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WHAT CAN WE IMPROVE NOW TO PREPARE FOR FUTURE CATASTROPHIC AND CASCADING DISASTERS?

ABOUT THIS PROJECT

This *Hazard Note* presents key findings from the *Catastrophic and cascading events: planning and capability* project, which began in 2017 and was completed in 2020. This research focused on understanding the increasing and catastrophic risk associated with cascading disasters in Australia, and how to better legislate and integrate the management of this risk. Researchers created a capability and maturity assessment tool that can be used to measure resource needs in states and territories.

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SUMMARY

While a truly catastrophic disaster is by definition unmanageable, emergency managers can still help reduce loss of life and property and assist in sustaining the continuity of affected communities.

This research aimed to improve the way catastrophes are planned for in Australia by proposing an all-hazards, nationwide whole-of-community approach. It has improved the way catastrophes are planned for in Australia by exploring the views and perceptions of Australian and international emergency managers on how best to prepare for the inevitability of catastrophic events and helping to influence legislative and policy reform to decrease risks associated with catastrophe. It highlights the need for clear definitions of what catastrophic disasters are, and how the risk associated with them can be better planned for and managed. Researchers questioned the efficacy of



▲ **Above:** THIS RESEARCH HELPS IMPROVE THE UNDERSTANDING OF INCREASING CATASTROPHIC AND CASCADING DISASTERS IN AUSTRALIA AND HOW TO BETTER MANAGE THE ASSOCIATED RISKS. PHOTO: ANGUS VEITCH, BRISBANE QLD, 2011.

traditional risk management approaches and propose an all-hazards, nationwide whole-of-community approach that integrates business and community organisations.

A key outcome of this project is the Capability Maturity Assessment Tool that can be used by government departments, emergency services and other organisations with emergency management responsibilities to assess whether they have adequate capability to deal with catastrophes.

Researchers also worked closely with government departments such as

Emergency Management Australia - Home Affairs to develop a National Preparedness Framework and to further influence the improvement of disaster law in Australia. The research contributed to the findings of the Royal Commission into National Natural Disaster Arrangements.

This research was predominantly undertaken prior to the COVID-19 pandemic and did not explicitly assess planning and preparation for health emergencies. However, key findings can be applied to the context of the COVID-19 response.

CONTEXT

Numerous reviews have concluded that Australia is ill-prepared to cope with catastrophic disasters. A previous review of Australia's preparedness for a catastrophic event concluded that planning has historically been seen as an extension of existing emergency management arrangements rather than a specific focus in its own right. While a truly catastrophic disaster is by definition unmanageable, emergency managers can still help reduce loss of life and property and assist in sustaining the continuity of affected communities. However, business-as-usual response strategies that work for smaller, more frequent events will not be enough in truly catastrophic circumstances. By necessity, community members become first responders, and often the success of the response relies on the capacities already present in communities.

BUSHFIRE AND NATURAL HAZARDS CRC RESEARCH

This project focused on the following research questions:

- What is the nature of catastrophic disasters and how are they conceptualised in the Australian context?

- What has been the historical frequency of compound disasters in Australia?
- What are the most appropriate practices to implement now in order to plan and prepare for future catastrophic disasters?
- How can the whole community (including businesses and community organisations) best be incorporated into planning and preparedness arrangements for catastrophic disasters?

Researchers cooperated with emergency managers from all Australian states and territories, as well as international experts, to complete:

- a literature review that summarised existing research evidence regarding better practice approaches for planning and preparedness in the context of catastrophic disasters
- wide-reaching interviews and surveys (n=363) with Australian community organisations and businesses, and Australian and international emergency managers (n=339), to collect their views regarding preparedness for dealing with catastrophic disasters
- a legal analysis of existing Australian legislation and case law regarding the Commonwealth's power and role

when responding and recovering from a catastrophic disaster

- content analysis of the involvement of the top 100 companies on the Australian Stock Exchange and the top 100 New Zealand companies (by number of employees) in disaster management, which were examined for response or recovery activities in relation to specific disaster events
- analyses of historical compound disasters utilising existing disaster loss databases
- an analysis of crisis leadership during 1974's Cyclone Tracy
- the development of the Capability Maturity Assessment Tool that can be used at both a national and state/territory level to provide an overview of how to improve preparedness for severe-to-catastrophic disasters.

RESEARCH FINDINGS

The results from this project support existing well-defined principles for disaster planning and risk reduction, however, it was found that these principles are not effectively implemented to develop plans that consistently inform decision making. Planning is being inhibited by cultural, knowledge and resource constraints dominated by reactive response-oriented approaches.

WHAT IS A CATASTROPHE?

A catastrophe is an event so big that it overwhelms existing social systems and resources and degrades or disables governance structures and operational decision making. These often occur with little to no warning, although this is not always the cause (such as with droughts). Catastrophes may have large footprints and do not respect borders, thereby muddying accountabilities amongst responding agencies, and conflicting public messaging.

WHAT ARE CASCADING OR COMPOUND DISASTERS?

Catastrophic events are cascading in nature. They escalate their impacts as interconnected systems fail successively, yielding yet further impacts and making recovery more complex and prolonged. Compound disasters, where a series of disasters occur at the same time or in quick succession, have occurred frequently in Australia and are associated with the highest seasonal losses of lives or infrastructure.

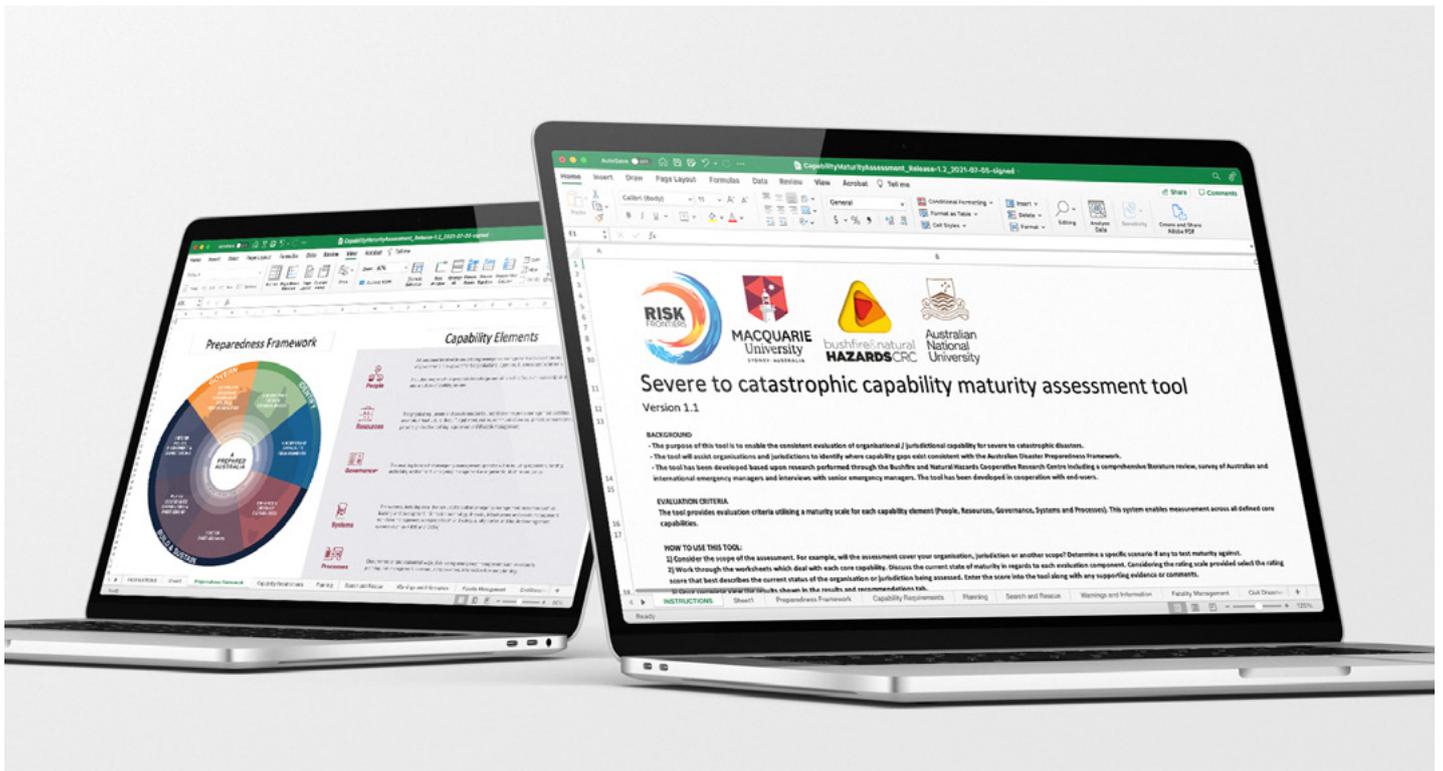


The Capability Maturity Assessment Tool

Researchers found a lack of knowledge in emergency management regarding collective capability requirements and gaps to manage severe-to-catastrophic disasters. There is need for a collective national view of future capability requirements to inform investment. The need for strengthening national coordination arrangements is reinforced by analysis of historical compound disasters, which shows that it is possible for numerous concurrent or sequential severe disasters to occur across multiple states and territories, resulting in potential resource conflicts across jurisdictions.

To enhance this understanding, researchers developed the Capability Maturity Assessment Tool, which can be accessed through the Policy, Political Engagement and Influence theme on the CRC's Driving Change website: www.bnhcrc.com.au/driving-change/policy-political-engagement-impact.

The tool was developed in collaboration with Emergency Management Victoria, Resilience NSW and Emergency Management Australia - Home Affairs (EMA Home Affairs) for use by government departments, emergency services and other organisations



▲ Above: THE CAPABILITY MATURITY ASSESSMENT TOOL, WHICH CAN BE ACCESSED THROUGH THE CRC'S DRIVING CHANGE WEBSITE: WWW.BNHCR.COM.AU/DRIVINGCHANGE/POLICY-POLITICAL-ENGAGEMENT-IMPACT.

with emergency management responsibilities to assess the current maturity of their capabilities utilising a series of criteria. It was built to align with the National Disaster Preparedness Framework. Criteria are structured around the Framework's capability elements of people, resources, governance, systems and processes and have been written based upon outputs of the research. It is in the form of an Excel spreadsheet and is easy to tailor to specific contexts.

Functions to support summary reporting have been incorporated. The tool can be utilised on a longitudinal basis to assist jurisdictions and organisations to measure and report on their preparedness.

A capability maturity assessment process has been developed to support the implementation of the tool. The process consists of workshop discussions with capability subject matter experts to benchmark specific capabilities utilising the criteria against severe-to-catastrophic disaster scenarios.

A whole-community approach

In Australia, there is no single approach to emergency management, with each state and territory maintaining its own unique frameworks, resulting in a lack of interoperability and inefficiencies relating to arrangements, systems, equipment and training. There is a strong need to

conceptualise catastrophes from a national perspective, given that they will require responses across Australian states and territories, at a federal level and most likely from international organisations as well.

Despite the recognition of the value of businesses and community organisations in the National Strategy for Disaster Resilience, emergency management approaches are based on an inadequate view of community organisation and business capabilities and the culture remains largely government centric. In practice, whereas the roles of government organisations are embedded in legislation and regulation, the roles of community organisations and businesses are less so. The 2019-20 Black Summer bushfires and the COVID-19 pandemic have seen heavy involvement from community organisations and businesses. Government though is hindered by its lack of structure to support formal cooperation and capacity to engage.

The results of this research support the principle of shared responsibility and proposes a whole-of-community approach that effectively integrates businesses and communities and recognises that emergency management is a shared responsibility. This approach, which is detailed in *Planning and capability requirements for catastrophic and cascading events – final project report* (Gissing et al. 2020, see Further Reading, page 4), recognises that

any severe-to-catastrophic disaster will involve whole-of-society responses.

Findings from this research suggest that an initial step towards a whole-of-community approach would be to replace the existing government-centric all-agencies framework with the whole-of-community approach and focus efforts on enhancing collaborations across government, community organisations and businesses.

HOW IS THE RESEARCH BEING USED?

The project adopted a collaborative approach, with end-users assisting to define utilisation outputs. Outcomes have been presented widely across media, workshops, conferences and industry events, such as CRC Research Utilisation Forums.

The Capability Maturity Assessment tool

The Capability Maturity Assessment Tool was used to conduct a capability maturity assessment of the NSW emergency management sector. The tool is available for wider use, including training and awareness-building activities, and can be accessed through the Policy, Political Engagement and Influence theme on the CRC's Driving Change website: www.bnhc.com.au/driving-change/policy-political-engagement-impact.

The researchers worked with EMA Home Affairs to promote the Capability Maturity Assessment Tool across

END-USER STATEMENTS

“This project provided a valuable resource to compare and validate many of the practical perspectives that were being raised when developing the Australian Disasters Preparedness Framework and from the outcomes of the scenario-based workshops. We will now look to further utilise knowledge and tools from the research in the implementation phase of the framework and policy development to prepare and plan for severe-to-catastrophic disasters.”

**Joe Buffone, Director-General, Emergency Management
Australia, Department of Home Affairs**

“The *Catastrophic and cascading events* project has undertaken research to explore opportunities to enhance planning for severe-to-catastrophic disasters. A major achievement of the project has been the development of the Capability Maturity Assessment Tool now being used by the NSW Capability Development Sub-Committee. I congratulate the project team for the completion of the research and the end-user engagement that has been achieved. The research and other outputs are already being used to inform state risk assessments and capability. I look forward to seeing further utilisation of the many outputs this project has been able to produce.”

Roger Mentha, Assistant Commissioner for Education and Training, Fire and Rescue NSW

Australia. A communications plan was developed in June 2021 with stakeholders to communicate the outcomes of the business and community involvement in disaster management research.

Policy reform and legislative reform

Research outcomes have been used to inform policies and approaches, for example, the implementation of the National Preparedness Framework by EMA Home Affairs, as well as a Model Commonwealth Emergency Management Act that would change Australian disaster law. Outcomes of the research were also presented as evidence to the Royal Commission into National Natural Disaster Arrangements and were used to inform the development of the *Flood Emergency Planning for Disaster Resilience Handbook* (AIDR 2020, see Further Reading, page 4).

FUTURE DIRECTIONS

Regarding the future coordination of emergency management, this research shows that emergency managers need to conceptualise how their service

delivery models will have to adjust to the overwhelming demand for services and the complexity of catastrophes, including how they will anticipate and work with community first responders. Emergency management organisations must define capabilities they are best able to deliver in support of wider community efforts. For other capabilities, planners should look to community-based sources to supplement those available within government and consider altering service delivery standards.

Severe-to-catastrophic disasters will require resources beyond the impacted state or territory. Although resources are already shared, there is a need to bolster approaches for agencies from different states and territories to work seamlessly together, including investments to enhance interoperability and to strengthen mechanisms of national coordination. The challenges posed by the COVID-19 pandemic has reinforced these findings. The Commonwealth’s role must also be defined by Commonwealth emergency management legislation as has previously been recommended (Eburn et al. 2019, see Further Reading, page 4).

FURTHER READING

Australian Institute for Disaster Resilience (2020) Flood emergency planning for disaster resilience, handbook, Commonwealth of Australia, available at <https://knowledge.aidr.org.au/resources/handbook-flood-planning/>.

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Gissing A, Timms M, Browning S, Crompton R & McAneney J (2021) Compound natural disasters in Australia: a historical analysis, *Environmental Hazards*, pp.1-15, available at www.researchgate.net/publication/352224903_Compound_natural_disasters_in_Australia_a_historical_analysis.

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Hazard Notes are prepared from available research at the time of publication to encourage discussion and debate. The contents of *Hazard Notes* do not necessarily represent the views, policies, practises or positions of any of the individual agencies or organisations who are stakeholders of the Bushfire and Natural Hazards CRC.

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