



IMPROVING THE ROLE OF HAZARD COMMUNICATIONS IN INCREASING RESIDENTS' PREPAREDNESS AND RESPONSE PLANNING

Annual project report 2014-2015

Dr I. M. McNeill & A/Prof J. M Boldero
The University of Melbourne
Bushfire and Natural Hazards CRC





| Version | Release history | Date |
|---------|-----------------------------|------------|
| 1.0 | Initial release of document | 26/10/2015 |



This work is licensed under a Creative Commons Attribution-Non Commercial 4.0 International Licence.



Disclaimer:

The University of Melbourne and the Bushfire and Natural Hazards CRC advise that the information contained in this publication comprises general statements based on scientific research. The reader is advised and needs to be aware that such information may be incomplete or unable to be used in any specific situation. No reliance or actions must therefore be made on that information without seeking prior expert professional, scientific and technical advice. To the extent permitted by law, The University of Melbourne and the Bushfire and Natural Hazards CRC (including its employees and consultants) exclude all liability to any person for any consequences, including but not limited to all losses, damages, costs, expenses and any other compensation, arising directly or indirectly from using this publication (in part or in whole) and any information or material contained in it.

Publisher:

Bushfire and Natural Hazards CRC

October 2015

Citation: Boldero J.M, McNeill I.M, Improving the role of hazard communications in increasing residents' preparedness and response planning: annual project report 2014-2015, Bushfire and Natural Hazards CRC



TABLE OF CONTENTS

| | |
|---|-----------|
| EXECUTIVE SUMMARY | 3 |
| END USER STATEMENT..... | 4 |
| INTRODUCTION | 4 |
| PROJECT OVERVIEW | 6 |
| Phase 1: | 6 |
| Phase 2: | 6 |
| Phase 3: | 6 |
| Phase 4: | 6 |
| PROJECT ACTIVITIES SINCE JUNE 2014 | 6 |
| Research overview 2014-2015 | 7 |
| End-user engagement 2014-2015 | 8 |
| PUBLICATIONS LIST..... | 10 |
| CURRENT TEAM MEMBERS | 11 |
| REFERENCES..... | 12 |



EXECUTIVE SUMMARY

This project addresses the following problem statements: 1) what measures can best be used to capture individuals' preparedness and planning for natural hazards?, 2) how effective are traditional strategies, such as community engagement groups vs. brochures vs. websites vs. advertising in increasing preparedness and planning by residents of hazard prone areas?, and 3) how can strategies be improved to increase preparedness and planning for natural hazards? All problem statements are being addressed within the context of bushfires and floods.

Over the past 12 months, this project has undertaken and completed the following:

- We have finalized addressing Problem Statement 1, and have published a collection of preparedness and planning measures for bushfires and floods in a Technical Report (McNeill, Boldero, & McIntosh, 2015a).
- We have developed and conducted two large survey studies amongst residents of bushfire and flood prone areas, the results of which will address Problem Statement 2.
- Preliminary results of these first two studies have been presented at the Research Advisory Forum in Sydney (McNeill, Boldero, & McIntosh, 2015b), an AFAC Community Safety Technical Group meeting, and the Disaster and Emergency Management Conference at the Gold Coast (McNeill, Boldero, & McIntosh, 2015c).

The next 12 months will focus on the development of our Phase 3 research, which will identify psychological barriers and enablers of preparedness and planning in the context of a set of non-traditional strategies aimed to increase preparedness and planning.



END USER STATEMENT

Andrew Richards, Lead End User Communications and Warnings Cluster, *New South Wales State Emergency Service*

This project aims to examine how effective different information sources and engagement strategies are in increasing preparedness and planning amongst Australians who live in areas that are prone to experiencing natural hazards and how the effectiveness of these strategies can be improved. The project has already determined that residents who actively seek information (e.g., brochures, websites) and attend community meetings are more likely to prepare and plan than residents who passively receive information. Although this is broadly understood, having evidence of this is useful. The project's research findings also clearly indicate that the majority of residents will not actively seek any information. This provides a useful evidence base for agencies' decision-making on whether to invest often scarce resources on optimizing existing information sources or on strategies aimed at increasing community engagement through active involvement in disaster resilience building activities.

In the next phase of the project the researchers are examining the issue of engagement. Specifically, they are exploring the effectiveness of community-led approaches in increasing residents' engagement in disaster resilience building activities. They will examine whether these activities are an effective tool to increase residents' engagement with disaster resilience building activities, and whether they lead to a change in community culture and perceived ownership of local risks and shared responsibility for managing natural hazards over time. For many agencies this shift to the use of community led strategies is relatively new, and would benefit from further evaluation. In addition to providing valuable feedback around the effectiveness of community led approaches, this research will also provide potential limitations and opportunities for improvement. Finally, by using a structured and uniform approach across the nation, the project is facilitating the sharing of knowledge on which strategies might work better in different situations, and will help further improve the role that agencies can play in supporting at-risk communities to become more disaster resilient.



INTRODUCTION

The increasing frequency and complexity of natural hazards poses a challenge for community resilience. Communication and education of risk mitigation strategies play an essential role in building and maintaining resilience through preparation and planning by residents. However, before the start of this project, relatively little was known about the effectiveness of existing hazard communications and education strategies in increasing preparedness and planning. Also, we identified a need to determine what some of the key barriers and enablers to preparedness and planning are to improve the baseline effectiveness of these community engagement strategies.

This project combines expertise in communication, social and consumer psychology, and disaster and emergency management. It is designed to develop evidence-based strategies that motivate appropriate action during the preparedness and planning phase of disasters. More specifically, it will address the following problem statements: 1) what measures can best be used to capture individuals' preparedness and planning for hazards?, 2) how effective are existing strategies such as community engagement groups vs. brochures vs. websites vs. advertising in increasing preparedness and planning by residents of hazard prone areas?, and 3) how can the existing strategies be improved?

These problem statements will be examined through quantitative survey-based studies across Australia, with individual/household level preparedness and planning for bushfires and floods as the main outcome variables of interest.

By addressing these problem statements, this project will provide evidence-based recommendations for end-users about which strategies are most effective in increasing preparedness and planning amongst residents of hazard prone areas.



PROJECT OVERVIEW

The first stage of the project started in January 2014 and will continue until June 2017, with a potential second stage continuing until June 2020. The 4 phases that form a part of Stage 1 are outlined below:

PROJECT PHASES STAGE 1 (2014 – 2017)

Phase 1

In the first phase, the focus lies on the development of the key dependent measures for the studies, namely preparing and planning for bushfires and floods. These measures need to cover a variety of preparedness and planning types, so as to form a basis on which to compare individual households on how prepared they are for response to and recovery from bushfires and floods.

Phase 2

In the second phase, we will use these dependent measures to examine the relative effectiveness of current communication strategies, such as the availability of community-based information sessions, providing information through websites and brochures, and the use of advertising campaigns in increasing preparedness and planning for bushfires and floods.

Phase 3

In the third phase of the project, we will focus on identifying key barriers and motivators for residents' engagement with disaster resilience building activities. In other words, it will examine why some individuals or households prepare and plan more so than others, and why some individuals or households engage with disaster resilience building programs in their community more so than others. It will do this in the context of several new agency initiatives.

Phase 4

Finally, in the fourth phase of stage 1, the identified barriers and enablers will form the basis for the further development and improvement of strategies designed to improve residents' engagement with disaster resilience building activities.



PROJECT ACTIVITIES SINCE JUNE 2014

Over the past 12 months we have conducted two studies to address the problem statement “How effective are existing communication strategies such as community engagement groups vs. brochures vs. websites vs. advertising campaigns in increasing preparedness and planning by residents of hazard prone areas?”. In order to answer this question, we gathered data amongst residents of bushfire and flood prone areas, and measured both their active use of information sources, such as community-based information meetings, brochures, and websites, and their passive awareness of TV-based advertising on bushfire and flood preparedness. We also captured the extent to which these residents had performed a variety of preparatory and planning actions. This allowed us to statistically determine whether residents who had actively used information sources and/or were aware of advertising campaigns ended up preparing more or less than those who did not use any of the information sources and/or were not aware of the advertising on TV.

In the following section, we provide more detail regarding the process of design and data-collection for these studies.

RESEARCH OVERVIEW 2014-2015

Survey Design

First, we developed two survey studies, one on flood preparedness and planning, and one on bushfire preparedness and planning, to address the Problem Statement “How effective are existing strategies such as community engagement groups vs. brochures vs. websites vs. advertising campaigns in increasing preparedness and planning by residents of hazard prone areas?”.

Upon completion of the survey drafts, we sought and integrated feedback from our end-users, and then submitted the final drafts to the Human Ethics Sub-Committee of the University of Melbourne. Both studies were approved by the committee before data collection was initiated (September 2014 for the bushfire study, and November 2014 for the flood study). Copies of the final surveys are available upon request.

Participant Recruitment

Participants for both studies were recruited with the help of an online survey panel company called the Organizational Research Unit.

- o Data for the bushfire survey study were collected at two time-points: The first survey was sent out 4 weeks after the start of the bushfire season (October – December 2014, depending on State and Council), and the second survey was sent out 6 weeks after the first survey. This resulted in a total of 514 matched responses from residents living in bushfire prone areas in New South Wales, South Australia, Tasmania, Victoria, and Western Australia (all south of Geraldton).



- o Data for the flood survey were collected in February 2015. This resulted in a total of 286 responses from residents living in flood prone areas in New South Wales and Queensland.

Data Analyses

Preliminary data management, including the matching of Wave 1 and Wave 2 data in the bushfire studies, data screening, recoding variables, and calculating scale scores, etc. has been completed.

We have now begun analyzing the data so that we can address the problem statement. Some initial findings resulting from these analyses were presented at the Research Advisory Forum in Sydney in early April, at a Community Safety Technical Group Meeting at AFAC in late April, and at the Disaster & Emergency Management Conference in the Gold Coast in early May. Results of the analyses will be reported in academic manuscripts and a technological report, drafts of which are due January 2016.

END-USER ENGAGEMENT 2014-2015

To ensure our project continues to complement the other projects in our cluster, and remains as relevant as possible to our end-users, we have continued to engage in monthly telephone conferences attended by all project leaders in our cluster and our cluster lead end-user. In addition, we have had regular contact moments with our end-users, by phone, email, and face-to-face meetings and workshops. A summary of key contact moments with our end-users over the past 12 months, the purpose of the contact, and its outcomes has been provided below:

- July 2014: Final feedback was sought and received in relation to our measures of preparedness and planning for floods (Phase 1), which were to be used in the 2014-2015 survey studies of Phase 2.
- August 2014: Surveys for the Phase 2 bushfire study were sent out for review, and feedback was received and integrated.
- September 2014: The AFAC/BNHCRC conference in Wellington provided us with an opportunity to meet with some of the researchers from our cluster and some of the end-users. In addition, it provided us with an opportunity to share a summary of our preparedness and planning measures with a broader audience through a poster presentation (McNeill et al., 2014).
- September 2014: We sent out a report containing an overview of our final measures of preparedness and planning for floods and bushfires to be used in the Phase 2 studies. Feedback was received over the following month and integrated into the report. This allowed us to finalize the report, which has now been submitted for publication by the BNHCRC (McNeill et al., 2015a).



- October 2014: The survey for the Phase 2 flood study was sent out for review, and feedback was received and integrated.
- December 2014: A cluster-based newsletter was sent out to give a brief update on the progress since June 2014, and to outline plans for the next 6 months.
- February 2015: We finalized a draft of our first Hazard Note, which covered the development of our measures of preparedness and planning for bushfires and floods. In addition we finalized a draft of a second Hazard Note, which covered some findings stemming from data gathered under the old Bushfire CRC (see McNeill, Dunlop, Skinner, & Morrison, in press). In February, both drafts were sent out to our end-users for feedback.
- April 2015: Initial findings stemming from the Phase 2 studies were presented at the Research Advisory Forum in Sydney (McNeill et al., 2015b). The forum enabled us conduct a 2-hour workshop with our end-users. This workshop was used to discuss how initial Phase 2 findings informed the direction we should take in Phase 3.
- April 2015: Several weeks after the Research Advisory Forum, we presented the initial findings and project directions at a Community Safety Technical Group Meeting at AFAC, and received further feedback and information relevant to the next phase of our project.
- May 2015: In addition, the preliminary findings were presented at the Disaster and Emergency Management Conference (McNeill et al., 2015c).
- April/May/June 2015: The last three months of the 2014/2015 year have been used to set up individual phone based meetings to collect specific information that is relevant to the translation of Phase 2 findings into our Phase 3 studies. More specifically, we have been gathering information on the different types of alternative strategies (i.e., other than the more traditional strategies involving brochures, websites, information meetings, and advertising campaigns) that agencies are using to engage community members with disaster risk reducing activities. In addition, we have been gathering information on the extent to which the effectiveness of such strategies has been examined, and the extent to which these strategies could form the basis for our Phase 3 studies, which will look at barriers and enablers to preparedness and planning in the context of non-traditional community based interventions.



PROJECT OUTPUT AND PUBLICATIONS TO DATE

- Our work over the past year has resulted in a report on our measures of preparedness and planning for bushfires and floods. This report has been submitted to the Bushfire and Natural Hazards CRC and may serve as a reference tool for researchers and practitioners who are interested in quantitatively measuring preparedness and planning by residents of hazard prone areas (McNeill et al., 2015b).
- In addition, we have summarized the report on preparedness and planning measures in a poster presented at the yearly AFAC/BNHCRC conference (McNeill et al., 2014) and in a Hazard Note, a draft of which also has been submitted to the Bushfire and Natural Hazards CRC.
- Finally, preliminary Phase 2 findings were presented at the Research Advisory Forum, an AFAC meeting, and the Disaster and Mergency Management Conference in April and May. The PowerPoint presented at the Research Advisory Forum is currently available on the Bushfire and Natural Hazards CRC website (McNeill et al., 2015b), and the other two presentations that followed can be made available upon request. We are currently in the process of writing a full report on these findings, which is due to be published in the next financial year (2015/2016).



CURRENT TEAM MEMBERS

PROJECT MANAGEMENT/LEAD RESEARCH TEAM

- Dr Ilona McNeill (Project Leader) – The University of Melbourne
- A/Prof Jennifer Boldero (Project Leader) – The University of Melbourne
- Ms Elle McIntosh (Research Assistant) – The University of Melbourne

EXTENDED RESEARCH TEAM

- Prof John Handmer – RMIT University
- Prof David Johnston – GNS Science/Massey University
- Dr Patrick Dunlop – The University of Western Australia
- Dr Paul Dudgeon – The University of Melbourne
- Prof Alex Wearing – The University of Melbourne

END-USERS AND ASSOCIATED FEEDBACK PROVIDERS

- Andrew Richards (Lead End-User), NSW SES
- Amanda Leck, AFAC
- Anthony Clark, RFS NSW
- Ben McFadgen, VIC SES
- Fiona Dunstan, CFS
- Glenn Benham, SA MFS
- Gregory Wild, F&R NSW
- Gwynne Brennan, CFA
- John Richardson, Red Cross
- Karen Enbom, CFA
- Nicola Moore, JGEM QLD
- Sandra Barber, TFS
- Shannon Panchuk, BoM
- Simon Goodwin, Safecom
- Suellen Flint, DFES
- Sunara Fernando, RFS NSW
- Terri Reid, AGD
- Trent Curtin, MFB
- Wendy Kelly, AGD



REFERENCES

McNeill, I., Boldero, J., Handmer, J., Johnston, D., Dudgeon, P., & Wearing, A. (2014). Improving the role of hazard communications in increasing residents' preparedness and response planning. Poster presented at the AFAC and Bushfire and Natural Hazards CRC joint conference, Wellington, New Zealand, September 2-4, 2014.

<http://www.bnhcrc.com.au/resources/poster/1210> (verified June 9, 2015)

McNeill, I. M., Boldero, J. B., & McInstosh, E. (2015a). Report on the selection of Preparedness and Planning measures for "Improving the Role of Hazard Communications in Increasing Residents' Preparedness and Response Planning for Recurring Natural Hazards".

McNeill, I. M., Boldero, J. B., & McInstosh, E. (2015b). Improving the role of hazard communications in increasing preparedness and planning: A RAF Progress Report. Presentation at the Research Advisory Forum, Sydney, April 8-9, 2015.

<http://www.bnhcrc.com.au/resources/presentation-slideshow/1709> (verified June 9, 2015)

McNeill, I. M., Boldero, J. B., & McInstosh, E. (2015c). Preparing for fires and floods: The role of different information sources. Presentation at the Disaster and Emergency Management Conference, Gold Coast, May 4-5, 2015.

McNeill, I.M., Dunlop, P.D., Skinner, T.C., & Morrison, D.L. (in press). Predicting Risk-Mitigating Behaviors from Indecisiveness and Trait-Anxiety: Two Cognitive Pathways to Task Avoidance. Accepted for publication in Journal of Personality.