



bushfire&natural  
**HAZARDS**CRC



# Annual Report 2014

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*Mapping and understanding bushfire and natural hazard  
vulnerability and risks at the institutional scale  
BNHCRC Project B2*



An Australian Government Initiative



**VICTORIA  
UNIVERSITY**

MELBOURNE AUSTRALIA

## Key terms used in this report

**Institutions** are groups of people and organisations who develop and share common values and rules that shape how they think and behave. These rules and values influence group interactions by constraining and directing a group through specific controls or by providing incentives and benefits. Rules and values can be formal, such as laws and policies; or informal, such as social norms and conventions. Examples of institutions are levels of government (local, state, federal), private industry, the legal profession and the courts, the military, the community, and public-private corporations providing water and energy and their regulators.

**Values** are things considered important because they are useful or appreciated for their existence. Values can be tangible: good and services with a direct monetary value; or intangible: values that do not have an explicit monetary value but are still considered important. Intangible values include environmental and social values such as community connectivity, beauty of a landscape and environmental services such as clear air and water. These values also help to support the economy and enhance resilience.

**Domains** are geographical areas of jurisdiction such as local, state or national government areas, or institutional areas, such as the public and private economy.

## Project Contacts

Lead Researcher: Roger Jones [roger.jones@vu.edu.au](mailto:roger.jones@vu.edu.au)

Project Manager: Celeste Young [celeste.young@vu.edu.au](mailto:celeste.young@vu.edu.au)

## Project Summary

### What is the problem?

Currently, government spending on natural disaster response is more than 20 times spending on preparedness. When natural disasters are large and combine in unpredictable ways, they also cross domains, moving from the private to the public realm, and shifting from a local, to a state or national concern. Many climate-related natural hazards are increasing and the number of people living in hazard prone areas is also increasing. This raises the potential of future, unmanaged risks.

### Why is it important?

The spending mismatch between response and preparedness is well understood, but we also face potential deficits in important social and environmental values that may not be adequately compensated. Communities and environment are vital components of liveability and sustainability, but their underlying values are not well understood. If a risk is owned; in that who is responsible for managing the values under threat can be clearly identified, then we can assess the balance between preparedness and response. If the risk is un-owned, these values may be damaged and degraded, or lost.

### How are we going to solve it?

The project will begin by mapping a broad range of economic, social and environmental values and relating these to natural hazards within Victoria and specific local case studies. The project will explore who 'owns' these values and what happens when they cross domains. We will then explore what options there may be for investing in the preparedness required to sustain economic, social and environmental values in a changing environment, and develop a framework for assessing such options.

### Project aim

This project aims to address this issue by investigating vulnerability and risks to natural hazards on a range of scales. It will look at institutions involved in natural disasters, such as local government, state government, federal government and the community and private sector; and assess how their specific values and rules interact with the broader values affected by natural disasters.

The project objective is to develop a framework for understanding the ownership of risks from bushfires and natural hazards at the institutional level. The aim is to improve the governance of hazard-related risks through a range of measures, including investment strategies, resilience and risk mitigation.

We will:

- Develop an economic geography of values at risk at geographic and institutional scales. The format of this output will be developed in consultation with key stakeholders.
- Assess risk ownership by asking "Who is responsible?", "Who pays?", "Who manages the risk" and "How is it managed?"
- Develop a governance framework to support the institutional understanding and management of these values at risk. This task will examine current governance before, during and after disasters, looking at both emerging and future needs.

## Who will benefit?

This project aims to benefit decision makers in institutions such as local state and federal government, the community and various private sectors by helping them to better identify the real value of these events and where their institutions may be at risk. It also aims to help clarify how governance can support the long-term management of natural hazard risk and to assist in building greater resilience.



## Phase 1

In the first part of the project we are developing a map of economic geography of values at risk at geographic and institutional scales. It is concentrating on Victoria in the first instance, but smaller scale case studies may also be included.

This map will show diverse values at risk in specific areas from natural hazards. Some values will be costed in terms of dollars lost to the economy; others will reflect aspects of ecosystem and population health. The map will show which institutions are at risk and identify the hazards that pose those risks. For example, a local community may be vulnerable to bushfires because it is surrounded by forest. Its local economy is sustained by tourism, but it also has an ageing population that limits people's capacity to act. A fire could have direct impacts on peoples' health and livelihoods, local infrastructure and the natural environment that sustains tourism. Secondary impacts that follow an event may include declining local business incomes and lasting social impacts within the community.

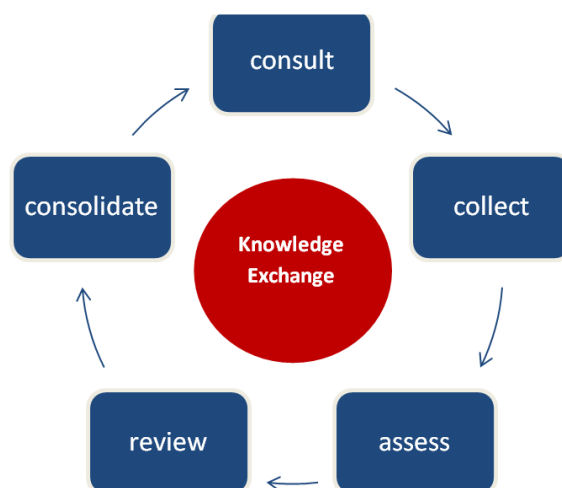
The map will also identify institutions responsible for recovery, including the community, local and state government and private enterprises within that community. Small communities may have limited resources and capacity to stage a sustained recovery, increasing social, economic and environmental vulnerability.

## Phase 2

The second part of this project will focus on governance. It will produce a process-based framework that aims to provide guidance and the ‘thinking frameworks’ needed to improve risk governance with respect to natural hazards. The purpose of the framework is to support the institutional understanding and management of the values at risk identified by the mapping exercise. It will achieve this by examining current governance before, during and after disasters, looking at the emerging and future needs shown in the values at risk map. Key questions about ‘risk ownership’ will be asked, such as who is responsible, how they are responsible and what they are responsible for?

## How we will do this

The project team work closely with their end users to produce outputs fit for purpose. Ongoing consultation, evaluation and response to feedback are built into the research process to support this aim (see figure below).



## Our team

This research is being undertaken by the Victoria Institute for Strategic Economic Studies at Victoria University who are collaborating with key stakeholders in the emergency services sector. Our team is multidisciplinary and comprises of a mixture of economists, natural scientists, social scientists and practitioner-based researchers. The members of our research team are:

- Professor Roger Jones – Project Lead Researcher
- Ms Celeste Young – Research Project Manager and Researcher
- Dr John Symons – Researcher
- Ms Kathleen Hurley – Researcher
- Professor Peter Sheehan – Researcher
- Professor Bruce Rasmussen – Researcher

## Stakeholders

We have divided our stakeholders into two groups, the end user working group who are a core part of our research process and contribute directly into the project. This group is represented by key members of the following organisations:

- Emergency Management Institute Australia, Commonwealth Attorney-General's Department
- Department for Communities and Social Inclusion, South Australia
- Rural Fire Service, New South Wales
- Fire Services Commissioner, Victoria
- State Emergency Services, Tasmania
- Commonwealth Attorney General's Department, Emergency Management Policy Branch
- Department of Primary Industry and Environment, Victoria
- SAFECOM, South Australia

We are also developing another group of 'inform and advise' stakeholders who will be kept up to date with project progress and be invited to participate, comment or advise at key points. These individuals have specific knowledge and areas of expertise and will assist with ensuring the quality and robustness of the research. Stakeholders who have agreed to participate to date include:

- Dr Ben Preston, Theme Lead, Climate Change Science Institute, Oakridge National Labs USA
- Kaylene O'Neill, Senior Manager, Sustainability Governance & Risk, National Bank of Australia
- Bridget Tehan, Senior Policy Analyst, Emergency Management Victorian Council of Social Services
- Daniel Voronoff, Senior Policy Officer, Environmental Management, Department of Human Services, Victoria
- Andrew Edwards, Assistant Commissioner, State Emergency Services, NSW
- Kathryn Matthews, Director, Deloitte Access Economics
- Dr Julian Morison, Economist, Econsearch
- Rob Jolly, Chairman, Utilities Trust of Australia
- Michael Nolan, Global Leader, Adaptation, AECOM
- Dr Kristie Ebi, (forthcoming) Director, Health and Global Change, University of Washington

## Project progress to date

To date, we have completed milestones one and two of the phase one work (see Attachment A). Key tasks were to establish the end user working group and also to assess the availability of data and literature for the development of the values at risk maps.

The following tasks have been completed in line with our project plan:

- Establishment of project committees and stakeholder groups and development of common understandings in relation to project expectations and working arrangements.
- Establishment of regular project meetings and reporting.



- Establishment of the Inform and Advise stakeholder group to broaden engagement and provide a layer of oversight and review to ensure quality of both the research undertaken and the final research outputs.
- Development of assessment criteria for 'values at risk' map.
- Delivery of gap analysis of data available and data needed for development of the values at risk map.
- Proposal developed for PhD student, selection process in progress.

We have also undertaken a number of other activities which include:

- Attendance and presentation at the BFNHCRC Research Seminar, Adelaide February 2014.
- Presentation to Enterprise Risk Management Annual Forum, Canberra April 2014.
- Presentation of project to the AFAC Business Management Group Meeting, June 2014.

### Next steps

The project has now started developing draft maps of values at risk, which will continue until January 2015. We will also undertake a stakeholder survey and further investigations to identify end user needs in relation to research outputs. We will begin Phase 2 of our project in February 2015.



## Attachment A

### Key deliverables

Code	Item
1.1	Delivery of project plan.
1.2	Gap analysis of data available and data needed.
1.3	Establishment of 1) Project committees and stakeholder groups; and 2) Core agreements in relation to project expectations and working agreements.
1.4	Develop High Level Advisory Group with National and International Representing Experts and Users.
1.5	Development of assessment criteria for 'values at risk' map.
1.6	PhD candidate identified and proposal submitted to CRC (in progress).
1.7	Deliver Quarterly Report to CRC (Milestone 1 completed).
1.8	Delivery of Data Gap Analysis.
1.9	Deliver Quarterly Report to CRC.
1.10	Delivery Annual Report to CRC.
1.11	Development of the draft 'values at risk' map started (Milestone 2 completed).