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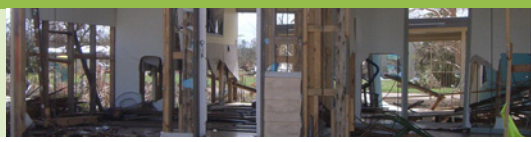
The Bushfire and Natural Hazards CRC

Building a disaster-resilient Australia



Martine Woolf

The impacts of natural disasters are increasing in Australia, as they are throughout the world. In Australia, the summed costs of natural disasters incurred since 2011 are predicted to exceed $11 billion in insured damages alone—a figure that is likely to be two to five times higher when accounting for total damages and indirect costs (Deloitte Access Economics, 2013). Such dollar figures don't begin to quantify the intangible value of lost lives and health and community disruption. Recovery can take many years where consequences continue to be felt by those affected by the disaster.

Australia's rising disaster costs are closely linked to an expanding, ageing population that continues to build and live in exposed areas such as the coasts, floodplains and fire sensitive urban and rural areas. Indeed, the growth in the loss figures doesn't include any impact of climate change on the frequency of disasters. This places significant pressure on government policy, particularly around risk communication, infrastructure development and land use planning. In a recent workshop, emergency management organisations indicated they were progressively struggling under the need to respond to increasing numbers of people affected by disasters. The emergency management sector also mentioned additional pressure from expanding public expectations, as well as the challenge to deal with rapid advances in information technology. The question was raised as to whether current policy and service delivery models may be becoming unsustainable into the future.

Figure 1. Storm surge damage due to cyclone Yasi, 2011.

Tackling a complex issue

The mounting pressure from the effects of disasters has prompted a world-wide recognition of the need to promote resilience, rather than focusing on disaster response alone. The issues surrounding the impacts of natural disasters are complex, and promoting resilience remains easier said than done. Strategies and policies need to include a better understanding of issues such as:

- The physics and mechanics of natural hazards
- the vulnerability of the built environment and economy
- the behaviour of people under extraordinary circumstances
- the ability of organisations, institutions and policy to cope with unforeseen events and emerging technologies, as well as an interplay of all of the above.

It is likely that resilience will come only through improving our capability in all stages of the emergency management cycle; from prevention, preparation, response and recovery to natural disasters. All these complexities require a multi-disciplinary suite of evidence and solutions.

The CRC solution

The Bushfire and Natural Hazards Cooperative Research Centre (BNHCRC) was established in July 2013 to undertake vital research to support the development of cohesive, evidence-based policies, strategies and tools to build a disaster-resilient Australia. The $130 million eight years funding for the BNHCRC in cash and in-kind, which has been contributed by the Australian Government and the CRC's more than 45 partners, will improve approaches to mitigation, operational responses and community resilience to natural hazards.

The CRC is building on the work of the Bushfire CRC, which was set up in 2003 and will cease operations in 2014. In contrast to the single hazard focus of the Bushfire CRC, the BNHCRC will expand its predecessor's research work into other natural hazards, including floods, earthquakes, cyclones and storm surge, as well as bushfires. The expanded focus of the new BNHCRC appropriately reflects the impact of broader natural hazards on the Australian community.

What is a CRC?

Cooperative Research Centres are an Australian initiative, funded through the Australian Department of Industry. Within this concept, the Australian Government provides funding to establish a collaborative partnership between scientists and end users, which includes industry, government, the private sector and communities. These groups and research institutions also provide funding to the CRC as they enter into a partnership agreement. This partnering of science and end users ensures that research is solution oriented, and increases the opportunity for adoption and implementation of research outcomes. Currently, there are more than 40 CRCs working on topics ranging from health to mining, manufacturing and livestock.

The end user partners in the BNHCRC include organisations from across the emergency management sector along with all Australian States and Territories and New Zealand. This means that the CRC includes Australian Government and State and Territory operational and policy agencies, as well as non-government organisations. A few examples from across this spectrum are the Australian Government Attorney General's Department, the Bureau of Meteorology, the Western Australian Department of Fire and Emergency Services, the New South Wales Office of Environment and Heritage, The Australian Capital Territory Parks and Conservation Service, the Victorian Country Fire Authority, the State of Queensland, the Red Cross, the RSPCA Queensland and Geoscience Australia. These organisations and others will be instrumental in driving the BNHCRC's focus on delivering innovative solutions to high priority problems.

The BNHCRC research program

To establish a diverse, high quality CRC research program, scientists and program partners work to tight timelines with the focus for the research program being developed through a workshop with end users. In its initial phase, the BNHCRC received almost 200 proposals from research institutions in response to a call for potential projects. The proposals were assessed by a committee of end users based on a range of criteria which included scientific excellence and alignment to end user needs. This assessment resulted in 35 proposals being short-listed for scientists and end users to further develop the selected projects. This process is currently underway and is expected to result in a varied research program which is scheduled to start around January 2014. In addition, the BNHCRC will run an active PhD program of up to 50 students at any time.

The research program of the BNHCRC is structured around three overarching themes, composed of clusters of inter-related projects. They are:

- Economics, Policy and Decision Making, which addresses the need for an evidence-base for decision making and prioritising resource allocation across the emergency management sector.
- Resilient People, Infrastructure and Institutions which is aimed at improving the qualification and quantification of resilience, and the factors that promote or inhibit its development. Improved understanding of these factors should help optimise the ability to identify vulnerability, manage the risk and enable resilience
- Bushfire and Natural Hazards Risks which aims to achieve improved modelling of likely events and precursor conditions, greater accuracy of forecast tools and more timely forecasts. This is expected to result in increased preparedness for the impacts of natural hazards, improved communications and warnings, and an enhanced ability to predict and mitigate the risk

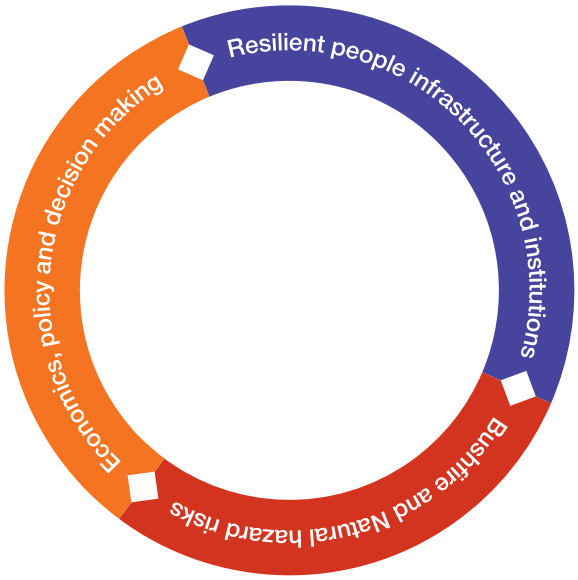


Figure 2. BNHCRC research program structure. The circle is formed by the three main research themes, with the project clusters under each theme in the corresponding colour shown below.

Towards a more resilient Australia

The BNHCRC is set to provide a range of world-class research outcomes that will impact across the entire emergency management sector. The multi-disciplinary nature of the research program aims to develop a next generation of experts, solutions and techniques. Ultimately, the BNHCRC aims to produce outcomes which improve the capability of the emergency management sector to plan for, prepare for, respond to and recover from the disasters that continue to have an impact on Australia. The ability of the BNHCRC to meet this ambitious objective depends on active and on-going collaboration between the researchers and the end users. The variety of end users involved in the BNHCRC will ensure the research reflects the complex issues driving Australia's disaster resilience.

Geoscience Australia's involvement in the BNHCRC

Geoscience Australia has been involved in the BNHCRC from the initial concept and provided a senior hazards scientist to support the implementation committee. Geoscience Australia is continuing its involvement in the lead up to the scheduled to start of the research program around January 2014 through projects on exposure, building vulnerability and coastal hazards.

These projects involve close collaboration with academic partners, as well as end users from, among others, the Office of Environment and Heritage and State Emergency Services in New South Wales, the Victorian Department of Planning, Transport and Infrastructure, the South Australian Department of Environment, Water and Natural Resources, and the Tasmanian Department of Premier and Cabinet. In its role as the Australian Government's geoscience agency, Geoscience Australia also is involved as an end user on several projects, such as projects on hardening buildings and infrastructure to a range of hazards, as well as several Earth-observation related projects.

Related articles and websites

BNHCRC and its research program
www.bnhcrc.com.au

For more information

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