2024 Disaster Challenge Guide for Entrants

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1. THE WICKED PROBLEM

At the heart of society's approach to disaster resilience are the notions of shared responsibility and community-led action, backed by scientific evidence and lived experience. This requires informed, trusted and effective relationships between people and organisations involved in preventing, preparing, responding and recovering from disasters, including climate change.

There are many ways to build and sustain mutual trust, however trust can be eroded by the decisions and actions of people, communities and organisations. In its place people and organisations can be disconnected, communication can break down and cynicism, doubt, isolation and non-participation can grow.

When trust is challenged the foundations of disaster resilience are threatened.

THE CHALLENGE

In a world where trust is both vital and fragile, how can we build and sustain trust across our whole society to drive the collective and coordinated actions that are fundamental to reducing the risks and impacts of disasters, and strengthening the safety, sustainability and resilience of all Australians?

2. What is the Disaster Challenge?

The Disaster Challenge is a national challenge to encourage new ideas, new thinking and new research.

The Disaster Challenge calls out to early career researchers, postgraduate and undergraduate students across Australia – it is your chance to make a difference with innovative ideas and solutions for the wicked problems the country faces with natural hazards.

Hosted by Natural Hazards Research Australia with support from universities and emergency management organisations, the Disaster Challenge invites the best and brightest minds in our universities to put their creative talents into helping us solve the trickiest problems that surround how we deal with floods, bushfires, storms, cyclones and other natural hazards.

A wicked problem is one that is urgent, but difficult to solve because of incomplete, contradictory, or changing requirements that are often difficult to recognise or evaluate.

With a national final and prizes, what innovation can you and your team bring that Australia hasn't done yet?

2.1 How will it run?

The Disaster Challenge 2024 is hosted with support from universities and emergency management organisations. It will take place in three phases. The first phase is to enter your concept – we want to hear your team's idea for addressing the wicked problem.

Phase 1 – *Enter by 7 July.*

The judges will then review and select the best entries for the Disaster Challenge Final using the judging criteria. Up to three finalists will be selected.

Phase 2 – *Pitch development for finalists, from 29 July.*

To bring your ideas to life, finalists will be supported with academic and industry mentors to assist them to take their idea to the next level. If required, finalists will have access to equal financial, academic and creative support to get the best out of their ideas, as well as support for up to three members of each finalist team to attend the Disaster Challenge Final.

Phase 3 – *Disaster Challenge Final, 3 or 4 October.*

Finalists will come together in Western Australia at a special public event to pitch their brilliant ideas to a judging panel of disaster management experts.

2.2 Why enter?

Reasons to enter the Disaster Challenge

1. $5,000 cash prize – good ideas deserve to be rewarded!
2. Make a difference – the judges are involved in day-to-day management of natural hazards around Australia. Your ideas will help them work with communities to improve preparedness, resilience, save lives, protect property, keep people safe and recover better after disasters.
3. Boost your credentials – your entry may be used to support your current education or research, or to take it to the next level.
4. Make networks – the finalists will be supported and encouraged by professionals within the emergency management sector and by senior academics, with opportunities to showcase your idea at forums over the next 12 months.
5. Career advancement – work on real problems with industry mentors that can help you develop your concept
6. Unlock future opportunities in emergency management research

2.2.1 Prizes

The winning team will receive:

- $5,000 cash
- Promotion of their winning concept by the Natural Hazards Research Australia.
- The opportunity to work with the Natural Hazards Research Australia and its Participants to explore the winning concept further.
- Opportunities to showcase your idea at forums over the next 12 months.

Two runners up will receive $2,000 each per team.

The Disaster Challenge is about how you take your knowledge, your ideas, your thinking and your experience and make a difference to disaster management.

2.3 Who can enter?

- This is a team challenge. Entries must comprise of at least two individuals in a team.
- Early career researchers – up to five years post PhD or Masters (excluding periods of parental leave, other family caring duties or ill health), no matter their role or organisation within Australia. Does not need to be currently employed by an Australian organisation or enrolled at a university or TAFE, but postgraduate qualification must have been completed in Australia.
- Postgraduate students – you need to be enrolled with an academic institution such as a university or a TAFE in Australia. Students can be either full-time or part-time. Universities and schools within may field multiple teams or collaborate between universities.
- Undergraduate students – you need to be enrolled with an academic institution such as a university or a TAFE in Australia. Students can be either full-time or part-time. Universities and schools within may field multiple teams or collaborate between universities. Entries are encouraged from a range of academic disciplines such as humanities, education, health and medicine, information technology, engineering, visual arts, marketing, business, law, urban studies, architecture and more because natural hazards affect everyone in our communities.
- Participation is only open to entrants from organisations based in Australia, where the participant is also based in Australia.
- The Disaster Challenge aims to engage and inspire early career researchers, postgraduate and undergraduate students in relevant research and to encourage them to explore careers in natural hazards science, disaster management or community resilience.

Collaboration, diversity and inclusion

The Disaster Challenge aims to encourage as much diversity in solution designs as possible. Just as there are no single right answers to complex problems, the nature of the issued challenge demands teams look for highly innovative solutions. We particularly encourage applications from teams that include and represent Aboriginal and Torres Strait Islander people, women, culturally and linguistically diverse people, people with disability, LGBTIQ+ people, and people with family and caring responsibilities.

2.4 What are we looking for?

This is a research-informed challenge. It is about applying research knowledge to a wicked problem. Each entry will be evaluated against judging criteria. Your team do not need emergency management or disaster expertise. The Disaster Challenge is about innovation from all areas that can be used to benefit disaster management in Australia.

The problem is so wicked it does not allow for a simple response. Your entry needs to take into account the complexities of the problems, the trade-offs between various solutions, the people impacted for better or for worse, the costs involved and who needs to pay for it.

You are not expected to solve the entire problem. By their nature, wicked problems are notoriously difficult to resolve and cannot be solved in a single step. Instead, the Disaster Challenge is looking for ideas that can help Australia take a step in the right direction towards tackling this particular wicked problem.

2.4.1 Assessment criteria

Entries will be assessed on the following criteria:

1. ***Quality of the problem statement***, including the extent to which it is:
    - *Focused* – identifies a specific, real-world example of this wicked problem in practice that the submission seeks to address.
    - *Informed* – demonstrates why this specific example needs new and innovative solutions.
2. ***Quality of the proposed solution***, including the extent to which it is:
    - *Innovative* – no-one else has tried this, or it combines ideas in a new way in Australia.
    - *Impactful* – Australia needs this now and the benefit is clear.
    - *Credible* – based on sound evidence and academic principles.
    - *Adaptable* – it could work in different places in Australia.
    - *Affordable* – could be realistically achieved with a reasonable budget.
    - *Scalable* – it is good for big and small disasters.

- *Achievable* – there is a clear pathway to bring your approach to life, at least as a proof of concept.

Your entry should not:

- The Disaster Challenge is not just looking for better technological solutions – better fire hoses, more satellites, information websites or apps, warning and alarm systems, bigger water bombing planes or fire/flood proof building materials. These may address problems, but they are not solutions to wicked problems.

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3. Putting your entry together

Enter the Disaster Challenge by outlining your team's idea on how to address the wicked problem. At this stage, we're not expecting teams to present a complete solution – that comes later.

To get started, all you need to do is:

1. Read and review this *Guide for Entrants* and the *Terms and Conditions* for handy tips on how to get started.
2. Get your team together.
3. Spend some time to understand the wicked problem and why it is so difficult to solve.
4. Think through how you would address the wicked problem and decide on your preferred approach.
5. When you think you have your idea in good shape, make sure that you can explain how it will be used and what benefits you would expect to see if it was used.
6. Decide how you would like to submit your approach – written or video entries will be accepted.

3.1 Forming a team

Only entries from teams (comprising two or more members) will be accepted for this challenge, and the preference is for proposals from multi-disciplinary groups.

Team participation can comprise a mix of postgraduate and undergraduate students, and early career researchers, from any combination of science disciplines. However, in order for teams to be as competitive as possible we strongly encourage a multi-disciplinary approach with teams of students and early career researchers with multi-disciplinary expertise wherever possible.

Ways you can find people to team up with:

- Team up with a classmate, workmate, or friend.
- To find people with different disciplinary background to you, consider asking the office of another School or College to share a message with its staff and students.

- Come to a Disaster Challenge online briefing. You will have a chance to share your contact details with other attendees who are also looking for teammates.

3.2 Getting started

Deciding what specific aspect of this wicked problem you wish to focus on is an important step in preparing your entry.

There are several different ways you might focus on a specific, real-world example of this wicked problem. Some thought starters are:

- *Choose a specific type of disaster* – what kinds of disasters are Australians at risk of? How does society respond to heatwaves? How can we improve our response to pandemics? What about tsunamis? Thunderstorm asthma?
- *Choose a specific disaster event*– what problems were encountered in linking those with resources and support to those who most needed them during the 2019-2020 Black Summer bushfires, or the 2022 Australian floods?
- *Choose a specific place* – if a disaster were to occur in your community or region, what needs would people have, and how might they struggle to access the resources they need to meet them? How might disaster response be challenged in remote locations or urban centres?
- *Choose a specific type of need* – what resource needs would aged care facilities have during a disaster, and how might they struggle to access them? What about pet owners? Farmers? Families? Renters? Small businesses and schools?
- *Choose a specific type of resource*[1] – How can a community respond to a disaster if its communications infrastructure is disrupted, or its roads are flooded? How can human resources be mobilised to support disaster response in a small rural community? How can more women or culturally and linguistically diverse people be supported to get involved in disaster response? How can we use nature-based solutions to support more effective disaster response?
- *Choose a specific type of responder/s* – What resources might local fire brigades, councils, or the Red Cross need but struggle to access? What resources might the people impacted by a disaster need to use themselves in order to respond?
- *Choose a specific type of outcome or benefit* – What resources do we need to link together to prevent some people in society being more severely impacted when a disaster strikes than

[1] **Tip:** A resource is something that can be used to help you do something or to create value. There are many different types of resources, for example knowledge, labour or human resources, natural resources, capital or infrastructure, technology, equipment and machinery, and economic or financial resources.

others? How can we bring together diverse sources of knowledge and situational awareness to support faster response to people's immediate needs during a disaster?

3.3 Understanding the wicked problem

Make sure you have a good idea about what the concepts, key words and issues included the wicked problem mean to you, to disaster impacted communities and to those working in disaster management.

- What is a disaster?
- How are natural hazards and disasters related (or not)?
- What is disaster response and who is involved?
- What does it mean to improve disaster response? More efficient? Effective? Equitable and inclusive? Sustainable? Is preparing for disasters ahead of time part of responding to them?
- What kinds of resources are needed for responding to disasters? Where are they and where are they missing? Who has them and who doesn't?
- Why is accessing and linking resources from across society to improve disaster response and help those that are most in need a wicked problem?
- How are these resources already accessed and linked? Where do gaps and challenges persist?

Some resources that might help you:

- Australian Disaster Resilience Knowledge Hub, https://knowledge.aidr.org.au/
- Australian Disaster Resilience Glossary, https://knowledge.aidr.org.au/glossary/
- United Nations Office for Disaster Risk Reduction Terminology, https://www.undrr.org/terminology
- Australian Disasters, https://knowledge.aidr.org.au/collections/australian-disasters/
- Bushfire and Natural Hazards CRC, https://www.bnhcrc.com.au
- Inquiries and reviews database, https://tools.bnhcrc.com.au/ddr/home
- Australian Disaster Resilience Handbook Collection, https://knowledge.aidr.org.au/collections/handbook-collection/

3.3.1 Digging deeper

In addition to the resources above, you might like to find out more about this wicked problem and how people experience it on-the-ground from other sources as well:

- Academic literature
- Media reports
- Disaster Challenge online briefings (dates to be confirmed)
- People working in disaster management (both paid and voluntary), e.g., your local fire brigade or SES unit
- Local governments and community organisations
- Friend and family with relevant experience

NB: The voices of people who have been directly impacted by disasters are important for identifying problems in disaster management and finding solutions to them. However, people recovering from a disaster may be struggling to deal with the impacts and they may be traumatised. Instead of reaching out to affected people directly, consider reading people's public submissions to post-disaster reviews and inquiries (e.g. https://naturaldisaster.royalcommission.gov.au/submissions/published-submissions or https://www.nsw.gov.au/nsw-government/projects-and-initiatives/floodinquiry), media interviews, or research papers (e.g. https://www.bnhcrc.com.au/publications/black-summer-nsw-community) that report on interviews with affected communities.

If you still wish to speak directly to someone with real word experience of being impacted by a disaster, consider speaking with someone you already know through your family or other networks. Before you reach out to disaster affected people, please make sure you have read the Code of Conduct and Ethics provisions in the Disaster Challenge Terms and Conditions, and **always seek advice from a lecturer or supervisor first or alternatively contact us at research@naturalhazards.com.au**.[2]

3.4 Developing your solution

In the Disaster Challenge we are looking for solutions that are impactful, credible, innovative, affordable, adaptable, scalable and achievable.

Once you have worked out the specific, real-world example of the wicked problem that you are going to tackle, you can find ideas and inspiration for potential solutions in a range of different places:

- Develop your own – especially if you have a multidisciplinary team, pool your knowledge together to come up with something truly new and innovative.
- Overseas – what approaches are used in other countries that are not yet in use in Australia?
- Other sectors – what type of solutions are used in other sectors that might be adapted to disaster management, e.g., public health, mining
- Other organisations – what solutions does the private sector use that emergency services might adapt for their uses?
- Research – you can find inspiration in your own research on the wicked problem, or consult research done by others.
- Previous Disaster Challenge Finals – watch the pitches made at the 2022 and 2023 Disaster Challenge Final by the three finalist teams, available on YouTube.

[2] By entering the Disaster Challenge, you have agreed to undertake your research in compliance with the National Statement on Ethical Conduct in Human Research (2007) - Updated 2018 (https://www.nhmrc.gov.au/about-us/publications/national-statement-ethical-conduct-human-research-2007-updated-2018) and The Australian Code for the Responsible Conduct of Research (https://www.nhmrc.gov.au/research-policy/research-integrity).

3.5 Preparing your entry

Whether your entry is written or video, make sure you have addressed the assessment criteria.

- Does your entry show how your proposed approach is: focused, informed, impactful, credible, innovative, affordable, adaptable, scalable and achievable?

Prepare your answers to each of the questions included in the entry form.

- If you are submitting a written entry – ensure you have stayed within the specified word limits.
- If you are submitting a video entry – make sure your video is no longer than 10 minutes. You can be creative in how you structure your video entry to address the questions included on the entry form. Just make sure you answer each question someone in your video.

(Tip: you don't need to know how to do video editing to submit a video entry and production quality will not be assessed. All that matter is your answers. You can record yourself presenting in Microsoft Teams or Zoom, for example.)

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4. GETTING HELP

If you need help to prepare your entry, or have further questions you can get further information from one of the following places:

- Come along to the Disaster Challenge online briefings and ask questions.
- Ask your lecturer or supervisor.
- Consult with classmates and workmates.
- Talk with family and friends who may have relevant experience.
- Email us at research@naturalhazards.com.au