Abstract

Fires, Floods and Storms are some of Australia’s most devastating emergencies. This presentation seeks to explore whether people who live in the path of these emergencies prepare, respond and recover differently dependant on where or how they live and what types of Emergencies they are exposed to.

Research was conducted through an Emergency Services Foundation Scholarship, which included a 24-day tour of NSW in 2017, meeting with Emergency Service Organisations, Schools, home occupiers, defence, and specialist professionals with the intent of discovering if data gathered could be transferable to benefit Victoria, its communities and Emergency Service Organisations.

The research used doorknocks, community consultations, interviews, and group activities to answer the above posed question by seeing if personal views, backgrounds, genders, age groups, religions/cultures or geographical locations or previous hazard education affected preparation, response and recovery.

The results of the research clearly indicate that different environments do affect the way individuals and communities prepare, respond, and recover from emergencies.

Key findings include that communities within levees are complacent about preparing for floods despite their living in a high-risk area – because they expect the levee to offer them 100% protection. So, residents that state this answer are clearly not prepared, relying on the levee for their protection.

The study tour also explored whether education and engagement programs would be most effective if they targeted specific areas, communities, age groups, genders, cultures, religions etc. And whether learnings from NSW could help guide the implementation of the Victoria SES Community Resilience Strategy through networking with Emergency Service Organisations and Communities to become more resilient and pro-active in the designing of how they prepare, respond and assist with recovery efforts of their communities for emergencies.

Background

Victoria (VIC)

Victoria has had its equal share of Natural Disasters throughout time from Bushfires, Floods, Storms and Drought just to name a few. In Victoria The Emergency Management Manual contains the principal policies, emergency planning and management
arrangements as outlined in Emergency Management Act 2013 for Emergency Preparedness, Response and Recovery.

Emergency Management Victoria (EMV) is the overarching body and the Chief Executive is responsible for the day-to-day management in Victoria. The Commissioner is responsible for improving the way Victoria plans for, responds to and recovers from emergencies.

In Victoria Emergency Service Organisations are known as Control agencies whereas in NSW they are Combat Agencies, still with similar roles just named differently. Emergency Service Agencies in Victoria that are responsible for the Emergencies that I researched include;

- Flood – Victorian State Emergency Service (VICSES)
- Storm – Victorian State Emergency Service (VICSES)
- Fire – (Bush Fires) Department of Land, Water and Planning (DEWLP) & Country Fire Authority (CFA)
  - (Grass Fires/House Fires) - Country Fire Authority - Volunteer
  - (Urban) – Country Fire Authority – Paid

So, if I researched what the public were prepared for? Could that vary based on their age, gender, culture, religion, up-bringing and geographical location? What they’ll respond to, prepare for and recover from and how?

It’s true that most people are more prepared for a fire than any other natural disaster, when research into why this was people believed that you could feel and see the effects of fire whereas for some other emergencies like a flood for instance, wasn’t perceived the same way because it was ‘Just Water’. If we understand how the community prepares and reacts then we can tailor make our education programs to suit our areas, making for safer and more prepared high-risk Communities.

**New South Wales (NSW)**

New South Wales is a larger state than Victoria and prone to more Fires and Storms. The community of New South Wales as a whole, lives with a variety of natural and technological hazards. The more common hazards are floods, severe storms, and bushfires but other events such as exotic animal disease, major aircraft crashes and earthquakes are possible.

Most incidents are handled using standard procedures, however, if an event requires a significant and coordinated response, then this is termed an emergency. The key element of Emergency Management planning in NSW is the Emergency Management Plan (EMPLAN). The objective of EMPLAN is to ensure a coordinated response by all agencies having responsibilities and functions in emergencies.

NSW Service Agencies that are responsible for the Emergencies that I researched are;

- Flood – New South Wales State Emergency Service (NSWSES)
- Storm – New South Wales State Emergency Service (NSWSES)
- Fire – (Urban) Fire and Rescue NSW
  - (Rural) New South Wales Rural Fire Service (NSW RFS)
By visiting NSW, I was determined to discover if the information I gathered could put people in Victoria in a better headspace, teaching them to be more prepared to leave if told to evacuate earlier rather than later, discover how communities build up their resilience, can assist us by bouncing back quicker and knowing who is vulnerable and the data gained could be used to build intelligence tools to better decide decisions in planning.

So why NSW, well as stated above NSW has many types of similar Emergencies to Communities in Victoria, so it seemed logical to review a place that was similar to our own State to learn from each other and see if people, Communities and other Organisations prepared, responded and recovered differently or the same from Emergencies based on where and how they live, and to utilize our combined research to help each other and discover which resources belong where and Why?

It was also practical to keep this research in the bonds of Australia as many other Countries Environments and Cultures are different and the information gathered may not have been as useful or relevant to our own environments.

**Methods**

Meetings, Exercises and Door-knocks were conducted with and in consultation with; Emergency Service Organizations, Schools, Defense, Specialist professionals and home occupiers with the intent of discovering if data gathered could be transferable to benefit Victoria, its communities and Emergency Service Organizations.

The research also searched for personal views, backgrounds, genders, age groups, religions/cultures, geographical locations or previous hazard education responses to see if they affected a person’s preparation, response and recovery in different types of environments.

Other methods were also presented to me whilst on tour which gave me an insight into why people may prepare, respond and recover differently dependent on where they lived or even worked.

Some of which included;

- How you were trained to do the task/job, this is seen more through the Emergency Service Organizations
- Skill and knowledge levels of Emergency Service Volunteers and Staff both for current state members and inter-state transfers and assistants.
- Cultural understanding of Australia.

Across my Study tour I spoke to a total of 128 Residents, with an overall household count of 372 people.
Environments Researched

Environments that I researched on my study tour included:
Geographical;

**Bushland**

Bushland included; hills, scrub and forests both in rural and Urban environments. Locations I researched that had Bushland included; Wagga Wagga, The Rock, Kapooka, Cessnock, Kitchener and Port Stephens

**Rivers/Creeks**

Rivers/Creeks were any stream of continuous water flowing through towns and Communities. Locations that I researched that had Rivers/Creeks included; Forbes, Fairholme, Maitland, Cowra, Bedgerabong, Uranquinty and Wagga Wagga

**Urban**

Urban I classified as any person living in a town over the size of 500 people. Locations that I researched that were classified as Urban included; Wagga Wagga, The Rock, Forbes, Parkes, Cessnock, Kitchener, Hinton and Cowra

**Rural**

Rural I termed as Farmland, Small Communities and Open plains. Locations I researched where these were present included; Kapooka, Fairholme, Bedgerabong, Uranquinty and Gooloogong

**Floodplains**

Floodplains were open fields, generally flat and low-lying. Not far from creeks of rivers, were water regularly flowed. Locations I researched that were on Floodplains included; North Wagga Wagga, Uranquinty, Fairholme, Bedgerabong, Forbes and Maitland

**Coastal**

Coastal areas are those where the land meets the sea, or a town or community is within 5km of the sea. I did not physically visit any part of the coast; however, I did have interviews over the phone and in person with Individuals from the coast including; Newcastle, Port Stephens and Whyalla.

**Levees**

Levees are embankments built to prevent the overflow of water. Locations I researched that had Levees were; Wagga Wagga, Uranquinty, Forbes and Maitland.
Hill (Isolation)

Hills are gentle slopes that may be above floodplains, I also added into my research mounds where houses sit up above floodplains.

Generational;

Up-bringing;

Up-bringing has many different meanings but usually relates to early education as a child with a way of being raised.
The Oxford dictionaries definition states Up-bringing to mean; “The treatment and instruction received by a child from its parents throughout its childhood”.
https://en.oxforddictionaries.com/definition/upbringing
Can the way we are raised and where determine the way we prepare, respond and recover from Emergencies?

Gender;

The word gender has been used throughout the centuries as a grammatical term, referring to classes of noun designated as masculine, feminine, or neuter in some languages. Although the words gender and sex are often used interchangeably. Gender more often refers to cultural and social differences and sometimes encompasses a broader range of identities than the binary of male and female. Yet does this make a difference when we are deciding on our preparation plans, responses and recoveries to Emergencies?

Age Groups
An age group or groups can be people of a similar age or within a range of ages.

For Example;
Age groups I created to test my research were <20’s, 20’s, 30’s, 40’s, 50’s and 60+.

Cultural;

Residential

Most people that come to Australia know that it is large, with dangerous snakes and spiders and we all seem to live at the beach. However, what many don’t know is how to deal with our Natural Disasters. And dependent on where people decide to settle can determine a different type of Emergency, for each area around Australia is different and have their own types of Emergencies/Natural Disasters.

I discovered whilst speaking to other Emergency Service Organisations and Home Occupiers was that new people to the area whether from overseas or interstate had little knowledge of the area’s natural disasters.
Emergencies Researched

Fires
Included; Bushfires, Grassfires and House Fires

Floods
Included; Flash flooding, Coastal flooding, Dam/Levee Failure, and riverine flooding.

Storms
Included; Coastal, dust and wind storms, cyclones, thunder storms and in-land storms.

Results

Does where you live really determine how you prepare, respond and recover from Emergencies? This is the question that I set out to find out. In short yes it does. (See graph below for Confirmation)

Preparation - Residential

Figure 1 types of Emergencies people are prepared for based on living environments

Emergencies that Residents are prepared for based on the type of Environment they live in

- Coast
- Urban
- Rural
- Hill (Isolation)
- River/Creek
- Levee
- Flood Plain
- Bushland

Storm Flood Fire
What people are prepared for mostly based on their geographical location:

- **Coast** – Storms
- **Urban** – Fires (House fire, Grass Fire and Bushfire)
- **Rural** – Fires
- **Hill (Isolation)** – Fires
- **Rivers/Creeks** – Floods
- **Levees** – Floods
- **Flood Plains** – Floods
- **Bushland** – Fires

The evidence shows that yes people who live in different types or certain types of environments do prepare differently because they live in an environment that has mostly these types of emergencies.

The most prepared place that I found along my tour was a small broken off suburb of Cessnock called Kitchener. Kitchener has a population of around 1000 people with no shops other than the pub.

The town is surrounded by bushland, pine and gum tree mostly with only 1 major road in or out of the town. The town also has their own fire pump and water supply housed there with some of the residents trained in basic fire prevention and attack. The local Cessnock Fire and Rescue Crew regularly go out there to check on the hydrants, however some of the locals do this also.

Every year the town is threaten by bushfires hence the reason that everyone is prepared, they are used to it. However, unlike others that I spoke to on my trip not one person said that they would stay and defend. As they all quoted “Life is more important than property, property you can replace, life you cannot”.

This is just however for preparation; the most unprepared Environment for any Emergency that I researched based on geographical location was:

- **Levees** – 40% of those that I spoke to were not prepared at all for an Emergency. The main reason was that they either lived in a levee or had their own, many also answered that they raised their houses up and that they believed was enough to protect themselves, they had no other plans. Does this mean that just by having a levee or raising your house up off the ground that you are prepared for an Emergency? Because this 40% believed this to be so.
Response

Residential:

Response was a very different type of Environment for many people. This is where some people put their preparation into place, whereas others who had great preparation techniques decided to not respond at all but defend. People’s attitudes and how they perceive different types of Emergencies varied and many people would say it would depend on the Emergency or the Circumstances as to whether they would take on the advice of Authorities as to whether to evacuate.

Top 5 reasons why people chose not to leave included;
- “We have a Levee bank”
- “It would depend on the Emergency if it’s a fire yeah I’ll leave but if it’s a flood well that’s just water what’s so wrong with water”.
- “I’d stay and defend but get the wife and kids to safety”.
- “Would need a very good reason to leave such as proven immediate danger”
- “I have animals and they come first I won’t leave if I have to stay to protect them”.

Local knowledge and pride seemed to go a long way especially with long-term residents and those from Rural communities. Younger families and generations seemed to rely heavily on knowledge of the local area from long standing members. And took what information they said into account.

Each environment that I researched seemed to have a specific emergency that only they would evacuate for, except for rural communities. I found that living on the land had great

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benefits and many would believe that they lacked resources because they lived out of town.

However, what I found was that they had more resources than any other environment because they had no choice but to. Living in remote or rural communities you had to be more resilient, you cannot just call your local SES if you become isolated in a flood as the closest unit may be 2 hours away, you must find other avenues to assist you.

One community I visited called Bedgerabong, 30 km west of Forbes was one such community, they had some major floods go through in 2016 and experience crop fires almost every summer.

Whilst in the Bedgerabong Community I visited the local school and spoke with each of the grade levels about emergencies and from a child’s point of view. Learning at the same time how much information is passed not only through the generations but from Child to adult. The below table shows some positive and negative responses when speaking to the children about the 2016 floods and how they were preparation for, responded to and recovered from these Floods.

**Figure 3 responses from Rural Children to a Flood Emergency**

<table>
<thead>
<tr>
<th>Positive</th>
<th>Negative</th>
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</thead>
<tbody>
<tr>
<td>Dad decided not to travel through the floodwaters we went the long way home</td>
<td>We had injured and trapped livestock that we had to tow across the floodwaters by a trailer or boat</td>
</tr>
<tr>
<td>I helped put the chickens up higher away from the floodwaters</td>
<td>We played in the water a lot, one of my friends used a surfboard and the back of their boat</td>
</tr>
<tr>
<td>I remember going to help the entire community sandbag an old man's house.</td>
<td>The road was flooded so Dad used the truck to get me to school.</td>
</tr>
</tbody>
</table>

Although many children knew how to prepare their homes for Flood, Storm and Fire emergencies they also performed higher – risk activities that are normally frowned a pond today and could be downright dangerous such as water skiing around flooded paddocks and creek beds.

Children stated that their parents wouldn’t use cars to drive through the floodwaters because they’d get swept away however would then resort to larger vehicles like trucks and tractors to get to areas they needed to.

**Figures 4 & 5 show some of the lengths locals will go to, to get their animals to safety**
The response from the children and Rural Communities showed they just get in there and get the job done. It doesn’t matter whose resource it is the community spirit comes out and they share what they have.

Many remote or rural areas lack in phone and internet reception, they must rely on satellite phones or radios. And they cannot always have those on them, so warnings can be slow to reach them, hence the reason they may not get their animals out in time. After speaking to the farmers and the rural generations I thought it might be interesting to get their complete opposites points of view, as I had already proven living in different types of emergencies means that you prepare differently so would they respond differently too.

So, I visited an Urban Primary School back in Forbes asking the same questions to the Urban generation of children. I spoke to Grade 3 children and their top 3 positive and negative answers were;

<table>
<thead>
<tr>
<th>Positive</th>
<th>Negative</th>
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<tbody>
<tr>
<td>Mum helped a car out of floodwaters</td>
<td>We had no power and no T.V we were so bored</td>
</tr>
<tr>
<td>I helped put sand in sandbags</td>
<td>Dad drove through the flooded waters</td>
</tr>
<tr>
<td>We went and stayed with family and friends</td>
<td>We used our bogey boards and played in the floodwaters</td>
</tr>
</tbody>
</table>

I then discovered what they would do if they were in a flood and their responses were very different to those in remote and rural communities which just goes to show that if you have more available to you are you then more complacent?

The top 5 responses from the children were;

- “Call the SES and say we are stuck in our house, need help and would give them our street and number”.
- “I would go to the SES and get lots of sandbags or if I forgot my money I would go out of my house”.
- “I would call the SES on ‘000’.
- “I would get someplace high and call for help”
- “I would leave the house with my family”

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The responses between Urban and Rural as you can see are very different, so not only does where you live and the resources available determine how you prepare it can also determine how you respond, does having more resources available make us lazy? Or does where you live also determine your up-bringing and ways of doing things in life?

**Overall when evaluating my results from speaking to residents in different environments on Response what I discovered was;**

**Bushland;**

64% of those prepared for a Fire would evacuate if told to, whereas only 18% would leave for a flood and only 9% would evacuate for a storm. The main reason was they got more bushfires than floods and perceived them as more of a threat to their livelihoods.

**River/Creek;**

26% would evacuate for a flood with both a Storm and Fire having the same percentage of 10% of evacuation rate, more people in this environment would prefer to wait and see before deciding to act with 23% for a flood and 10% for a fire.

**Urban;**

17% would leave for a flood, 13% for a fire and 9% for a storm, residents in Urban areas that I spoke to were under the impression that they were safe and so preferred to stay with 13% for both Flood and Storm and 11% for Fire, the rest of the percentages insisted on
“the wait and see”, depending on the circumstances with many stating that they lived in town so why worry about any of it.

**Rural;**

These figures were all over the place with an equal share in each group with some saying they would leave, yet most said it would depend on the emergency and whether they could just do something about it themselves.

**For example;**

Many local farmers are also a part of the local fire brigade or have their own tanks of water on the backs of their trucks and Utes so if a fire where to start they could use their generators and pumps and put the fire out for themselves or grade up the paddocks to prevent the fire getting any further.

32% stated it would depend on the emergency as to whether they would leave. With most of them saying if it was a fire they would just stay and defend and for a flood just wait it out.

**Floodplain;**

Most people I spoke to live on floodplains and as expected were more prepared for a flood, however unlike some other of the environments (minus bushland and coast) they would also evacuate if told to for a flood with 37% saying they would go, and another 10% would leave for a storm and 15% for a fire, this environment also had one of the lowest percentages of people who would stay and defend with only 14% staying and that’s across all emergencies or just 6% for a flood emergency. When asked why they would leave most stated like our Bushland district of Kitchener that life is more important than property.

**Levee;**

Levees was a fun environment to cover, there was many different types of Levees from Own-occupier, purpose built and temporary ones like sandbag walls that were left and overgrown and therefore the residents determined them as levees.

For a flood 46% would not evacuate their homes believing that the purpose of the Levee was to protect them. Whereas for a fire 50% would leave. More education is defiantly needed on what a levee is and the main reasons that they are built.

When we presented the ‘what if?’ scenarios to the residents on what they would do if the levee broke or overtopped they had no answers on what they would do just saying “it won’t break”.

**Coastal;**

From research conducted if you live on the coast your prepared for them all from scrub bushland fires, to flash floods and cyclones. And when it comes to evacuation they don’t muck around, especially for storms.
100% of those I spoke to claimed they would evacuate for a storm as living on the coast these can be deadly, 58% said they would leave for a flood as the waters may not always reach you and 36% stated for a fire.

**Recovery**

**Residents;**

From environments researched for Preparation, Response and Recovery I found that; Those that have lived through an emergency seem to be the ones that are the most prepared, will evacuate if told to cause they know the danger and risk that is coming and are the ones that recover the best because they know what to expect from past experience, many know that to live in a high-risk area means that they must be prepared for all this and will gladly do so to have the type of lifestyle that they want.

The problem they believe that exists is when people from outside area’s come in and have no idea about the risks, they can put others in danger when they do not act. However, some people in certain types of environments who live in a high-risk area as discussed don’t prepare or respond to emergencies because they believe they are safe, so why should they need to know about Recovery?

This is a question I was asked a lot by one Category of Residents of a Geographical Location. For this reason, I altered some of the questions to put before them a what if? Scenario to see how they believed they would recover if they were to experience an Emergency.

One environment where residents believed they would not recover well and still do not was those who lived inside the Levee systems. Although a lot of Residents have Insurance the premiums had doubled or tripled to a cost that many stated they would soon have to cancel their insurance because they just couldn’t afford to pay them.

**For Example;**

One man in North Wagga stated that since the 2016 flood that his insurance premiums had gone up from $2000 per year to $8000. So, without any financial aid to assist with clean up, they would rely heavily on Military and Emergency Service Organisations help and the support of family and friends.

*Figure 8 shows how Residents believed they would recover from an Emergency*
A more detailed description of some of the answers for how people would recover after an Emergency included:

- Insurance
- Depend on the level of devastation
- With the help of friends and family
- Just get on with it and clean up
- I wouldn’t recover, I’d move
- Unsure as I haven’t been through one
- With the assistance of Military and Emergency Services personnel
- Community Support
- Counselling
- I think I would be devastated and very emotional so not well

**Conclusion**

So, what did I discover?

Depending on where you live and how you live can determine how you prepare for, respond to and recover from an Emergency, this I discovered to be true, however I was unprepared for the responses that some Residents stated, and some Organisations did when dealing with Emergencies.

*For Example;*
Public perception (Emotional) and re-direction.
People not wanting to understand that it is sometimes where you live that is the fault, they
do not seem to understand that living on a floodplain means that when it floods you in turn
will also be flooded.

On saying this though I also found out that it is not always the Residents whom are at fault
for where they live.

*For Example:*

In NSW Real Estates and Home Sellers do not have to advice the potential buyer that they
are moving into a house that floods unless it has flooded in the last year or until the final
contract commitment has gone through. So sometimes the Resident is totally unaware
that they need to prepare until it is too late.

I discovered that those on the Land and those living on the Coast are more resilient and
prepared for an Emergency than anywhere else because they are prone to more Natural
Disasters and sometimes particularly in Rural Communities have less Services available
to assist them except for each other.

People whom live inside Levees can be complacent and do not understand what the actual
purpose of the Levee Systems are, however as they are regularly flooded or isolated are
able to be efficient and content with waiting out a flood.

Although for a Response phase those whom live in Bushfire risk area’s I found to be the
most responsive preferring to leave rather than defend, it was this environment that also
stated they would recover better as they are impacted on a frequent basis.

On a Generational point of view the older generations have the local knowledge and skills
known to protect their assets, however they are unacceptable of change and not very
techno savvy, usually refusing to leave their homes as they believe that their past
experience will be enough to get them through or not having enough family or friends close
by that are able to get to aid them in their evacuations.

Whereas the younger generations are knowledgeable in all the Emergency Apps, website
eta, and would properly just evacuate if told to do so, yet they lack experience and
knowledge of the local area and do not seem to have the same level of interest in gathering
information about Emergencies in their area.

From a gender point of view, I observed that the Men are the ones that prefer to stay and
defend and can be more deceptive to change, whereas the Women are the better listeners
and persuasive to get the message to their partners, sons eta.

And finally, from a cultural perspective, those whom have moved to Australia from
overseas have brought with them a great deal of knowledge from their Countries on how
to deal with certain emergencies, which could be very useful to other Regions around
Australia that may suffer from those Emergencies, yet still can be unfamiliar with the area
that they settle in and the types of Emergencies that may exist within that Region.
Therefore, making their safety a high priority, especially if they do not speak English or
can communicate to anyone else.
An important piece of information that I uncovered was that my Survey Questions that I asked to Residents were suitable for All Emergencies, not just the ones I was researching. So, with this information we could create a Survey sheet on a Multi-Agency Scale to gather information that all agencies could share with each other, instead of each Agency having various questions and lots of different data scattered throughout our systems.

**List of Abbreviations**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>BOM</td>
<td>Bureau of Meteorology</td>
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<tr>
<td>CFA</td>
<td>Country Fire Authority</td>
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<tr>
<td>DHHS</td>
<td>Department of Health and Human Services</td>
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<tr>
<td>EMPLAN</td>
<td>Emergency Management Plan</td>
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<td>EMV</td>
<td>Emergency Management Victoria</td>
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<td>ESF</td>
<td>Emergency Services Foundation</td>
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<td>FMA</td>
<td>Floodplain Management Australia</td>
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<tr>
<td>KMA</td>
<td>Kapooka Military Area</td>
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<tr>
<td>LLS</td>
<td>Local Land Services</td>
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<tr>
<td>NCC</td>
<td>Newcastle City Council</td>
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<td>NE</td>
<td>North East</td>
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<td>NSW</td>
<td>New South Wales</td>
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<td>NSWWRFS</td>
<td>New South Wales Rural Fire Service</td>
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<td>New South Wales State Emergency Service</td>
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<td>P-2</td>
<td>Prep to Grade 2</td>
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<td>RCOW</td>
<td>Rural City of Wangaratta</td>
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<tr>
<td>SES</td>
<td>State Emergency Service</td>
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<tr>
<td>VIC</td>
<td>Victoria</td>
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<tr>
<td>VRA</td>
<td>Volunteer Rescue Association</td>
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<td>VICPOL</td>
<td>Victoria Police</td>
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<tr>
<td>VICSES</td>
<td>Victoria SES</td>
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**‘References’**

- Millers Forest – Duckenfield Flood Response Plan September 2017 Version 2
