

Submission Number: NND.001.00624

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What is your submission based on? I am making this submission based on my professional knowledge, qualifications or experience or on behalf of a group or organisation
What is your area of professional expertise? [REDACTED]
If you are lodging your submission on behalf of a group or organisation, what is the name of the group or organisation?

Your Submission

In your experience, what areas of the bushfire emergency response worked well?
In your experience, what areas of the bushfire emergency response didn't work well?
In your experience, what needs to change to improve arrangements for preparation, mitigation, response and recovery coordination for national natural disaster arrangements in Australia?
On reflection of the recent catastrophic natural disasters (bushfires and COVID 19 pandemic), there are marked differences and similarities in the lead-up to, their severity and impact, and their overall management.
It could be argued that the lead-up to the bushfires could be measured in years, complicated by the prolonged drought and repeated reticence to undertake appropriate fuel reduction measures. There were indications throughout that a severe bushfire season was forthcoming, including the warning provided by 23 former emergency services leaders in April 2019, that Australia was unprepared for worsening natural disasters. The extent and severity of previous fire seasons leading up to the 2019 event also indicated worsening drought effects, increasing fuel loads and weather patterns favourable to extreme bushfires.
Similarly, the COVID 19 disease that emerged from Wuhan, China was predicted in a study published in 2011, with the recent outbreak first officially reported in December 2019. Early warnings of its dispersal rate globally and its severity were possible by mid January 2020. Whether or not such warnings would have been acted on given Australia's focus on bushfires is a separate matter.
What is missing is not only a national capability to predict, monitor and track natural disasters but also a formal process of official notifications, their reciprocal acknowledgement, responses and associated levels of accountability for each prescribed decision, action or indecision and inaction. Such formal arrangements would incorporate lessons learnt from previous natural disaster events and would also mitigate and account for the differing levels of experience inherent across and within agencies, departments and government.
[REDACTED]
Systems or parts of systems like an Indications and Warning Matrix already exist in various forms and functions, weather forecasting being an example. Natural disaster events lend themselves to be anticipated, through analyses of trends and patterns, that have identifiable key indicators or precursors that are suitable for warning purposes. Each natural disaster (from bushfire, drought, flood, cyclone, earthquake/tsunami to disease outbreak, epidemic or pandemic) could therefore have specific scenarios developed. Each scenario would generate a list of key indicators or precursors that point to that scenario developing or not. Each key indicator or precursor would generate a list of questions that information would then be collected against. When adequate information is collected that confirms a key indicator or precursor, a warning is generated. Each warning level will have an agreed-to prescribed corresponding action or decision that when taken or made will mitigate, prevent or at the very least reduce the severity, impact or both of that event. Depending on the natural disaster, the answering of questions against key indicators or precursors to the generation of warnings may take hours (earthquakes and tsunamis), days/weeks (cyclones and floods), months (disease outbreaks) or even years (bushfires and drought).
An Indications and Warning Matrix is capable of monitoring multiple developing events simultaneously, driven by the various scenarios, key indicators and precursors and the list of questions that form each information collection plan. Done optimally, an Indications and Warning Matrix could anticipate the potential for a bushfire and even predict its likely severity, while monitoring developing weather fronts that could lead to floods, at the same time reporting on disease outbreaks worldwide that could become epidemics or pandemics. This vigilant monitoring, reporting, management and maintenance requires an Indications and Warning Matrix supported by a robust IT support system capable of receiving and storing multiple data classifications, sources, sizes and types. It will require data feeds from all security classification levels as well as unclassified internet scraping services like the International Biosecurity Intelligence System (IBIS). For optimal effectiveness, an Indications and Warning Matrix would require 24 hours a day, 7 days a week, year around staffing.
An Indications and Warnings system capability at the national level will predict and forecast natural disaster events and likely severity, and

formalise the standard distribution of information to, and responses from, key stakeholders. Such forecasts and predictions will continue to improve as experience is gained over time. As it matures, a strategic Indications and Warning Matrix will provide governments, departments and agencies sufficient time to adequately prepare. A national, strategic level Indications and Warning Matrix will require federal and state government and corporate cooperation and contribution to be effective. Obvious agencies, departments and organisations (not inclusive) who would benefit from, and contribute to, such a system are listed at Appendix A. Like all intelligence tools and systems, formalised information sharing between all agencies and departments (through Memorandums of Understanding) will be pivotal to ensuring system effectiveness. Further, the National Disaster Risk Reduction Framework published in 2018, provides a foundation for the development of a national Indications and Warning Matrix.

A survey of key stakeholders who contribute to the management of bushfires and other natural disasters would confirm what, if any, "indications and warnings" systems already exist. These bespoke dedicated systems could be networked to establish an interim Indications and Warning System capability that could be brought to bear immediately on current and emerging national natural disasters. This interim arrangement will provide the time necessary for an organisation like the Natural Disasters Cooperative Research Centre to undertake the task of determining Australia's national natural disaster expectations, then developing likely scenarios in collaboration with each key stakeholder to ascertain appropriate key indicators and or precursors against each selected scenario. The Natural Disasters Cooperative Research Centre could also begin listing key questions against each indicator or precursor that would be incorporated into an information collection plan. To confirm the appropriateness of each developed scenario, indicator and question, the Natural Disaster Cooperative Research Centre could then wargame each scenario with assistance from the Australian Defence Force (through Headquarters Joint Operations Command) to confirm each scenario, or to generate alternative scenarios, key indicators and precursors, and key questions. Such wargaming will also ensure a robust Indications and Warning Matrix.

An Indications and Warnings capability reporting directly to the Prime Minister, or augmenting the Department of Home Affairs' Emergency Management Australia, the Natural Disasters Cooperative Research Centre findings could also be tasked to identify and recommend an appropriate department or agency most suited to establish the inaugural National Disaster Monitoring and Warning Centre.

Appendix A

List of suggested Agencies and Departments

Federal Government

1. Department of Home Affairs (Customs, Emergency Management Australia)
2. Geoscience Australia
3. Prime Minister and Cabinet (Natural Disaster Royal Commission)
4. Agriculture, Water and the Environment
 - a. Biodiversity Conservation Division
 - b. Drought and Bushfire Response
 - c. Bureau of Meteorology
 - d. Environment Compliance
 - e. Parks Australia
 - f. Fisheries and Forestry
 - g. Portfolio Strategy
5. Commonwealth Scientific and Industrial Research Organisation
6. Department of Defence (Estate and Infrastructure Group, HQJOC)
7. Department of Health

State Government

8. Rural Fire Service or Country Fire Authority (or equivalent)
9. Department of Primary Industries – Forestry (or equivalent)
10. State Parks Authorities (or equivalent)
11. Land Management (or equivalent)
12. Environmental Protection Authorities (or equivalent)

Corporate

13. Natural Disasters Cooperative Research Centre
14. Australian National University

Is there anything else you would like to tell the Royal Commission?

Do you agree to your submission being published? Yes I agree to my submission being published in my name