
PREPARING FOR FLOODS AND CYCLONES IN THE TIME OF COVID-19

Meeting notes prepared by ANU Climate Change Institute (**CCI**), ANU Disaster Risk Science Institute (**DRSI**) and The Australasian Fire and Emergency Service Authorities Council (**AFAC**) for the event held on Wednesday 23 September 2020.



BACKGROUND

Australia is no stranger to extreme weather - bushfires, flooding, rains and heatwaves continue to be a familiar part of our nation's lived experience. In recent years, however, the frequency and severity of these extremes has changed, as evidenced by the 2019-20 bushfires. In this singular event, more than 10 million hectares of land were burned, this was greater than the area burned in the Black Saturday 2009 and Ash Wednesday 1983 bushfires combined. In both 2019 and 2020 few parts of Australia have not experienced an extreme weather event of one type or another.

In April of 2020 there were early signs of a La Niña forming in the Pacific Ocean and by June 2020 the Australian Bureau of Meteorology announced a potential La Niña forming, defining this as 'watch' status. By August, the La Niña had been upgraded to 'alert' status and by September La Niña was considered 'active'.

The presence of La Niña increases the chance of widespread flooding across Australia's eastern seaboard. Of the 18 La Niña events that have occurred since 1900, **12 have resulted in floods** for parts of the country (see - <http://www.bom.gov.au/climate/enso/lnlist/>). Based on historical records, the east coast experiences twice as many severe floods during La Niña years than El Niño years. Typically, some areas of northern Australia experience flooding during La Niña's because of an associated increase in tropical cyclone numbers.

Given the development of El Niño or La Niña events can now be detected several months prior to becoming active, the opportunity exists to use this information to more accurately predict the chance of climate related emergencies occurring in the forthcoming season or year. Understanding of climate mechanisms that deliver high risk periods allows optimisation of emergency responses and effective management and mitigation of the disasters that occur as a result of these climate extremes. The use of seasonal climate forecasts based on El Niño or La Niña have been used for risk management in agriculture since the 1980's.

In addition to the increased likelihood of localised flooding across eastern Australia, preparation of emergency responses will need to include consideration of the additional challenges posed by the COVID-19 pandemic. The pandemic is likely to change the way in which preparedness, response and recovery strategies are developed and enacted.

The online event held on Wednesday 23 September 2020 was an opportunity for climate scientists, emergency services practitioners and the community to hear about the possible heightened flood risk associated with an active La Niña season, along with the practical difficulties COVID-19 imposes on emergency service, other agencies, and communities.

Georgeina Whelan, ACT Emergency Services Agency Commissioner, moderated the event which included presentations from four panellists and a group discussion. The four panellists included:

- Dr Steven Crimp (Research Fellow at the Australian National University Climate Change Institute), who discussed the developing La Niña and the implications for above average rainfall conditions for the next 3 to 6 months. He also discussed the heightened risks of floods and cyclone associated with a La Niña season and the impact the Indian Ocean might have to further increase rainfall totals.
- Ms Rosemary Hegner (Director of Capability and Planning at Resilience NSW), who discussed preparedness measures for crisis & disaster, more specifically the Capability Development Maturity Assessment process as a way of considering the additional challenges of COVID 19.

- Mr Daniel Austin (Deputy Commissioner, Operations, NSW State Emergency Services), who discussed the development of effective preparedness strategies and development of COVID-19 evacuation guidelines for NSW emergency services.
- Jo Killick (General Manager of Liaison and Recovery, Queensland Reconstruction Authority), who discussed disaster recovery from a Queensland perspective, using the 2019 Monsoon as an example to highlight QRA's learnings and approach to response and recovery. Jo also touched on the current COVID-19 recovery strategies being delivered across the state with a particular focus on the capacity within communities heading into a La Niña season.

The presentations were followed by breakout room discussions, with the audience to examine the broader implications of the COVID pandemic on either operation's (including prevention, preparedness, response and recovery) or communications and community engagement.

A SUMMARY OF PANELLIST PRESENTATIONS

STEVEN CRIMP

- In April of 2020 there were early signs of a La Niña forming in the Pacific Ocean and by June 2020 the Australian Bureau of Meteorology announced the potential of a La Niña forming in the Pacific Ocean, defining this as 'watch' status. By August, the La Niña had been upgraded to 'alert' status and by September La Niña was considered 'active'.
- The presence of La Niña increases the chance of widespread flooding across Australia's eastern seaboard. Of the 18 La Niña events that have occurred since 1900, **12 have resulted in floods** for parts of the country.
- Depending on when the La Niña develops, decile 8 to 10 rainfall (top 20% of recorded totals) can fall across much of the northern and eastern parts of Australia during June to October retreating to the higher rainfall zones, near the coast in October to December. By February to April scattered decile 7 rainfall is possible in Queensland and the northern Territory.
- The wettest years on record for Australia occurred during strong 2010–2012 and 1974 La Niña events. The 2010–12 La Niña event was particularly devastating in terms of widespread flooding across Australia, exacerbated by the Indian Ocean temperatures (negative IOD). At this time the IOD is negative and so could possibly enhance expected rainfall totals.
- The Australian Bureau of Meteorology (BoM) seasonal forecast suggests a 65% to greater than 80% of exceeding median rainfall during October to December. In some parts of coastal NSW the BoM forecast suggest a 75% chance of exceeding 300mm of total rainfall during the period October to December.

ROSEMARY HEGNER

- In the Capability and Planning portfolio of Resilience NSW, the focus is on how can we be better prepared for the future. A significant piece of work the team has been looking at as part of this is the Capability Development Framework, which is looking at understanding the response to a catastrophic event in NSW. The purpose of this framework is working out, at a state level, what capabilities there need to be in emergency management, and what gaps currently exist. Twenty-five core capabilities have been identified. Within these are the categories of People; Resources; Governance; Systems; and Processes. People refers to the personnel with the skills and training required to deliver what is needed

to respond to emergency events. Resources refers to both physical equipment and the procurement practices that may be required. Governance is about the enabling factors such as legislation and funding arrangements. Systems is about the data, IT, financial and workforce management plans. Processes is about the documentation of how it is going to be achieved.

- These twenty-five core capabilities are influenced by risk. In NSW, a discreet piece of work titled State Level Emergency Risk Assessment was produced some time ago, and identified the core risks to NSW in terms of emergencies and disasters. Understanding these risks is key to answering two important questions – what do we need to be prepared for, and how prepared do we need to be? Whilst there has been plenty of reflection on these in relation to fire events, they are yet to be trialled for a flooding event.
- The Hawkesbury Nepean Valley is a current example of an area where emergency preparedness procedures are taking place in response to both potential flooding events and the COVID-19 pandemic. The Hawkesbury Nepean is an area of unique geography, with both rich farmland and flood-zones. It contains tributaries of the Nepean River, Lake Burragorang, the Grose River, Colo River, MacDonald River, South Creek, and Eastern Creek. That area also contains the Warragamba Dam, which (at the time of the event – 23/9/2020) was at 98% capacity. If there is shortly to be a significant rain event in that area, the dam could overflow into the Hawkesbury Nepean valley. The area is prone to flooding, but also has limited evacuation pathways. Many of the people living in the area have a ‘she’ll be right’ attitude, and a very low awareness of the risk. Resilience NSW have been working with the people in the area to inform them of what the risks are. The COVID-19 pandemic has changed the nature of emergency preparedness, and so an ‘Evacuation Management Guidelines for COVID’ has been developed, and takes into account maximising the notice of evacuations if needed so that social distancing guidelines can be maintained.

DANIEL AUSTIN

- Significant planning has been ongoing for storm season over a number of months. This planning has included ensuring that deployments occur in a safe manner, including the modification of the structure of response teams and the use of virtual technology to support incident management.
- Community based preparedness activities have continued, albeit in a modified format. However significant campaigns such as that in the Hawkesbury Nepean Valley have still been delivered.
- Agencies have worked together to develop a set of guidelines to support decision making in the event that evacuation is required.
- Strengthening of relationships with partner agencies to ensure a safe and effective response can be undertaken is a key aspect of our preparation. These partner agencies go well beyond just the response agencies.
- The best rescue is the one we don’t have to do.

JO KILICK - RECOVERY – A QUEENSLAND EXPERIENCE

- Since 2011, more than 80 disaster events have impacted Queensland communities, predominantly cyclone and flooding events. As climate change accelerates, the intensity and duration of disaster events will continue to increase. The 2018-19 disaster season in Queensland included 5 cyclones, catastrophic bushfires, and several heatwaves – one that was 40 days > 40 degrees. One of the events of the season was the North and Far North Queensland Monsoon Trough - a 1:500 year monsoon event that impacted 50% of the state: 3000 homes damaged, 300km of rail damaged, loss of 500,000 head of livestock, 40,000 km local and state roads impacted. This event spread westwards and impacted

communities already dealing with 7 years of drought and heatwave so we saw the complexity of cascading and compounding events – weakened stock, communities and economies.

RECOVERY FROM MULTIPLE AND COMPOUNDING EVENTS

- For 60 of the 77 LGAs, the 2018/19 season resulted in their 2nd major event in 2 years, and now click forward a year from that devastating season, and we are facing the COVID-19 pandemic. Our challenge is to recalibrate our thinking, our policy settings, response and recovery arrangements to ensure our communities, infrastructure, environment and economies are able to absorb, adapt and transform in response. Planning laws, riparian zones, evacuation routes, local economies – all need to be considered. We have heavily relied on the relationships and networks we have built over the years in Queensland communities to engage with over 1000 stakeholders across the state on the COVID response and recovery.
- The 2018/19 season in Queensland was a window to our future - 12 events in 1 year. Cascading and compounding events that tested our ability to respond and recover.
- In responding and recovering to acute shocks such as floods/fire/cyclones, we need to recognise how the health of the underlying social and economic systems in disaster impacted areas affects its disaster resilience. Our ability to absorb and bounce back is tied to understanding our approach to managing those chronic systemic issues.

INVESTMENT IN RESILIENCE

- Historically we have invested 5% in mitigation. After the NFNQ Monsoon Trough 2019 however we are looking at closer to 20%.
- Funding in resilience has historically been event driven: a disaster has highlighted a particular need and investment has followed linked to that.
- The demands on response and recovery shouldn't get in the way of investing in disaster resilience beyond the breadth and scope of particular disaster events. We need to make sure that we prioritising our investment in the things that really matter.

A SUMMARY OF THE ISSUES/SOLUTIONS FROM THE OPERATIONS BREAKOUT GROUPS

The summary below represents reflections from discussions held by four separate breakout groups and includes issues associated with improved infrastructure planning, the logistics of emergency service provision and opportunities for remote or virtual community engagement.

IMPROVED INFRASTRUCTURE PLANNING REQUIRED

- A number of comments were made regarding the need for emergency services to work with State planning authorities to ensure that future infrastructure is appropriately located so as not to increase community risk and that existing infrastructure, where exposure and risk are high, be examined for structural mitigation opportunities. Some examples were mentioned where restricted access or routine flooding were ongoing risks.
- Participants mentioned more active participation in climate change mitigation as a way of ensuring that extreme event frequencies and intensities do not continue to increase to a point where response

strategies are ineffective. It was identified that as Australia spends more time in disaster response or recovery, there is a risk that long-term extreme event mitigation strategies like emissions reduction are ignored.

THE LOGISTICS OF EMERGENCY SERVICE PROVISION HAVE CHANGED

- Participants recognised the vital role that volunteers play in supporting emergency service provision, but the current COVID-19 pandemic does present significant challenges in managing the risk of infection, especially when these volunteers may come from 'hotspots' or are from higher risk groups (many volunteers come from at-risk age groups).
- They also commented on the impact social distancing was having on the immediate capacity of response teams, as the number of staff arriving in response vehicles is reduced to adhere to social distancing rules.
- Other new challenges include:
 - Developing new disease management strategies for interstate emergency services staff and volunteers to maintain safe social distancing.
 - Managing alternative strategies for accommodation and meals for both staff and the community. Traditionally people shared rooms and even rotated sleeping in the same beds. This is not possible now and so managing the logistics has become much more challenging.
 - Changes in the way training of staff and volunteers is delivered, with more online course needing to be developed. There was some concern about the limits to effectiveness of on-line courses. Involving professional online course developers might be required in order to provide a broad range of options for teaching and community engagement.
- In the last two to three years, Incident Management Team structures have changed to deal with more rapidly occurring extremes. Whilst Headquarters (HQs) still plays a pivotal role in managing an incident, there is now an increased number of field "Incidence Management Teams" (IMTs). These teams are deployed with operational command vehicles/personnel and are setup in staging areas - fully equipped with radio, whiteboards etc.
- One of the challenges identified with IMTs is, that particularly in the case where multiple agencies are involved, different levels of COVID social isolation requirements amongst agencies and different criteria for declaration or revocation of lockdowns means that co-operation becomes more complex.
- To ensure successful co-operations between agencies involved in IMTs, some consensus will be required on a single/consensus approach to managing COVID whilst responding to the emergency.

A QUESTION POSED BY PARTICIPANTS: "WHAT WILL INTER-STATE ASSISTANCE LOOK LIKE IF WE HAVE THE POTENTIAL FOR FLOODING TO OCCUR IN ALL THREE EAST COAST STATES AT THE SAME TIME AND EACH STATE HAS SLIGHTLY DIFFERENT COVID-19 MANAGEMENT REQUIREMENTS?"

- In addition to IMTs some emergency services groups have developed a procedure to establish virtual relief centres and/or drive-through relief centres. In the case of the virtual centre online arrangements can be made for members of the public seeking accommodation. The drive-through relief centres operate in the same way but members of the public arrive at a relief centre and arrangements are made by the relief centre team. Both the virtual and drive-through approaches are not mutually exclusive and could be coupled to great effect.

- The participants recognised that the management of relief centres is now more complex given individual community member behaviours and response towards social isolation and sanitation procedures. There is a need to focus on keeping staff safe and mitigating risk when there is an evacuation. Within the context of the drive-through relief centres, a “gating system” has been established to hold people in their cars, until accommodation can be confirmed.
- Some attempts have also been made to run relief centres virtually, with support delivered online. This has worked for fairly routine interactions but does tend to breakdown when individual’s needs are complex.
- Key strategies for managing IMT’s and relief centres:
 - Safe management of the workforce – understanding that some people may be at higher risk for COVID, making sure that’s managed appropriately, keeping social distancing and if social distancing cannot be maintained then employ more rigorous screening, more PPE made available to staff and the community.

COMMUNITY ENGAGEMENT STRATEGIES HAVE ALTERED

- Changes in emergency services community consultation strategies are required in order to adhere to COVID-19 restrictions. A greater reliance on online tools, forums and virtual meetings is required in order to minimize risk to communities whilst providing key information.
- There may be limitations with training as this may require face-to-face contact to be effective.
- Participants mentioned that a tiered system of engagement should be adopted in order to ensure that as many members of the community are engaged as possible. This should include virtual meetings, recorded messaging, telephone and SMS based approaches. Some teams have employed targeted social media with particular communities at risk and utilised private Facebook groups, Whatsapp etc. to get the preparedness messages out.
- One individual did mention that further learnings could be employed from remote student learning. The courses start with text and still images, add text based forums, recorded videos, and lastly live video. The earlier are asynchronous and the latter synchronous. The latter requires more bandwidth, both technical and individual. <https://blog.highereducationwhisperer.com/2020/03/designing-in-online-learning-option.html>
- The participants highlighted that the need for “just in time” messaging has increased. As these extreme events evolve more rapidly it will be critical to use as many communication channels as possible to contact the community – social media, print, radio etc.
- Some participants mentioned the need to look at a much broader approach to community communications, looking at interesting and engaging ways to increase people’s awareness of flood risk (e.g. visualisation, animation, story-telling), trying to keep it interesting but not alarming e.g. www.myfloodrisk.nsw.gov.au.
- COVID-19 has changed some of the messaging around seeking safety from an event. Messages from a number of emergency service’s groups was that, if possible, people should go to stay with friends and family instead of evacuation centres, if they need to leave.
- Other challenges that were identified:
 - Previously emergency services teams were able to call a meeting of up to 150 people. But now no longer to get people together to educate them in person.
 - COVID now means that groups of volunteers can’t train together and have to be split up. This has served to undermine team cohesion.
- An additional volunteering model was proposed for community-based communications. Virtual community interactions could be hosted by a Zoom or similar platform, licensed for a limited number

of community engagement practitioners to help deliver the info to the communities. The ABS are currently looking at developing a communication platforms to work with staff from home, and also to manage the next census (requires an extra 35000 casual staff). Some learnings from what they are doing might be relevant.

- Other methods that are currently being tested for enhanced community communication are:
 - phone tree and radio for rapid deployment of information,
 - live feed flood level reports marker,
 - emergency flood warning apps.