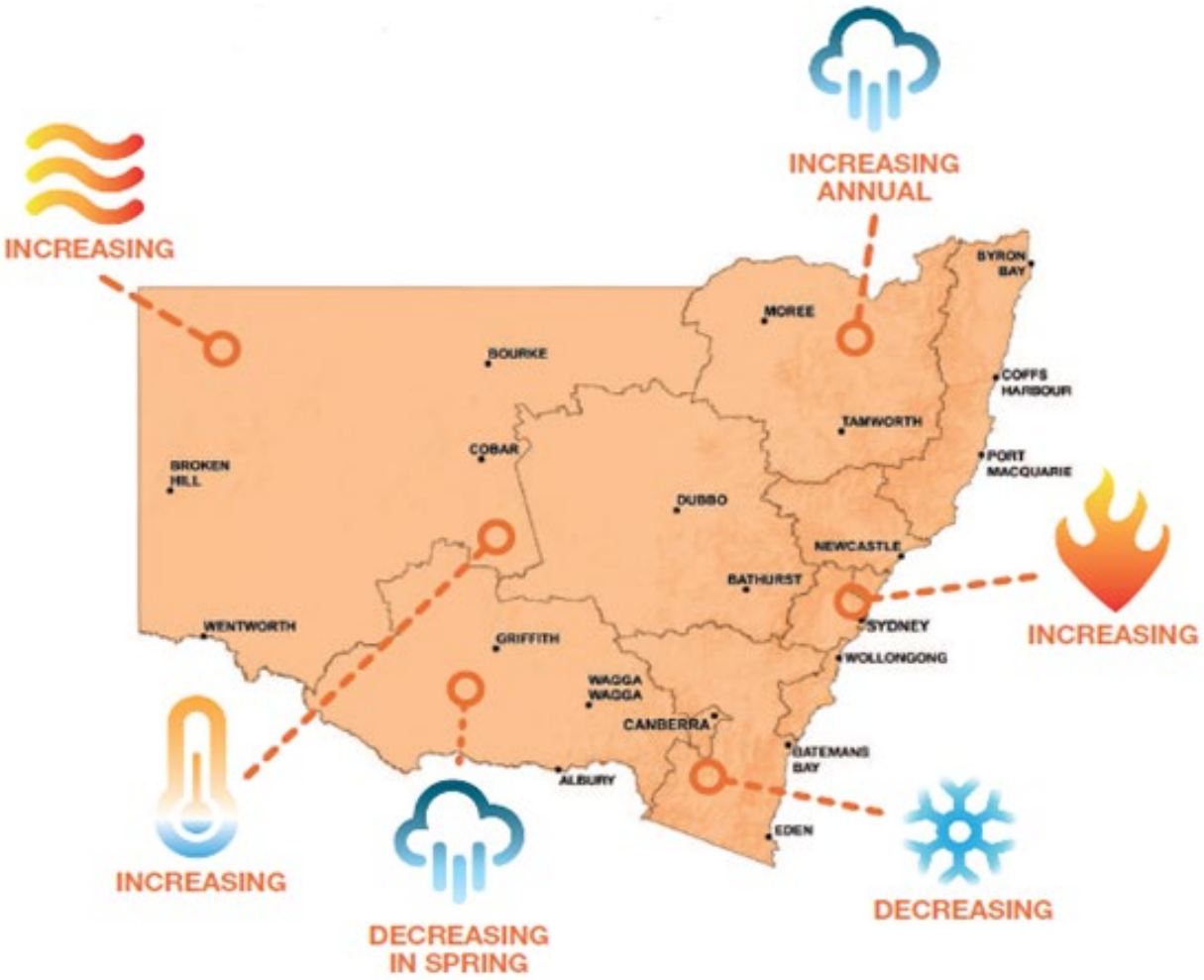
THEORETICAL BACKGROUND:
BUILDING RESILIENT COMMUNITIES

The climate in New South Wales is changing. Average temperatures have been steadily rising since the 1950s, with the highest temperatures on record being experienced in recent decades. As outlined in Figure One, NSW is projected to continue to warm in the near future (2020–2039) and far future (2060–2079). The number of hot days will increase; the number of cold nights will decrease. Average rainfall will increase in summer and autumn but will decrease in spring and winter. Both the number of days with severe fire danger and average fire weather are projected to increase in summer and spring (Office of Environment and Heritage, NSW, 2014).

"The degree of hazard impact in a given community at risk is mainly shaped by its level of vulnerability and resilience."

Most Australians are likely to experience climate change in terms of the frequency, intensity, location and timing of extreme weather. In many cases, climate change will amplify existing risks posed by natural hazards such as bush fires, storms, floods, cyclones, droughts and heat waves. Good information is essential for households, businesses and governments to identify, prepare for and manage these risks (Productivity Commission, 2014).

There is increasing recognition that emergency and disaster preparedness will not be effective without the engagement of 'vulnerable' communities (Burnside-Lawry et al, 2013). The degree of hazard impact in a given community at risk is mainly shaped by its level of vulnerability and resilience. Better understanding social vulnerability factors and relationships will inform the development of appropriate disaster reduction strategies for target communities (Solangaarachchi, 2012). Special efforts are required to make risk information accessible and understandable to audiences with varied levels of education and to those who know little, if anything, about the risk (Griffin et al, 2008, p. 308). These initiatives should include public education programs designed to improve the capacity of a cross section of 'at risk' audiences to receive, evaluate and most importantly act upon risk information.



Projected temperature changes	
Maximum temperatures are projected to increase in the near future by 0.4 – 1.0°C	Maximum temperatures are projected to increase in the far future by 1.8 – 2.6°C
Minimum temperatures are projected to increase in the near future by 0.0 – 0.5°C	Minimum temperatures are projected to increase in the far future by 1.4 – 2.6°C
The number of hot days will increase	The number of cold nights will decrease
Projected rainfall changes	
Rainfall is projected to decrease in spring and winter	Rainfall is projected to increase in summer and autumn
Projected Forest Fire Danger Index (FFDI) changes	
Average fire weather is projected to increase in summer and spring	Number of days with severe fire danger is projected to increase in summer and spring

Figure one: Projected climate change in NSW (Source: Office of Environment and Heritage, NSW, 2014, p. 3)

The most common communication method for public engagement in emergency preparedness is for combat agencies to produce and distribute static one-way information to the public, such as information shared on websites, dissemination of printed materials or through the media. Evidence shows, however, that these methods alone do not translate into behavioural change (Akama et al, 2012). Instead, those charged with building community resilience to extreme weather events would do better to actively engage with and listen to their communities, and provide information and tools needed to enable communities to exercise choice and take responsibility (Burnside-Lawry et al, 2013; Attorney General's Department, 2013).

The idea of strengthening community resilience, with an emphasis on the principle of shared responsibility between governments, business, communities and individuals, sits at the core of the *National Strategy for Disaster Resilience* (2011). This style of community capacity building, where a cross-section of stakeholders are involved in strategic planning, can build public confidence and reduce dependence on government agencies in an emergency (Burnside-Lawry et al, 2013).

Examples of effective communication strategies that have been tested, mostly relating to bush fire preparedness, have used participatory methods to facilitate co-creation and communication of local knowledge on strengths and risks of their specific locality (Akama, 2012; Burnside-Lawry et al, 2013).

Adaptation decisions do not take place in a vacuum; people are influenced by where they obtain information, how they interpret this information and their perceptions of how others in their social network behave (Productivity Commission, 2014). Recognising how individuals interact, and encouraging social networks around emergency events, can enhance community engagement and information sharing and hence improve resilience (Fairbrother et al, 2014). Akama et al (2013) used visualisation methods to examine the role of social networks in bush fire preparedness, as a way to analyse how knowledge about bush fire might flow, either in preparation for, or during a fire.

It is this theoretical background that has informed the approach used in the Climate Wise Communities program.

KEY FEATURES OF CLIMATE WISE COMMUNITIES

Workshops can be adapted to meet the needs of particular sectors

A FOCUS ON THE MOST VULNERABLE

Adapting to climate change is location and social context-specific, with no single approach for reducing risk appropriate for all settings (IPCC, 2014). Research by Fairbrother et al (2014) recognises that specific approaches to community engagement will be necessary depending upon the experience and characteristics of populations in different localities and the identified needs and values of the target audience.

The Climate Wise Communities (CWC) program targets 'at risk' residents in localities assessed as particularly vulnerable to extreme weather events, such as those living in high bush fire risk areas. The program also focuses on particular community sectors identified as more vulnerable, such as low-income earners, culturally and linguistically diverse (CALD) communities, seniors and the very young, and the aged care sector. The CWC model can be modified to address the nature of the risk, peculiarities of location, limitations and opposition, and the average understanding and preparedness levels of each cohort. Like any community engagement activity, the best results will come from understanding your audience and developing communications and education activities that are pro-active and tailored to their needs.

WORKSHOP DESIGN

1. Locality-based resident workshops

The vulnerability of a residential locality is assessed according to a range of criteria. These may include geographical features that potentially affect a hazard's likelihood or severity such as urban bush interface, ridge top or flood zone developments, or storm susceptible tree canopy; history of extreme weather events; age and construction type of homes and other infrastructure; problematic evacuation routes; socio-economic factors such as an ageing populations or cultural diversity, and increasing urban density and development in hazard zones such as flood plains and bush fire prone land.

The socio-economic profile of an area can influence levels of understanding, expectations and common beliefs within an area or cohort of residents. For example, those that are new to an area may have little if any knowledge of local risks, compared to those who understand the risks to some degree but need assistance to prepare, and those that fully understand local risks but do not accept their own role in taking responsibility for preparation and action in an emergency.

Locality-based workshops can be adapted to meet these contexts, with the combined goals of increasing participants' risk awareness, and empowering individuals to exercise choice and take responsibility. An example of these approaches is included in the Case Study on page 15.

2. Sector specific workshops

Certain sectors of the community are more vulnerable with variable levels of resilience to extreme weather hazards. Solangaarachchi (2012) bases social vulnerability on demographic factors including age, special needs, gender, household type, income, health, immigrants, level of education and wealth. These factors can be used to identify specific community groups requiring special attention when building community resilience. As with location-based workshops, each will require a different focus depending on their specific needs.

When targeting a particular sector, such as health, education or community services, it is advisable to collaborate with the department or agency responsible for emergency preparedness in that sector, to ensure that workshop objectives and messages are aligned with relevant legislation or departmental requirements. For example, the Department of Health for aged care sector, Department of Education for early childhood, or Department of Primary Industries for pets or livestock.

COMMUNITY ENGAGEMENT METHODS

In developing its *Climate Change Adaptation Strategy* in 2010, Ku-ring-gai Council investigated the factors affecting the community's vulnerability and resilience to climate change in order to identify and prioritise appropriate adaptation strategies. Community engagement and education was identified as the most cost-effective approach to increase community resilience. The CWC program was developed to assist the most vulnerable sectors of the Ku-ring-gai community to assess their risks to extreme weather events and better understand their options and the benefits of improving their personal, property and neighbourhood multi-hazard (bush fire, storm, flood, drought and heat stress) resilience.

Climate Wise 'What if...' cards

Climate Wise Communities aims to strengthen community resilience to hazardous weather events using a shared responsibility framework. Participatory tools and methods in risk assessment and action planning have been found to enhance community participation in disaster mitigation (Victoria, 2002). The CWC workshop design is informed by research from the Bushfire and Natural Hazards CRC and RMIT University that demonstrates the benefits of a participatory approach to engaging communities in behavioural change to increase community preparedness activities. In particular, four engagement methods have been developed. Full details of how each activity is run are included in the appendices.

1. 'Playful triggers' mapping exercise

Workshop participants work in small groups using everyday objects to visualise neighbourhood risks, vulnerabilities and strengths on a map. These may include physical features of the area, historical storm or fire impacts, escape routes and social networks.

Developed by researchers at RMIT, the use of playful, tactile, everyday objects invites relaxed participation in knowledge sharing. The CWC

program commonly uses LEGO® and pipe cleaners to represent each feature but other artefacts such as buttons, coloured counters or toy animals can be substituted for these.

The 'Playful Triggers' approach is specifically designed to overcome the disempowerment and complacency that tend to result from constant 'top-down' messaging. This is important as a feeling of disempowerment is often associated with the level of responsibility that a community will accept for their own safety.

2. Home diagnostic sketching exercise

This is a simple activity that allows residents to better understand how defendable their home really is, their ability to defend that home and how they can improve resilience and recovery capacity if they choose the 'leave early' evacuation option. Participants sketch their property and use it to identify risks, vulnerabilities and strengths. Ideally this is facilitated by emergency services representatives such as Rural Fire Service and State Emergency Services, who can ask questions about design and materials, or comment on how specific features can be improved.

3. 'What if...' scenarios

This activity is used to get participants to think specifically about unexpected scenarios that could occur during an emergency situation and to emphasise the need for good contingency planning. Participants are presented with a potential natural disaster scenario, and are encouraged to think about their course of action. 'What if...' cards present a range of likely incidents that could impact a generic untested plan. The activity reveals assumptions or generalisations, so that participants question any pre-conceived ideas and consider appropriate alternative actions.

4. Personalised action plans and card set

Having considered what sorts of actions are required to prepare for an emergency situation, it is important that participant's don't lose the impetus to act as soon as they leave the workshop. These cards are provided to stimulate further discussion of survival plans and prompt other preparation actions at home. The cards can also be adapted for community sectors, such as seniors groups or child care services.

SINGLE OR MULTI-HAZARD APPROACH?

The Climate Wise Communities model is based on design-led community engagement strategies developed by researchers at RMIT with what was the Bushfire Co-operative Research Centre (now Bushfire and Natural Hazards CRC). These

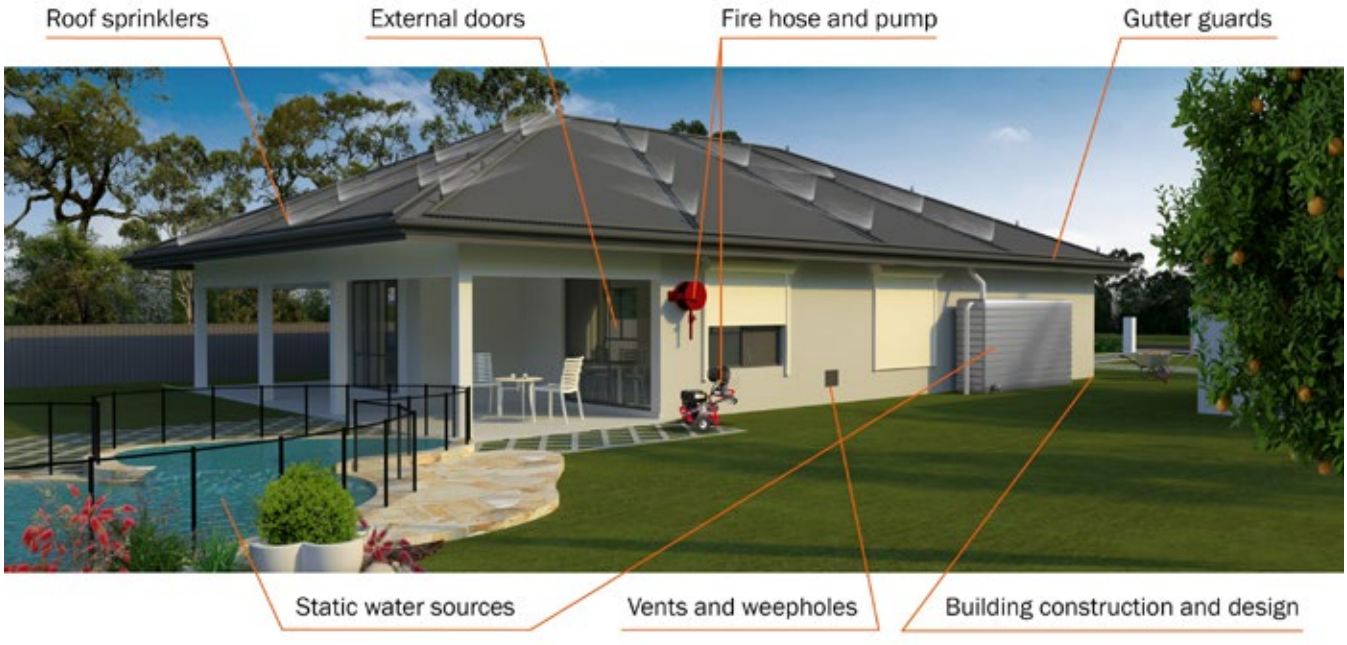


Figure Two: Elements of a bush fire resilient home

Workshop participants completing the home diagnostic sketching exercise

methods were designed to address issues of disempowerment and complacency that tend to result from 'top-down' messaging, and specifically focused on changing behaviours to increase bush fire preparedness (Akama et al, 2012).

The model has evolved into a multi-hazard format that helps participants recognise their risk exposure across different climatic hazard types, including bush fire, storm, flooding and heat stress. As suggested in the *National Strategy for Disaster Resilience* (2011), in practice this approach also encourages participants to consider how they might prepare for other emergencies, such as pandemics, chemical spills, acts of terrorism or events requiring a facility lock-down. Understanding and being able to plan and prepare for a range of potential hazards is the approach taken by the Australian Red Cross in its *Emergency REDiPlan* (2009) for households to prepare for emergencies.

Multi-hazard workshops have worked most effectively with service agencies such as aged care facilities and child care services, as they are required to prepare for this full range of circumstances. This approach has been more challenging with individual households, however, where a clear focus on one locally relevant and topical issue such as bush fire tends to attract more interest, and allows for more in-depth discussion of the risks, strengths and vulnerabilities related to that issue. This is possibly due to the complexity of information that may be related to any one issue and a limit to how much information participants can take in during one session.

An important advantage of the multi-hazard approach is that it allows participants to think about adaptations that have multiple benefits, and therefore determine costs and payback periods that allow them to identify priority actions. For example, when considering the features of a bush fire resilient home (see Figure Two), installing fire-rated safety shutters on the windows of a home will reduce the risk of ember attack in a bush fire while also providing the added benefits of reduced radiant heat, protection against flying missiles in a storm and improved home security.

COMMUNICATING CLIMATE CHANGE

Climate change is a scientific fact. It is happening here and now, yet it is a subject that many prefer not to acknowledge, let alone try to understand or accept. The need for action to address climate change and its impacts has been divided by political allegiances, but this attitude is slowly changing.

Feedback from councils that trialled Climate Wise Communities workshops noted that a discussion of climate change could be problematic and a distraction, as workshop participants had divergent views. Yet all agreed that providing information on climate change is important, even when the audience may not always be receptive to this component of the workshop. Councils need to be able to talk to the community about climate change and provide leadership in climate adaptation. An important message is that, in light of climate change, the return on investment for adaptation actions is increasingly more likely.

Making climate change real for people requires tangible, practical examples that address their values, concerns and experiences. Focussing on how climate change can affect the things that are important to people, such as home, family and community, provides a framework for starting a conversation about the 'bigger picture' on climate change (Climate Outreach and Information Network, 2014).

"Emphasising the benefits of action can help to promote behavioural change."

Extreme weather events provide an opportunity to engage people in climate change. It can be used to 'join the dots' between climate impacts and people's lives (Climate Outreach and Information Network, 2014). Yet climate change is an evolving process, not an event, and while extreme weather can provide a moment where there is heightened awareness of its impacts, it's also important not to exaggerate the link between any single event and climate change. Instead, extreme weather should be part of a longer term growing narrative about

climate change and its effects. This conversation should be taking place before a disaster occurs, allowing a sense of familiarity so that attributing what has happened as a result of climate change doesn't surprise people. Past events then become personal experiences that people can draw upon to think about long-term preparedness for future events (Marshall, 2014; Messling et al, 2015).

The Climate Wise Communities program provides a forum for communicating climate change information in a positive context that raises awareness and offers practical responses (Davies, 2015 unpublished). Rather than focusing on 'doom and gloom', self-interest and powerlessness, the program provides a way of engaging people more widely on adapting to climate change. Communication and engagement focuses on preparedness and resilience. Emphasising the benefits of action rather than the negative consequences or risks of inaction, and providing realistic and relevant options, is likely to produce more support for climate policies and can help to promote behavioural change (Climate Outreach and Information Network, 2014).

Finally, the workshops—held in a setting that is familiar and close by—use methods that provide an environment where 'expert' authorities, such as council and emergency services, facilitate a dialogue so that 'non-expert' community members are empowered to share their own experiences. This in turn facilitates co-creation of knowledge and strengthening of social networks, which is far more effective at building understanding and overcoming complacency than simply distributing information (Akama et al, 2012). Using diverse trusted messengers combined with peer-to-peer communication allows the community to take ownership of the issues and encourages a shared responsibility for responding to climate risks (Climate Outreach and Information Network, 2014).

SOCIAL NETWORKS

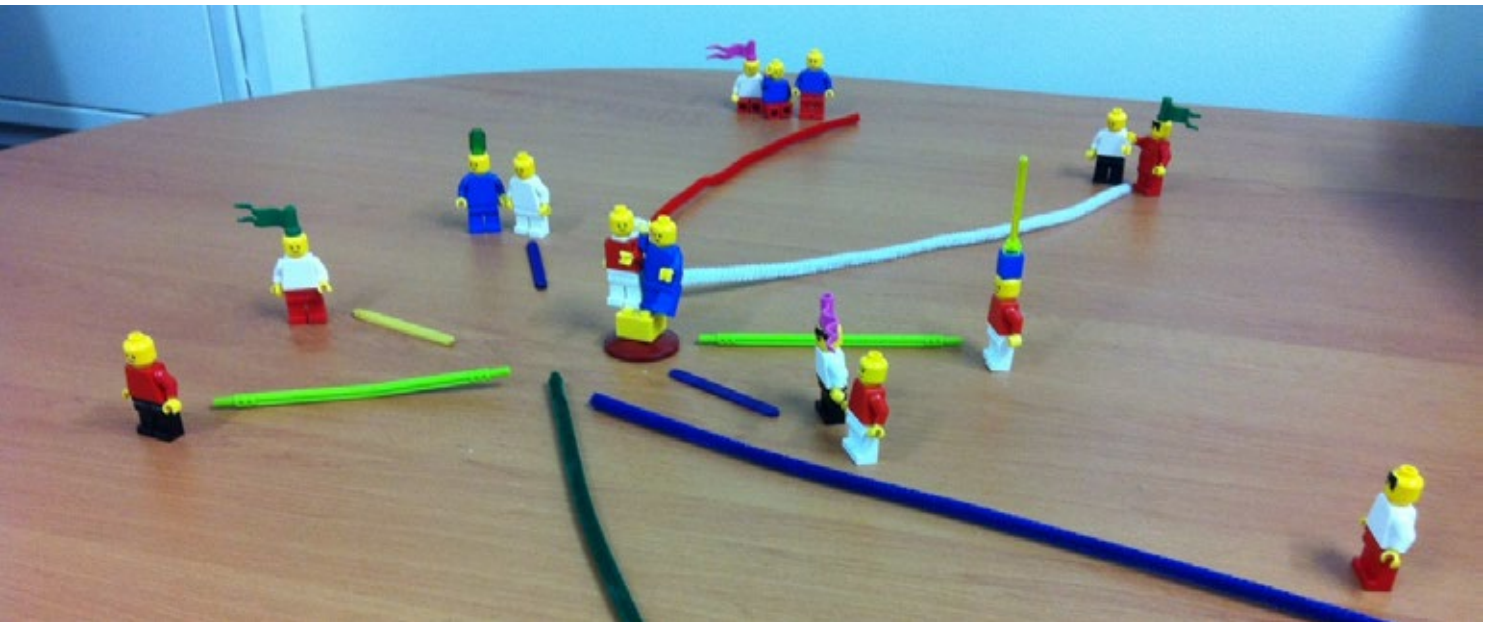


Figure three: An example of a social network visualised using 'Playful Triggers'

The National Strategy for Disaster Resilience (2011) has a strong focus on 'shared responsibility' in emergency management and for increasing disaster resilience. The strategy describes a disaster resilient community as one where:

'People work together with local leaders using their knowledge and resources to prepare for and deal with disasters. They use personal and community strengths, and existing community networks and structures; a resilient community is enabled by strong social networks that offer support to individuals and families in a time of crisis.'

Council of Australian Governments, 2011, page 5

Akama and Chaplin (2013) discuss the role social networks play in building community capacity. An individual's capacity to endure the stress of a disaster such as bush fire or flooding is increased when they are part of a strong network or community. Features of resilient communities that contribute towards their ability to cope with emergency events include their connectedness, a shared sense of place and community, and the formal and informal networks through which information is exchanged (Akama and Chaplin, 2013; Messling et al, 2015).

People's peers are often a primary source of information during a crisis, as communities pull together and have reduced access to other forms of communication (Messling et al, 2015). Interviews with residents following the Black Saturday bushfires in Victoria in 2009 found that around half of those interviewed (51%) contacted family and friends to get information for enacting survival plans rather than looking at emergency agencies' websites (1%) (Akama et al, 2013).

The 'Playful Triggers' mapping exercise used in the Climate Wise Communities' workshops is built on work by Akama and colleagues at RMIT and the Bushfire CRC (Akama et al, 2012). The activity helps participants to identify and visualise people in their personal networks, through asking who within and

outside their neighbourhood they may interact with, who has connections to useful information that might be passed on, who they could turn to in an emergency and who may require assistance (Figure Three).

It is apparent that community groups could also play a role in sharing information and improving resilience to and recovery from extreme weather events within their community, potentially providing a link between councils, local emergency management committees and their social network.

For a network to succeed, however, it needs to have members who have mutual interests or face common problems, offer relevant and mutual benefits, have mechanisms to regularly communicate with others, and have people who are passionate about solving shared problems and finding common solutions. All networks need a person or group to drive them. Strong networks are founded on the quality of the interpersonal relationships within and across the network (Econnect, 2015).

Community resilience requires an understanding of who is in our social network

FACILITATING WORKSHOPS

Generic workshops delivering standard messaging don't work – the people attending each workshop will have different backgrounds and different needs. To make sure they are engaged, it is necessary to tailor the content to the circumstances and needs of the targeted cohort and potentially individual participants. This may require research and analysis of the target audience, sometimes referred to as community profiling (Queensland Government, 2003), to build a picture of the demographic makeup and associated vulnerabilities of the participants. This information can then be used to develop examples and activities that are relevant and of interest to the participants.

A 'workshop' also needs to deliver on its name and not be a lecture or even a series of short lectures interspersed with discussions. The best workshops are interactive and get participants involved as much as possible. The role of the workshop facilitator is to help participants 'work', not do it all for them. For every bit of information conveyed, use a practical exercise or interesting way to encourage discussion (Econnect, 2010).

Having people actively taking part in a workshop and empowering them in the process is important for three reasons:

1. Participants think more about how the activities apply to their own circumstances. For example, the CWC home diagnostic exercise prompts participants to consider how vulnerable they are in terms of their level of preparedness and ability to defend their home in an extreme weather event.
2. They are more engaged in both the process and the information when it is framed within scenarios to which they can relate.
3. Active participation in shared knowledge creation enhances learning outcomes. Learning is further enhanced where people question their previous assumptions, and are supported in reframing or replacing these with new knowledge.

Getting people to share and build on their local knowledge and experience is one of the principles used in Climate Wise Communities workshops, which again builds on research on design-led learning strategies by Akama et al (2013). This process is less about a one-way transmission style of communication and providing information, and more about co-creation of ideas as people make sense of the issues discussed within their own context.

The role of the workshop facilitator is therefore to encourage and guide conversations, question participants' assumptions and assist in meaning-making.

These objectives should also be explained to representatives of emergency and support agency services or other helpers, who may be more used to giving briefings or telling people what to do.

The Queensland Government's *Engaging Queenslanders* series and guides (2003) provides comprehensive information about the issues to consider and which engagement methods to use when embarking on any community engagement initiative.

Case study

Table 1 provides an example of how understanding community or audience context can assist in planning a workshop and improving outcomes. In this case two common but different workshop contexts are compared. Group 1 was a typical audience of local residents with little understanding of the bush fire risk of their area or what could be done to reduce their risk. In contrast, Group 2 was made up of people from a local community action group who had been quite vocal about their perceived level of bush fire risk and the need for authorities to do more to address this risk.

The comparison demonstrates how a single message or generalised approach delivered to both groups would have been far inferior to targeted objectives and messages for each of the groups.

	Group 1	Group 2
Audience description	Local residents selected due to their living in a high fire risk locality	Local action group concerned about the specific hazards related to living in a high fire risk locality
Issue to be addressed	General residential audience, unaware of the bushfire risk of their locality and what they can do to minimise that risk	Self-identified group, well aware of the bushfire risk in their area but expecting others (government and agencies) to do something about it
Workshop objectives	• Build awareness of the local area and their vulnerability to bushfire • Understand the roles and responsibilities of emergency services • Learn from sharing experiences • Realise the importance of planning and preparedness to increase their personal and community resilience	• Clarify the roles and responsibilities of emergency services during a bushfire situation • Understand their own role and responsibilities in reducing their personal and community risk • Appreciate the need for shared responsibility in planning and preparation and how to avoid a crisis
Workshop agenda/ activities	Mapping exercise to: • Understand local history of fire events • Locate local features that may be strengths or vulnerabilities during an emergency • Identify community connections and social networks Opportunities to share knowledge and experiences, and to acknowledge the possibility of an evacuation emergency Work through what they can do to help reduce their risk, and think about their capacity to stay-and-defend or leave early options	Mapping exercise to: • Review local history of fire events • Locate local features that may be strengths or vulnerabilities during an emergency • Identify community connections and social networks Work through a hypothetical bushfire event scenario, where participants consider their personal actions at each stage to what Council, Police, Rural Fire Service and State Emergency Service are doing at that time Consider own bushfire survival plans and priority actions to improve their own and neighbourhood resilience
Outcomes	• Better understanding of bushfire risk in the area • Realisation of the value of community connections • Understanding the need to have good planning and preparedness	• Residents realised that during an emergency event, emergency service agencies would be dealing with the fire and their own people and wouldn't necessarily be there for every house in every street • Feedback indicated that the group valued being presented with a better understanding of the coordinated efforts of emergency services in such a scenario, and the need to keep informed of an emerging situation in the context of their own survival plans • Participants accepted some responsibility for having their own plan and acting to reduce their own risk • Learned how good planning and preparedness can prevent a crisis in evacuation procedures from occurring.

Table 1: A comparison of addressing different audience needs

SUGGESTED RESOURCES

PUBLICATIONS

Turner, A. & Slatter, S. (2012) *Are U Ready? Surviving small business disaster.*
ISBN: 978-0-9804857-1-4

Complementary information can also be found on the authors' website: www.areUready.com.au

See also publications within the References list.

WEBSITES

Adapt NSW & NARClim climate change information and projections

- Home page: www.climatechange.environment.nsw.gov.au
- Climate projections for NSW: www.climatechange.environment.nsw.gov.au/Climate-projections-for-NSW

BOM

- NSW weather warnings: www.bom.gov.au/nsw/warnings
- Climate change and variability information: www.bom.gov.au/climate/change
- Extremes of climate: www.bom.gov.au/climate/extremes

Emergency Management Australia

- Source of national emergency management policies, procedures and resources: www.ag.gov.au/EmergencyManagement
- National Strategy for Disaster Resilience: www.ag.gov.au/EmergencyManagement/About-us-emergency-management/Pages/National-strategy-for-disaster-resilience.aspx

Green Cross Australia

www.greencrossaustralia.org/

NSW Health – 'Beat the Heat'

- www.health.nsw.gov.au/environment/beattheheat
- Resources in languages other than English: www.health.nsw.gov.au/environment/beattheheat/Pages/resources.aspx

Red Cross

- Preparing for an emergency: www.redcross.org.au/prepare.aspx
- Emergency REDiPlan template for households: www.redcross.org.au/files/Household_emergency_plan.pdf

Rural Fire Service (RFS)

- General site: www.rfs.nsw.gov.au
- Resources and fact sheets: www.rfs.nsw.gov.au/resources
- Bush fire survival planning: www.rfs.nsw.gov.au/resources/bush-fire-survival-plan
- Resources in languages other than English: www.rfs.nsw.gov.au/resources/factsheets/translated-fact-sheets

State Emergency Service (SES)

- General site: www.ses.nsw.gov.au
- Community safety page: www.ses.nsw.gov.au/communitysafety
- Community language resources: www.ses.nsw.gov.au/ communitysafety?community languageresources2/
- Floodsafe: www.floodsafe.com.au
- StormSafe: www.stormsafe.com.au
- Home emergency planning: www.seshomeemergencyplan.com.au

YOUTUBE

Country Fire Authority (2013)

When the fires come

https://youtu.be/XbYI5dDlMeg

An excellent video from the Victorian Country Fire Authority documenting the experiences of people who lived through the Black Saturday fires of 2009. Although very long (over an hour in length) this is well worth a look for real examples of several individuals speaking about their personal preparations, their experiences when the fire came through and how they will revise their plans for the future.

Ku-ring-gai Council (2015)

Understanding bush fire risk

https://www.youtube.com/watch?v=MYkCJFnO5-Y

In 2015, Ku-ring-gai Council interviewed local residents about their views on climate change and bush fire. Understanding people's thoughts on climate change and how prepared they are (or not) for bush fire can help to better gauge what is necessary to engage the community in being more resilient to the risks posed by natural hazards such as bush fires, storms, droughts and heat waves.

Ku-ring-gai Council (2015)

Bush fire resilient homes

https://www.youtube.com/watch?v=pv04WOhIv5o

The requirements to build or renovate a home in a bush fire prone area depends on the bushfire attack level (BAL) determined for the property. Buildings which exceed BAL-29 (i.e. BAL-40 and BAL-FZ) are those which are exposed to significant radiant heat and potential flame contact, and therefore require special design and construction solutions supported by evidence of satisfactory performance (NSW Rural Fire Service, 2012). This short video provides a guided tour and explanation of the features of a home renovated to BAL-FZ standards.

Warrandyte Community Association (2013)

Be Ready Warrandyte – Do you have a fire plan?

https://youtu.be/jty_99L5eJA

A parody of half-baked household bush fire preparedness in the Greater Warrandyte (Vic.) area, with a very serious closing message. Developed by the community after it was awarded a Fire Ready Communities Grant (now the Resilient Community Program) of more than $86,000 by the Victorian Government to undertake a survey of households in the greater Warrandyte area to assess the current level of community awareness and knowledge in regard to bush fire safety preparedness.

APPS FOR SMART PHONES AND MOBILE DEVICES

- DisasterWatch (Emergency Management Australia)
- Fires Near Me (RFS)
- FloodSafe (SES)
- MyFirePlan (RFS)
- StormSafe (SES)

GLOSSARY

alert

That period when it is believed that resources may be required which enables an increased level of preparedness. See also warning.

alert level

Used by the NSW Rural Fire Service to give an indication of the level of threat from a fire. There are three levels of bush fire alerts:

- **Advice:** A fire has started. There is no immediate danger. Stay up to date in case the situation changes
- **Watch and Act:** There is a heightened level of threat. Conditions are changing and you need to start taking action now to protect you and your family
- **Emergency Warning:** An Emergency Warning is the highest level of Bush Fire Alert. You may be in danger and need to take action immediately. Any delay now puts your life at risk. (http://www.rfs.nsw.gov.au/plan-and-prepare/alert-levels)

bush fire

A general term to describe fire in vegetation, including grass fire.
Syn. **bushfire.**

bush fire hazard

The potential severity of a bush fire, which is determined by fuel load, fuel arrangement and topography under a given climatic condition.

bush fire prone area/land

An area of land that can support a bush fire or is likely to be subject to bush fire attack. In general, a bush fire prone area is an area mapped for a local government area that identifies the vegetation types and associated buffer zones. Bush fire prone land maps are prepared by local councils and certified by the Commissioner of the NSW Rural Fire Service under section 146(2) of the EP&A Act.

business continuity

The capability of an organisation to continue delivery of its products or services at acceptable predefined levels following a disruptive incident (Commonwealth Attorney-General's Department, 2013, p. 4).

combat agency

The agency identified in the State Emergency Management Plan as being primarily responsible for controlling the response to a particular emergency. *See also* **support agency.**

community

- A group with a commonality of association and generally defined by location, shared experience, or function.
- A social group which has a number of things in common, such as shared experience, locality, culture, heritage, language, ethnicity, pastimes, occupation, workplace, etc.

disaster

A serious disruption to community life which threatens or causes death or injury in that community and/or damage to property which is beyond the day-today capacity of the prescribed statutory authorities and which requires special mobilisation and organisation of resources other than those normally available to those authorities. See also emergency and incident.

disaster management

The body of policy and administrative decisions and operational activities which pertain to the various stages of a disaster at all levels. *See also* **emergency management.**

drought index

A numerical value, such as the Byram-Keetch Drought Index, reflecting the dryness of soils, deep forest litter, logs and living vegetation. *Syn.* **'soil dryness index'.**

emergency

Defined under the *State Emergency and Rescue Management Act 1989* as an event, actual or imminent, which endangers or threatens to endanger the safety or health of persons or animals, or destroys or damages, or threatens to destroy or damage property or the environment, and which requires a significant and coordinated response. *See also* **disaster and incident.**

emergency plan

A written set of steps to follow to reduce the potential for property damage and loss of life in an emergency situation. Businesses and employers are required to have an emergency plan that covers major incidents in the workplace under Regulation 43 of the *Work Health and Safety (WHS) Regulations 2011.*

- A plan which sets out the roles and responsibilities of agencies in emergency response and the coordination arrangements which are to be utilised.

emergency management

A range of measures to manage risks to communities and the environment.

- The organisation and management of resources for dealing with all aspects of emergencies. Emergency management involves the plans, structures and arrangements which are established to bring together the normal endeavours of government, voluntary and private agencies in a comprehensive and coordinated way to deal with the whole spectrum of emergency needs including prevention, response and recovery.

emergency operations centre A centre established under the State Emergency and Rescue Management Act 1989 at a State, regional or local level as a centre of communication, and as a centre for the co-ordination of operations and support, during an emergency.

emergency risk management

A systematic process that produces a range of measures which contribute to the well-being of communities and the environment.

emergency service organisation

An agency responsible for the protection and preservation of life and property from harm resulting from incidents and emergencies. Under the *State Emergency and Rescue Management Act 1989*, this means the NSW Police Force, Fire and Rescue NSW, Rural Fire Brigades, Ambulance Service of NSW, State Emergency Service, Volunteer Rescue Association or any other agency which manages or controls an accredited rescue unit.

evacuation

The planned relocation of persons from dangerous or potentially dangerous areas to safer areas and eventual return.

fire danger

Factors which determine whether fires start, spread and do damage, and whether and to what extent they can be controlled.

fire danger index (FDI)

A relative number denoting an evaluation of rate of spread, or suppression difficulty for specific combinations of fuel, fuel moisture and wind speed. *Syn.* **fire danger rating.**

fire danger ratings

Bush Fire Danger Ratings give an indication of the possible consequences of a fire, if one was to start. These are based on predicted conditions such as temperature, humidity, wind and the dryness of the landscape. The higher the fire danger rating, the more dangerous the conditions.

fire hazard

Any fuel which if ignited, may be difficult to extinguish.

fire prevention

All pre-fire activities designed to reduce fuel quantities, remove known hazards, and prepare properties for the possibility of fires occurring so that the fire development and spread is minimised and property damage is mitigated.

fire rating
The minimum fire resistance of a material or method of construction as determined by the method specified in AS 1530.4.

fire resistance
The extent to which a material or building is resistant to fire. *See also* **fire rating.**

fire threat
The impact a fire will have on a community.

flame zone
The distance from a bush fire at which there is significant potential for sustained flame contact to a building. Determined by the calculated distance at which the radiant heat of the design fire exceeds 29kW/m^2 or calculated by the sustained flame length, whichever is the lesser.

flash flood
A flood that rises quite rapidly with little or no advance warning, usually as a result of an intense rainfall over a small area or, possibly, an ice jam, a dam failure, etc. *See also* **flood.**

flood
The overflowing by water of the normal confines of a stream or other body of water, or the accumulation of water by drainage over areas which are not normally submerged.

flood awareness
An appreciation of the likely effects of flooding and a knowledge of the relevant flood warning, response and evacuation procedures. In communities with a high degree of flood awareness, the response to flood warnings is prompt and efficient. In communities with a low degree of flood awareness, flood warnings are liable to be ignored or misunderstood, and residents are often confused about what they should do, when to evacuate, what to take and where it should be taken.

flood classification levels
Definitions used in flood warnings to give a general indication of the types of problems expected in a flood, i.e. minor flooding, moderate flooding, and major flooding.

flood hazard
The potential loss of life, property and services which can be directly attributed to a flood.

flood risk
- The probability of losses occurring due to flooding.
- The chance of failure of a dam over its life due to inadequate spillway capacity and freeboard provisions.

flood warning
A statement by the Bureau of Meteorology including all or part of the following items for particular catchments:

- a summary of the current meteorological situation and expected developments;
- a summary of the rainfall which has occurred or is expected;
- river heights at key locations;
- the class of flooding that is expected; and/or
- river heights.
- The same effect on the temperature of the earth caused by its atmosphere acting as the glass of a greenhouse does, possibly to be increased as man's pollution adds more and more carbon dioxide to the atmosphere.

hazard
- A source of potential harm or a situation with a potential to cause loss.
- A potential or existing condition that may cause harm to people or damage to property or the environment.
- An intrinsic capacity associated with an agent or process capable of causing harm.

heat stress index
A four-step index, based on the THI (Temperature Humidity Index) or 'humiture' index, expressing the likelihood of heat stroke, sunstroke, or other acute symptoms of bodily stress.

heatwave

- There is no universal definition of heatwave. The World Meteorological Organisation defines a heat wave as being when the daily maximum temperature of more than five consecutive days exceeds the average maximum temperature by five degrees Celsius (5°C) or more (Lass et al, 2011, p.2).
- A long lasting period with extremely high surface temperature.

incident

An event, accidentally or deliberately caused, which requires a response, but can be managed relatively quickly using local resources, possibly with the assistance of the Emergency Services. *See also* **disaster** and **emergency.**

integrated approach

Arrangements for dealing with emergencies and disasters involving an active partnership between Commonwealth, State and Territory, and local levels of government, statutory authorities, and voluntary and community organisations.

Local Emergency Management Committee

A Local Emergency Management Committee constituted under Part 2 of the State Emergency and Rescue Management Act 1989. *See also* **Regional Emergency Management Committee** and **State Emergency Management Committee.**

major incident

An event which requires response by police, emergency services and the community which may affect a wider area over a longer period of time but is not a declared disaster.

mitigation

Measures taken in advance of a disaster aimed at decreasing or eliminating its impact on society and environment. *See also* **prevention.**

natural disaster

Any emergency defined by the Commonwealth for the purposes of the Natural Disaster Relief Arrangements: bush fires, cyclones, earthquakes, floods and storms including hail.

non-governmental organisation (NGO)

Non-profit making organisation operating at the local, national, or international levels; distinct from a governmental organisation, having no statutory ties with a national government.

population at risk

A well-defined population whose lives, property, and livelihoods are threatened by given hazards. Used as a denominator.

prepared community

A community which has developed effective emergency management arrangements at the local level, resulting in:

- an alert, informed and active community which supports its voluntary organisations;
- an active and involved local government; and,
- agreed and coordinated arrangements for prevention, preparedness, response, and recovery.

preparedness

- Arrangements to ensure that, should an emergency occur, all those resources and services which are needed to cope with the effects can be efficiently mobilised and deployed.
- Measures to ensure that, should an emergency occur, communities, resources and services are capable of coping with the effects.

recovery

- The coordinated process of supporting emergency-affected communities in reconstruction of the physical infrastructure and restoration of emotional, social, economic and physical wellbeing.
- Measures which support emergency-affected individuals and communities in the reconstruction of the physical infrastructure and restoration of emotional, economic and physical well-being.

recovery agency

The agency identified in the State Emergency Management Plan as the agency primarily responsible for controlling the recovery from a particular emergency.

Regional Emergency Management Committee

A Regional Emergency Management Committee constituted under Part 2 of the State Emergency and Rescue Management Act 1989.

rescue

The safe removal of persons or domestic animals from actual or threatened danger of physical harm.

resilience

The capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure (ISDR, 2004 in Granger, 2014, p. 5).

response

Actions taken in anticipation of, during, and immediately after an emergency to ensure that its effects are minimised, and that people affected are given immediate relief and support.

RFS

See **Rural Fire Service.**

risk

- A concept used to describe the likelihood of harmful consequences arising from the interaction of hazards, communities and the environment.
- The chance of something happening that will have an impact upon objectives. It is measured in terms of consequences and likelihood.
- A measure of harm, taking into account the consequences of an event and its likelihood. For example, it may be expressed as the likelihood of death to an exposed individual over a given period.
- Expected losses (of lives, persons injured, property damaged, and economic activity disrupted) due to a particular hazard for a given area and reference period. Based on mathematical calculations, risk is the product of hazard and vulnerability.

risk acceptance

An informed decision to accept the likelihood and the consequences of a particular risk.

risk analysis

- A systematic use of available information to determine how often specified events may occur and the magnitude of their likely consequences.
- The systematic use of available information to study risk.

risk assessment

The process used to determine risk management priorities by evaluating and comparing the level of risk against predetermined standards, target risk levels or other criteria.

risk reduction

A selective application of appropriate techniques and management principles to reduce either likelihood of an occurrence or its consequences, or both.

Rural Fire Service

The NSW Rural Fire Service is the combat agency legislated under Section 9 of the *Rural Fires Act 1997* to provide rural fire services for New South Wales, including the prevention, mitigation and suppression of fires, and the protection of persons from dangers to their safety and health, and property from destruction or damage arising from fires, in rural fire districts.

sea surge

A rise in sea level that results in the inundation of areas along coastlines. These phenomena are caused by the movement of ocean and sea currents, winds and major storms. *See also* **storm surge.**

SES

See **State Emergency Service.**

severe weather

Any atmospheric condition potentially destructive or hazardous to human beings. It is often associated with extreme convective weather (tropical cyclones, tornadoes, severe thunderstorms, squalls, etc.) and with storms of freezing precipitation or blizzard conditions.

stages of emergency

Defined under the *State Emergency and Rescue Management Act 1989* in relation to an emergency as:

(a) prevention – the identification of hazards, the assessment of threats to life and property and the taking of measures to reduce potential loss to life or property, and

(b) preparation – arrangements or plans to deal with an emergency or the effects of an emergency, and

(c) response – the process of combating an emergency and of providing immediate relief for persons affected by an emergency, and

(d) recovery – the process of returning an affected community to its proper level of functioning after an emergency.

State Emergency Management Committee

The State Emergency Management Committee constituted under Part 2 of the *State Emergency and Rescue Management Act 1989.*

State Emergency Service

The NSW State Emergency Service is the combat agency for dealing with floods, storms and tsunamis, as legislated under Section 8 of the *State Emergency Service Act 1989.*

State Emergency Management Plan

The State Emergency Management Plan referred to in section 12 of the *State Emergency and Rescue Management Act 1989.*

state of emergency

A state of emergency declared under Division 4 of Part 2 of the State Emergency and Rescue Management Act 1989 and for the time being in force.

storm

1. An atmospheric disturbance involving perturbations of the prevailing pressure and wind fields, on scales ranging from tornadoes (1 kilometre across) to extratropical cyclones (2,000-3,000 kilometres across).
2. Wind with a speed between 48 and 55 knots (Beaufort scale wind force 10).

storm surge

The difference between the actual water level under influence of a meteorological disturbance (storm tide) and the level which would have been attained in the absence of the meteorological disturbance (i.e. astronomical tide). *Syn.* **storm wave** and **storm tide**. *See also* **sea surge**.

storm tide

The combination of a storm surge, tidal peaks, a shallow coastal gradient, and on-shore winds. A storm tide effect may be increased by funnelling due to coastal terrain.

storm warning

- Meteorological message intended to warn those concerned of the occurrence or expected occurrence of a wind of Beaufort force 10 or 11 over a specific area.
- Any forecast of severe weather conditions.

support agency

An agency which provides essential services, personnel, or material to support or assist a control agency or affected persons. *Syn.* **assisting agency**. *See also* **combat agency.**

table top exercise

An umbrella term for some types of indoor discussion exercise. They may feature a model of the area on which a prepared scenario is played out, or simply using a projected map, not in real time. The model or map is used to illustrate the deployment of resources, but, no resources are actually deployed. Additionally, responses may be prepared in syndicate, in plenary, or under the guidance of a facilitator who maintains the pace and asks probing questions. A cost effective, and highly efficient, exercise method that should be conducted as a prelude to a field exercise as part of a graduated series.

victim

- A person directly affected by a disaster.
- A person who is killed.

vulnerability

- The degree of susceptibility and resilience of the community and environment to hazards.
- The degree of loss to a given element at risk or set of such elements resulting from the occurrence of a phenomenon of a given magnitude and expressed on a scale of 0 (no damage) to 1 (total loss).

vulnerable groups

Categories of displaced persons with special needs, variously defined to include: unaccompanied minors, the elderly, the mentally and physically disabled, victims of physical abuse or violence and pregnant, lactating or single women.

warning

Dissemination of message signalling imminent hazard which may include advice on protective measures.(95) *See also* **alert.**

Unless otherwise referenced, the majority of definitions used here are adapted from the State Emergency and Rescue Management Act 1989, Emergency Management Australia (1998) and NSW Rural Fire Service (2006).

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APPENDICES