HAZARD NOTE

bushfire&natural
HAZARDSCRC

ADDRESSING CONFLICTING CUES DURING NATURAL HAZARDS: LESSONS FROM EMERGENCY AGENCIES

ABOUT THIS PROJECT

This study forms part of the *Effective risk and warning communication during natural hazards* project, applying well-established risk communications and psychological theory of human behaviour to examine the effectiveness of response and recovery communication in communities affected by natural hazards.

AUTHORS

Dr Paula Dootson, A/Prof Dominique Greer, Prof Vivienne Tippett and Dr Sophie Miller, Queensland University of Technology. Contact paula.dootson@qut.edu.au

▲ Above: THIS RESEARCH OFFERS STRATEGIES THAT EMERGENCY AGENCIES COULD USE TO MINIMISE THE NEGATIVE EFFECT OF CONFLICTING INFORMATION DURING A NATURAL HAZARD. PHOTOS: BUSHFIRE AND NATURAL HAZARDS CRC.

SUMMARY

Australia's emergency services agencies face immense challenges when responding to natural hazards, including the challenge of conflicting cues. In *Hazard Note* 59 (Dootson *et al.*, 2019) evidence was provided for the impact of conflicting cues on protective action intentions in the Australian context. This next phase of research explores strategies that might mitigate the negative effects of conflict between emergency warning instructions and socio-environmental cues to encourage protective action. A sample of 11 end-user representatives from Australian emergency services agencies were invited to participate in an interview. Participants worked in, or closely with, communications or public information teams. Representatives comprised of participants from New South Wales, Victoria, Western Australia, South Australia, Queensland and Tasmania.

Results show that conflicting cues do exist in practice, and while a lot of these conflicting cues are outside of agency control, there are strategies that agencies can employ to minimise the creation and extent of conflicting cues that are present during a natural hazard.

These strategies may be one of two categories. The first is **proactive strategies**, such as provision of public information and warnings training for media, volunteers, staff and stakeholders, together with formal partnerships with stakeholders to coordinate messaging, generating content to meet real-time media and community needs to inform protective action decision making, and cross-jurisdictional deployments.

The second is **reactive strategies**, such as dedicated monitoring online (e.g. social media platforms) and offline (e.g. town halls, radio) roles during events, embedding the agency in community groups, using technological solutions for warning design, and verifying visuals.

This research offers lessons from emergency services agencies about what works to minimise the negative effects of conflicting cues during a natural hazard.

CONTEXT

This project responds to the concern that people do not always act in a timely or appropriate way in response to official warnings about natural hazards. Many will tend to verify official warnings with other sources, which are sometimes in conflict with the instruction the lead agency is issuing. These conflicting cues exacerbate the largely unintentional noncompliance with emergency warning instructions.

BACKGROUND

Public information is as much a frontline job as the operational responders.
    - (Interviewee D paraphrased)

As discussed in detail in *Hazard Note* 59, emergency services agencies face the ongoing challenge of encouraging people to take protective action during a natural hazard. In addition to the inherent uncertainty of a natural hazard, emergency services agencies are not the only source of information the public uses when

considering how to respond. When the community perceives that social cues, such as what is being shared by the media, and environmental cues, such as the weather outside, are in conflict with the formal instruction agencies are issuing, it creates uncertainty about the right action to take and the perceived urgency of when to do it. Previous research found that conflicting cues have an impact on how the community might respond during a natural hazard (Dootson *et al.,* 2019). This *Hazard Note* explores strategies that agencies could employ to minimise the effect of conflicting cues on the instigation of protective action.

RESEARCH FINDINGS

EVIDENCE OF CONFLICTING CUES IN PRACTICE

The participants verified that there was evidence of conflicting cues, specifically conflict between the instruction being issued by the lead agency and socio-environmental (weather, media, unofficial organisation and peers) cues. The participants also identified an additional source of conflict – when the lead agency issued conflicting instructions to a community or when the warning language itself was in conflict with the specific instruction. Examples are provided in the table on the following page.

STRATEGIES TO MINIMISE THE IMPACT OF CONFLICTING CUES

The issue of conflicting cues was present for all agencies to varying degrees. A review of all interviews suggests that agencies with formal strategies or policies in place, to proactively or quickly react to conflicting cues, were better placed to mitigate the negative impact of conflicting cues present in an event.

PROACTIVE STRATEGIES

Training for media, volunteers, staff and stakeholders

Volunteers and other staff rely on training to equip them to respond during an event. However, interviewees identified three clear challenges with the current training approach. First, pre-season training can mean that attendees have forgotten the content by the time an event comes around. The second challenge occurs during large scale events, where staff may end up working in an area that is not directly related to what they were trained in, or stakeholder agencies not trained in a specific area step in to assist with support tasks.

Opportunity: Consider designing in-situ (on-the-job) training for volunteers, staff, or other stakeholders who are tasked with roles that require updated or refreshed training (e.g. writing warnings), as not everyone adopting that role has the same level of experience.

The third challenge was the different training approaches for fire compared to other natural hazards. There are clear distinctions between how conflicting cues are managed across fire and wet weather (flood, cyclone, storm) hazards. While most agencies have protocols in place for emergency broadcasting, more specialised training is offered to the media for fire than wet weather hazards – for which there is almost no formalised training. Participants suggested this could be why we see visuals of journalists reporting from wet weather events and not from dangerous fire grounds. This could implicitly signal that wet weather events are less severe than fire events and possibly trigger public imitation, where other people think it is ok to go outside to watch the cyclone or flood.

Opportunity: Agencies could explore replicating the comprehensive training and procedures for media reporting in fire events for other weather events (including flooding and cyclone), as training, policies and procedures in the fire context appear beneficial for curbing non-compliant behaviour during an event (i.e. being in locations against agency instructions or sharing content in conflict with agency instructions).

Formal partnerships with stakeholders to coordinate messaging

Most agencies have formal arrangements in place to involve certain agencies or media in their incident control centre. However, some are supported by more efficient processes than others to ensure a coordinated response in key talking points, incorporating additional insights for public information, and feeding media with timely content to design-out opportunities for media to get in harm's way to get footage of the event. Where formal partnerships were not in place, interviewees explained they would reactively contact the media outlet or community group and request the conflicting image or message be removed or changed to better match the warning or threat level that agencies were signalling.

Opportunity: Where more formalised relationships with stakeholders are not common practice, agencies could explore how similar formal arrangements might be operationalised. This could remove duplication of tasks and reduce time for information to flow through shorter communication channels, minimising the impact of conflicting cues. Resource constraints could also be mitigated if stakeholders empowered specific staff to be the voice of the event.

Generating content to feed media and community informational needs

Interviewees reported proactively deploying incident photographers, capturing videos from helicopters and response vehicles, and disseminating that content to meet real-time information needs about the hazard severity, status and progression. Proactively generating content has several benefits, for example, reducing the need for the verification of user-generated content from community or media and avoiding the over-reliance on using outdated event imagery. Visual content specifically helps to reduce the conflict between an emergency warning and an absence of environmental cues (i.e. smoke, fire, rain, wind) – a conflict that can cause confusion in the community. However, interviewees stressed that, in the absence of appropriate resourcing, it was difficult to generate enough variety in content to keep up with the real-time information needs of the media and the community.

Opportunity: Agencies could explore what the proactive generation of new, educational and behind-the-scenes event content might look like in their jurisdiction. However, more resourcing is required for agencies to proactively meet the informational needs of media and the community during an event. One suggestion is to include this as an additional role for volunteer brigades and units as part of formal intelligence reporting.

Cross jurisdictional deployments

There is value in staff from media, communications and public information teams being deployed to other jurisdictions during events, to learn from one other about what is working and what is not. Interviewees each had their own stories of deployment and agreed it was valuable to build capabilities in areas that had less resourcing than their home agency and to learn from

CONFLICTING CUE	EXAMPLE
Conflict with environmental cues	We [provide visuals] fairly well but we're not always able to do it. Cyclones are probably a good example … I think **people were under a red alert for a long period of time,** it was more than 24 hours … Because it was so huge, some people weren't experiencing crazy winds, and they were like, **'well, it's not that bad and why am I under a red alert?'** … So, if we were able to give them visual evidence of what was actually happening within that area, I think continuing to do that will really help us. (Interviewee B).
Conflict with social cues from the media	… but we do find situations where people are **standing in places where we just don't want them to be.** So, whether they're reporting on these high intensity winds and they're saying emergency services are telling everyone to stay inside but they're standing out in the weather. Or **emergency services are telling people not to drive through flooded waters and they're filming all the crews driving through flooded waters and all the people driving through flooded waters. That's what they're choosing to broadcast. Playing in drains is another big one** for us. So, kids playing in drains. As soon as people see that on TV, someone thinks it's a good idea and then the drain rescues go up. (Interviewee H)
Conflict with social cues from an unofficial organisation	… we have these informal sorts of information that community go to … like a storm chaser's type … Facebook page for example … they might have a large number of subscribers and they'll push out information ahead of a weather event, so in the days **leading up to a weather event that's not necessarily aligned to what we're saying,** so they might over-blow the weather event, or they might **inadvertently question what we're telling the community** by saying words to the effect, oh, "it's not [going] to be that bad, yes; or **government are overdoing it**", whatever it might be. (Interviewee K)
Conflict with social cues from peers	… we had one instance at the [fire name withheld], where they were **told to shelter-in-place** … So a lady sheltered-in-place, however she then **saw all of her neighbours leaving** and the power had been disconnected … So it was a really interesting example of how **she actually read it correctly and was doing what we told her to do, and everyone around her was leaving. So that made her question us and her decision**. (Interviewee A)
Conflict with cues from the agency itself	… the incident management system … can **conflict [with] what's on a warning because the definitions of 'under control' in the context of our responders can be different to what obviously the community think.** Because 'under control' in a fire context means the crews I have on scene are sufficient. But that doesn't mean the fire is not still burning and doing stuff … **there'll be an advice icon and then also there'll be the incident icon. One will say 'under control', or one will say 'not yet under control'**. So whenever we see that, we then get that sorted, but that does happen sometimes. (Interviewee E)

▲ Table 1: EXAMPLES OF TYPES OF CONFLICTS, AS REPORTED BY INTERVIEWEES.

those coming from agencies that had more resourcing.

Opportunity: Where possible, agencies could continue and expand opportunities for cross-jurisdictional deployments, to share lessons from events in real-time.

REACTIVE STRATEGIES
Dedicated monitoring roles during events
Some interviewees from agencies with more resourcing explained their monitoring practices during an event, which help to identify when conflicting cues are present and enable swift intervention to reduce the negative impact on community decision making. Not all interviewees had resourcing to constantly monitor the information being

circulated either online or in-person at evacuation centres or town hall meetings. Some tried to overcome these resourcing constraints by relying on the public to self-correct.

Opportunity: Agencies could develop a designated monitoring role during an event, to rapidly identify and address instances of conflicting cues that may lead to poor decision making in the community.

Embedding the agency in community groups
There were divergent views and practices across interviewees on whether an agency will actively identify, join, and contribute to community groups (e.g. on Facebook) as

part of the monitoring or public information roles. The variety of existing approaches reflects the divergent resources available to agencies in different jurisdictions, or the cultural perspective of the agency. Some agencies choose to watch the community self-correct, while others take a light-touch approach by directing the community back

to the one-source-of-truth point. Some agencies only interact via their own platforms (e.g. their official pages), while others will join community pages to monitor or push out information and engage in two-way communication with the community.

Opportunity: Agencies could explore the implementation of consistent approaches for how to engage with community groups across different jurisdictions. Some agencies have asked for better guidance on how to identify who to connect with at a local level to make sure the right community members can champion the warnings and public information provided in an event. This request applies to online (i.e. social media groups) and offline (i.e. local football clubs).

Using technological solutions for warning design and verifying visuals
Some participants described their warnings platforms as useful to design warnings in a programmatic way, but sometimes this comes at the cost of being able to adjust the warnings to better match the information needs of the community.

Opportunity: Agencies could review the warning platform systems across all jurisdictions to better enable a balance between standardisation of warning design and flexibility in providing information that the community needs in a rapidly evolving complex event. A system that can integrate across jurisdictions would also assist with reducing conflicting cues between agencies in large scale events.

While monitoring is proposed as a strategy to spot images being used from a previous natural hazard, the verification of these images is recognised as a resource-intensive, manual task that is not possible for all

agencies. There are many image-verification tools that are free and publicly available. However, they require time, skill and literacy that may not be available to all agencies, and few interviewees had used these tools. None of the agencies interviewed discussed the use of paid tools to verify images circulated during an event.

Opportunity: The Verification Handbook (Silverman 2014) is a useful, publicly available tool for verifying images during emergencies, providing information and tips from journalists and aid-responders on how to verify user-generated content during emergency coverage. The handbook and associated tools could be adapted to align with agency specific policies and the Australian Institute of Disaster Resilience handbook series (AIDR 2020), which currently includes products such as the Public Information and Warnings Handbook and Choosing Your Words Guidelines for effective communication during natural hazards. Further, agencies themselves could identify locations and dates in images that they use, as a demonstration of best practice.

CONCLUSION

There is no 'silver bullet' to managing conflicting cues, and resourcing will always be a constraint that agencies must operate within. The shared lessons here cumulatively work to minimise the negative social, physical and economic consequences of conflicting cues that impact decision making. To continue the peer learning offered in this *Hazard Note*, agencies could explore implementing evaluation processes that are inclusive and accessible by multiple agencies for lessons to be shared across the industry during and following events. Emergency service agencies and the media will need to

continue collaborating to manage conflicting cues to ensure the community can make the best decisions with the information they have.

HOW THIS RESEARCH IS BEING USED
This study is part of a broader project being undertaken in four phases. The first phase – as presented in *Hazard Note* 59 – sought to identify whether there is a conflict between emergency warnings and cues from other sources, for example, the environment, media, unofficial sources and peer groups. The second phase – as presented in this *Hazard Note* – explores interventions to mitigate the negative effects of conflicting cues to improve protective action. The third and fourth phases of the project are translating these findings via briefings and workshops, and develop strategies with end-users to optimise emergency warnings and encourage community compliance.

FURTHER READING

Australian Institute of Disaster Resilience (2020), Australian Disaster Resilience Handbook Collection. Retrieved from knowledge.aidr.org.au/collections/handbook-collection/.

Dootson P, Greer D A, Tippett V, Miller S (2019), Conflicting cues with emergency warnings impacts protective action, *Hazard Note* 59, Bushfire and Natural Hazards CRC. Available at www.bnhcrc.com.au/hazardnotes/59.

Silverman, C (2014), The verification handbook: ultimate guideline on digital age sourcing for emergency coverage. Maastricht: The European Journalism Centre. Retrieved from verificationhandbook.com/downloads/verification.handbook.pdf.