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National Adaptation Policy Office
Climate Adaptation Policy

Subject: National Adaptation Plan – Issues Paper

Thank you for the opportunity to respond to the National Adaptation Plan – Issues Paper. Natural Hazards Research Australia's submission specifically addresses the intersection of natural hazard risk and climate adaptation relevant to the following discussion questions:

- What policies could be strengthened or added as the highest priorities?
- What are the barriers to strengthening adaptation? How could the National Adaptation Plan help with these?
- What measurement and evaluative tools and processes should be implemented to track adaptation progress for this system?

Natural Hazards Research Australia (the Centre) is Australia's research centre for natural hazards resilience and disaster risk reduction. The Centre works closely with the Australian Government and other participating organisations across Australia to deliver a national strategic research agenda and actively promote research utilisation.

The Centre undertakes research promoting resilience to the impacts of natural hazards while reducing disaster risk to best support, inform and upskill a variety of critical stakeholders including all levels of government, emergency services, industry and communities.

The 10-Year Research Strategy outlines the Centre's overarching research direction and end-user driven model, while the Biennial Research Plan reflects Australia's constantly evolving natural hazards landscape and priorities. Two years of collaborative research design means the Centre now has an extensive portfolio of core research (see here) and post-graduate research projects relevant to climate adaptation.

Priority areas

In the aftermath of natural hazard events, too often change is reactive and incremental. A more proactive and ambitious response model with a long-term outlook and commitment of resources is required to enable effective adaptation of emergency responses to our climate future. Innovation and research are essential in supporting such a model.

Research indicates the following essential measures to ensure communities are empowered to adapt to future natural hazard risks:

1. ***Better land-use planning.*** Australian communities must adopt strategies to ensure future development is appropriate in a changing climate, such as nationally-consistent policies incentivising the development of areas of low natural hazard risk, whose

footprint, design and construction materials consider the future impacts of climate change.

2. ***Building standards.*** Australians already benefit from research into how to build houses and infrastructure that is more resilient to natural hazards. Policies and nationally implemented standards mandating construction practices that provide the greatest resilience to current, future and more frequent and severe natural hazards is critical in ensuring individual, community and regional liveability, financial stability and economic recovery.
3. ***Some places are untenable for ongoing housing.*** People may not be able to live where they live now. Reducing the impacts of natural hazards is only possible by relocating houses and businesses away from areas of potential high risk. Following major flooding in parts of New South Wales and Queensland buy-back schemes have had some recent success in relocating residents from floodplains at risk of future flooding. While not the first scheme of this type in Australia, voluntary buyback programs remain expensive, disruptive and reliant on willing sellers. Ideally, a nationally planned and coordinated program is in place well before a major natural hazard event begins so that community members understand their options and are empowered to make the best decision for themselves, their family and community (see more here).
4. ***Mitigation.*** Eliminating all risk of natural hazards is impossible, therefore the reduction of risk through integrated mitigation approaches is crucial when considering the current and future risk profiles of communities throughout Australia.
5. ***Work better with natural landscapes.*** Understanding and optimising the vital role the environment plays in hazard risk reduction by all levels of government ensures a coordinated approach to risk reduction. This must include the wealth of First Nations knowledge of caring for Country. More broadly, the reforestation of catchments and restoration of wetlands lower flood risk while improving air and water quality.

The role of local government, communities and technology

While accountability for the implementation of these measures is shared across all levels of government, local government often lacks capacity to effectively plan for, mitigate, reduce, and respond to natural hazard risk. It is important the National Adaptation Plan consider the supports required by local government to implement future climate adaptation measures. Additionally, significant opportunity exists to invest and develop the capability of community organisations with significant linkages to community members most vulnerable to natural hazards.

Investigation, trial and scaling of new technologies to aid the emergency management and disaster resilience sectors' future response to natural hazards continues to provide innovative solutions. Leveraging trends such as artificial intelligence, sensing, advanced autonomous systems and bionic augmentation has the ability to radically change the way natural hazards are understood, responded to, and recovered from. Investment in ensuring Australia is at the forefront of research into and the utilisation of cutting-edge technology in the disaster space is essential to managing the future demand on our emergency management workforce.

Additionally, the adoption and utilisation of non-traditional organisations to complement the current workforce will further enable an emergency services sector able to meet current and future demand (see more here).

Natural Hazards Research Australia research

The Centre's user-driven research projects provide further useful and useable evidence relating to climate change adaptation. The Centre currently funds 52 projects, with further research investments planned. Examples of current research projects include:

- *Utilisation of transformative scenarios in a climate-challenged world.* This research enhances the utilisation of resources designed for emergency services and other organisations to measure their strategies and practices against a set of plausible futures that are likely to be experienced in the future.
- *Modelling the impacts of natural hazards on interconnected infrastructure networks.* This project models the extent of direct and indirect infrastructure losses caused by natural hazards, including developing improved infrastructure loss estimation tools and methods to understand the impact of compound disasters on infrastructure losses, and providing a framework to better understand the value of infrastructure resilience investments.
- *Evaluation of Resilient Homes Fund.* This project evaluates Queensland's Resilient Homes Fund through the four dimensions of resilience (physical, financial, social and emotional), assessing buy-back, retrofit and house-raising to demonstrate the success factors and lessons learnt.
- *Integrated solutions for bushfire-adaptive homes.* This research focuses on measuring the bushfire failure rate of homes built to modern construction standards, including the building materials used, designs and additional safety measures that could reduce failure rates, and how to best influence and support communities to better protect their homes from bushfire.
- *Foundations in Indigenous disaster resilience.* This project addresses the lack of knowledge and information regarding Indigenous peoples and change and disaster resilience. It aims to create an Indigenous disaster resilience community of practice,and embed Indigenous leadership in disaster resilience and climate change adaptation.

The Centre maintains the Australian Disaster Resilience Index. This index measures disaster resilience across Australian communities in the context of natural hazards. Data from this index could be used to assist with the evaluation of adaptation investments and decision making (more here).

Additionally, the Centre is conducting a series of post-flooding social research projects to explore community experiences of recent floods. This research captures evidence of community attitudes towards future adaptation strategies while arming response and recovery agencies with insight into the best ways to plan and respond to flooding at local and regional levels (more here).

Effective adaptation requires consistent and targeted financial investment to attract, recruit and retain a skilled workforce to ensure the capacity to meet current and future natural hazards exits. The Centre is meeting this challenge through scholarship, fellowship and work placement programs (see here).

The Centre welcomes further opportunities to explore collaboration opportunities in the development of the National Adaptation Plan.

More information about the Centre's mission, research and outcomes can be found at naturalhazards.com.au.

I look forward to answering any of your questions and providing further information as required.

Yours sincerely

Natural Hazards Research Australia

Andrew Gissing

Chief Executive Officer

Natural Hazards Research Australia