HAZARD NOTE

COMMUNICATING FOR MAXIMUM COMPREHENSION

ABOUT THIS PROJECT

This project, *Creating effective multi-channel communication during disaster response and recovery*, adopts a multi-hazards approach to examine the effectiveness of response and recovery communication in communities affected by natural hazards. It applies well-established risk communications and psychological theory of human behaviour to determine whether existing emergency messages could be revised to improve comprehension. The project is part of the *Communication and warnings* cluster.

AUTHORS

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▲ Above: THIS RESEARCH IS LEADING TO HELPING PRODUCE BETTER EMERGENCY WARNINGS. CREDIT: NSW RURAL FIRE SERVICE

SUMMARY

Natural hazards, where risks are often high and lives and property are at stake, raise considerable uncertainty and anxiety in the community (in this context, community comprises individuals, groups and businesses). Providing the community with information that is designed to instil specific preparation and response behaviours is an important strategic activity for emergency services providers. This research has investigated a body of risk communications and psychological theory to determine whether well-established, theoretical principals could be applied effectively in warning messages for natural hazards. For example, the principles of risk-information seeking and processing, and protective action, have been used to shape warning messages that are tested to ascertain people's understanding. That is, to establish what their 'takeaway' is from emergency warnings. Emergency management agencies continue to revise their messages, but preliminary tests in simulated settings suggest that community comprehension of emergency messages can be improved by using these principles. However, field testing is needed to determine whether or not improved understanding and good intentions actually translate into actions that minimise risks to people and property, through better preparedness or other responses.

CONTEXT

Devising and delivering natural hazard information and warnings that prompt community members to take protective action is a continuing challenge for emergency management agencies. This project shows how to apply principles from risk communications and psychological theory to warning messages.

BACKGROUND

Why do individuals behave in unanticipated ways when faced with high-risk natural hazards? Why, for example, do people drive through flooded causeways or attempt to stay and defend indefensible properties in the face of bushfire? Why do people ignore official emergency instructions and rely instead on their friends' local knowledge or the opinions of family members?

Human behaviour is complex, and it is well established that during times of high stress decisions can often be illogical and unpredictable. Consequently, emergency service organisations devote significant resources to designing and delivering risk and warning communications that persuade Australians to respond to natural hazards

with specific and immediate behaviours. These warnings, which vary from simple messages (not driving through floodwater) to complex messages (how to safely evacuate from a hazard-affected area), are designed to protect community health, welfare, and safety. The Protective Action Decision Model (PADM), however, shows that an individual's decision to take a protective action is shaped by many cues. Stimuli from the environment (for example, smelling smoke, seeing torrential rain), the behaviour of others, and official warning messages all combine to elicit a perception of threat. A lack of exposure to, attention to, and comprehension of these cues interrupts protective-action decision making.

The unpredictable nature of natural hazards makes the composition and issuing of warnings even more complex. Some warnings encourage people to take protective action for events that may never occur, or may happen far into the future. Incentives for specific behaviour work best when they are offered close to an event. With a plethora of message sources and channels to choose from, 'cut through' of trusted

source information and instruction is critical.

In this complex environment, it is not feasible to determine linear relationships between a specific message and an individual's behaviour, and such relationships could not be ethically tested in live environments. However, overcoming any issues of exposure, attention and comprehension should result in better protective action decision making.

BUSHFIRE AND NATURAL HAZARDS RESEARCH

The findings reported below are the summarised result of five years' of multi-method research. Methods for data collection have included community consultation; simulated lab-based testing of message comprehension; and consultation with message developers across many agencies nationally.

Established theory, based on multiple research sources, suggests that the following principles could maximise comprehension:

- Community members often struggle to understand operational or technical language; this difficulty limits their
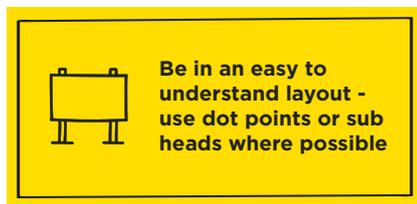
ability to process the information. Messages that use plain English are more likely to be understood and used in decision making.

- Editing devices such as dot points and sub headings help community members to more quickly understand messages and then retain the information for longer. Simple changes to message layout can increase community attention to official information and its use in decision making.

- Community members are more likely to attend to and act upon messages that personalise risk.

- Community members are more likely to comply with an instruction when it is issued by a credible source that the recipient regards as a legitimate and expert authority. However, an individual may not always see the lead emergency management agency as that source during a hazard, despite its official role.

- Being exposed to many possible cues and having access to multiple sources

▲ **Above:** THE RESEARCH TEAM IS CONTINUING TO WORK WITH EMERGENCY SERVICES TO EVALUATE WARNINGS AND HELP IMPROVE COMMUNICATION. CREDIT: NATHAN MADDOCK, BUSHFIRE AND NATURAL HAZARDS CRC

To maximise comprehension, warning messages should:

Be in plain English

Be in an easy to understand layout - use dot points or sub heads where possible

Group related information together

Personalise risk

Be issued by a credible source

Cover the hazard type, severity, likelihood, possible consequences, location and timeframe

Link to other credible sources of information

▲ Figure 1: TO MAXIMISE COMPREHENSION, WARNING MESSAGES SHOULD FOLLOW THESE GUIDELINES.

END-USER STATEMENT

This long term research project by the Bushfire and Natural Hazards CRC comprehensively investigates the complexities of emergency communications. Emergency service agencies face ongoing challenges in how to devise warnings and information that prompt communities to appropriately prepare for and respond to disasters. This involves a fundamental issue: what factors will influence communities at crisis points, when their capacity to act rationally may be impaired? The research results are highly valuable in addressing this, and provide emergency service agencies with sound principles to follow. These include using clear, direct language, structuring information in easily understood formats, and linking agency communications to other credible information sources. All of these strategies, and others the research covers, will help people to quickly make sound decisions that could save lives and property. QFES will continue to incorporate the principles highlighted in this evidence-based research in its emergency warning and information communications.

– Hayley Gillespie, Executive Manager Media, Queensland Fire and Emergency Services

of information increases the likelihood that community members will be exposed to a warning and triangulate that information to make an informed decision to act.
- Providing information about the hazard's nature (that is, its type, severity, likelihood, and possible consequences), location and timeframe enhances hazard knowledge. This, in turn, shapes risk perceptions, improves the likelihood of message compliance and counteracts sensational information sources.
- Emergency warning messages can provide direct links to other credible sources of information, such as the Bureau of Meteorology, and thereby significantly influence community members to take protective action.
- Grouping related information together helps community members to process information more efficiently during

times of high cognitive load.
Together, these principles increase the attention to and understanding of official warning messages during natural hazards.

HOW IS THE RESEARCH BEING USED?

The researcher team is working with emergency management agencies around the country to reconfigure and revise their emergency warning messages based on the above principles. This includes being involved with specific agencies as well as in the current redevelopment of the national communication doctrine.

FUTURE DIRECTIONS

The emergency management sector will require field testing of the revised messages that use these principles. Developing an evidence base for positive change that improves community compliance will be challenging.

Some of the most significant dilemmas that remain a challenge are:
- It is unlikely that the community will fully comply with instructions during an event. People facing complex individual, social and environmental circumstances may understand the message, but may not be in a position to respond appropriately.
- It is very difficult to identify acceptable metrics to measure improvements to communication strategies (such as whether improved community comprehension influences actual behaviour during these events).
- Balancing community expectations of operational responses and their own personal responsibility for preparation and action is an ongoing challenge.

These issues will continue to test the emergency services sector, despite their deep commitment to continuous improvement.

▲ **Above:** ISSUING WARNINGS THAT PROMPT PEOPLE TO TAKE PROTECTIVE ACTION IS A CONSTANT CHALLENGE FOR EMERGENCY MANAGEMENT AGENCIES. CREDIT: MARK THOMASSON, CFS

FURTHER READING

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