



*Alliance to Feed the Earth in Disasters Australia (ALLFED Australia) is an Australian charitable organisation (ACN: 665 711 151) and partner organisation of the Alliance to Feed the Earth in Disasters Institute (ALLFED), a global non-governmental organisation focusing on researching global catastrophic risks to food production and associated mitigation and resilience increasing strategies. ALLFED Australia focuses on research and planning efforts that increase the resilience of Australia's highly productive food system to global catastrophes. ALLFED Australia's mission is to ensure Australia can continue to feed its people and help feed the Asia-Pacific region no matter what catastrophes occur.*

Dear Department of Home Affairs,

On behalf of ALLFED Australia we appreciate the invitation to contribute our expertise to the critical task of reevaluating Australia's disaster resilience and capability development.

ALLFED's research on global disasters is motivated by analysis that disaster impacts are not evenly distributed and often have a long tail, where the largest disasters cause the vast majority of harm in expectation. In the context of Australia, this indicates that large-scale, national and international crises pose the most severe risks to the Australian populace. The COVID-19 pandemic provides evidence for this by resulting in fatalities 30 times greater than all bushfires in Australia's recorded history<sup>1</sup>. A comparison of this scale underscores the importance of focusing on catastrophic hazards in capability development.

Catastrophic risks, though often neglected in lieu of more frequent disasters, have a strong precedent and are known to cause major harm in expectation<sup>2</sup>. Though the term "unprecedented" is often used to describe the COVID-19 pandemic, this is not only historically inaccurate but also potentially symptomatic of a lack of preparedness at both state and federal levels. The recurrence of pandemics throughout human history, from the Spanish Flu to the Black Death, indicates that these events are not as rare as commonly perceived. Hence, the lack of specific plans for such eventualities is concerning.

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<sup>1</sup> [Understanding loss of life in bushfires - CSIRO](#)

<sup>2</sup> Expectation means consequence multiplied by probability.



Looking to the future it is important to ensure that policy frameworks such as the ACGMF<sup>3</sup> are expanded to ensure that the relevant capabilities to identify plausible catastrophic hazards and plan adequate responses exists. From pandemics to nuclear conflict, global armed conflict, and threats such as volcanic eruptions causing famines or extra-terrestrial hazards such as asteroid or comet impacts and solar flares, Australia's policy documents should not lack specific planning and capabilities for such risks. One particular risk of coincident extreme weather on multiple continents has about an 80% chance of reducing global food output by 1/10 this century<sup>4</sup>.

### **The Need for a National Risk Assessment**

ALLFED Australia strongly advocates for the initiation of a comprehensive National Risk Assessment that takes an all-hazards approach. Countries like the United Kingdom have recently completed their national risk assessments which could provide a model for Australia to consider. The UK's national risk assessment<sup>5</sup> considers a broad range of risks including catastrophic scenarios such as a severe pandemic (p. 161), a major volcanic eruption including resulting climate impacts (p. 136) and nuclear exchange resulting in climate impacts (p. 190). A robust risk assessment would ensure that we prioritise capabilities commensurate with the actual risks posed by different hazards, rather than disproportionately focusing on more common but less impactful risks. Focusing on smaller risks is tempting being familiar and easy to justify but continuing to ignore catastrophic risk will likely result in more harm to the average Australian who is 15 times more likely to die in a catastrophic event than a car crash<sup>6</sup>.

NEMA has an unprecedented opportunity to serve as both a national and global leader by treating catastrophic and existential risks with the seriousness they merit. By proactively developing strategies and protocols for handling complex and high-impact threats such as bio-terrorism or nuclear warfare, NEMA could serve as a catalyst for wider societal and governmental focus on these often-neglected risks.

While physical risk mitigations like flood levees and cyclone shelters are essential, their costs are significantly higher compared to planning and regular exercises. Developing and maintaining a national plan for various types of catastrophic risks across an all-hazard spectrum would be remarkably cost-effective in the context of NEMA's

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<sup>3</sup> [Australian Government Crisis Management Framework \(pmc.gov.au\)](https://www.pmc.gov.au)

<sup>4</sup> [Extreme weather and resilience of the global food system](#)

<sup>5</sup> [National Risk Register 2023 - GOV.UK](#)

<sup>6</sup> [What's the worst that could happen? - Andrew Leigh, 2021](#)



already-committed \$3.85 billion in recovery and risk reduction assistance. Diverting 10% of the \$400 million allocated toward risk reduction measures like flood levees and cyclone shelters<sup>7</sup> would allow development and exercising of plans for multiple of the highest expected harm risks identified by an all hazards approach. This would not only have high value in terms of lives saved but would also open avenues for identifying additional high-impact solutions and capability development opportunities.

### **ALLFED's Research and the Importance of an All-Hazards Approach**

ALLFED's extensive research on global catastrophic risks and their impact on food systems emphasises the critical need for an all-hazards approach to disaster preparedness. Our research has uncovered a range of resilient food production methods that are capable of functioning independently of traditional agricultural systems, which are often vulnerable to various catastrophic risks<sup>8</sup>. Examples include scalable seaweed production, microbial protein derived from methane gas or hydrogen, and repurposing pulp and paper factories for turning agricultural residues or wood into protein/carbohydrate production.

However, the practical implementation and cost-effectiveness of these resilient food strategies are significantly constrained if they are considered in isolation or only within the scope of specific hazard types e.g. 'natural' or 'human-caused'. A fragmented approach fails to address common failure modes, such as widespread loss of food production, which could be triggered by multiple catastrophic scenarios ranging from pandemics to nuclear conflicts.

An all-hazards approach not only permits but necessitates comprehensive planning for these common failure modes. By considering catastrophic risks through an all-hazards lens, highly impactful strategies that might not fit neatly into natural or human-caused buckets can be properly assessed and potentially integrated into broader disaster preparedness and response frameworks. This proactive and comprehensive approach would enable identification of high-impact risk mitigations that are both more effective and cost-efficient and thus provide the most value to Australians.

In summary this review offers an exceptional opportunity for the Australian government to build capabilities that address the full suite of risks that Australians are facing. While

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<sup>7</sup> [First year of NEMA: Better prepared and faster response for disasters](#)

<sup>8</sup> Research and peer reviewed articles accessible at: [ALLFED - Publications and reports](#)



catastrophic events will by definition rarely make the news and are thus easy to forget about, they still pose the greatest risk to Australians.

We are grateful to have the opportunity to provide input into the review and share knowledge gained from years of research on such risks. We thank you for your consideration and would welcome any requests for further information or clarification.

Respectfully,



Ross Tieman  
Director of ALLFED Australia



Kevin Rassool  
Director of ALLFED Australia