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EVALUATING COMMUNITY SAFETY PROGRAMS FOR BUSHFIRE

A Program Theory Approach

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→ **RESEARCH QUESTIONS**

1. What are the most appropriate evaluation approaches and strategies for bushfire community safety policies and programs?
2. How effective are community safety policies and programs in achieving community safety outcomes?

Addressed by:
- Iteratively developing a framework (rationale and methodology) for evaluating community safety policies and programs
- Applying the developing framework to evaluate specific programs

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→ **OVERALL EVALUATION APPROACH**
Two driving principles

1. **Consultative, Collaborative and Deliberative**
   - Inclusive of all stakeholders
   - Active dialogue between evaluators and stakeholders
   - Joint deliberation about outcomes and implications

2. **'Theory-Driven'**
   - Programs are "theories incarnate" (Tilley 2004) - Program evaluations can be thought of as 'tests' of program theories
   - Program Logic ➡ Program Theory
   - Program Logic – a step-by-step model connecting program 'inputs' and 'activities' with 'outputs' and 'outcomes'
   - Program Theory – considers 'strategies', 'mechanisms' and 'outcomes' in context (what works, for whom, where and how?)

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→ **STAKEHOLDER AFFILIATION**

- **Reference Group**
  - Russell Taylor, Rural Fire Service, NSW
  - Barry Hamilton, Fire and Emergency Services Authority, WA.
  - Leigh Miller, Country Fire Service, SA
  - Michael Ross, Rural Fire Service, ACT
- **Research Partners**
  - Alan Rhodes, Country Fire Authority, Vic.
  - John Gawen, Country Fire Service, SA
  - Eric Berry, Rural Fire Service, NSW
  - Gerry Byrne, NSW Fire Brigades

SAMPLE RESULTS FROM THREE STUDIES
Building Towards the Evaluation Framework

1. Developing a theory of the 'problem' that bushfire safety programs address - the thinking, choices and behaviour of residents in response to bushfire risk
   - A necessary first-step to understanding how policies/programs might work to enhance bushfire safety
2. Concept mapping
   - To identify the range and content of desired outcomes of community safety programs - Provides the criteria for evaluation
3. A program-theory evaluation of the Street FireWise Program in the Blue Mountains, NSW
   - A first trial of the 'Collaborative' and 'Theory-driven' evaluation approach in the Emergency Management context

STUDY 1: DEVELOPING A 'PROBLEM THEORY' FOR COMMUNITY SAFETY PROGRAMS

- Based on a post-event questionnaire and in-depth interview study of residents of the Lower Eyre Peninsular following the 2005 'Wangary' fire
- First step – a detailed study of one aspect of this response – 'Recognition of the risk'
- Poster identifies possible explanations for the differences in threat perception in this particular context
- Explanation of observed relationships is a complex task – need to go beyond correlations between socio-demographic variables and measures of threat perception to hypothesise underlying social structures and related mechanisms

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LINDELL'S 'PROTECTIVE ACTION DECISION MODEL'
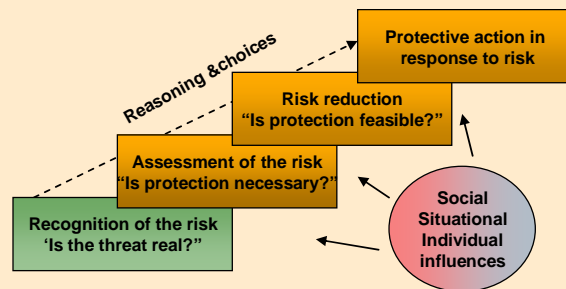
Peoples' decisions are influenced by a range of factors operating in particular contexts. If people do not anticipate the threat they are unlikely to consider its significance or what actions they can take to protect themselves.

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THE SURVEY OF NEARLY 300 HOUSEHOLDS IN THE FIRE AFFECTED AREA REVEALED THAT

- 78% knew 11 January was a total fire ban day
- 87% knew there had been a bushfire at Wangary the
- previous afternoon.
- However, only 24% expected that the fire would spread and was likely to affect the area where they lived
- 54% expected a warning about a bushfire
- 47% expected assistance if a bushfire occurred

As a result of not recognising the threat, many people went about their normal routine on the morning of 11 January, only to later have to take improvised protective action when the threat became more evident.

Some people however did anticipate the threat and initiated more appropriate protective action.

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→ **THERE WAS GREAT VARIABILITY IN THE EXTENT TO WHICH PEOPLE RECOGNISED THE THREAT**

Expectations of what would happen with Wangary fire (%)
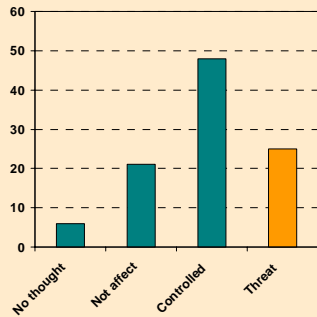
Expectations of residents at property during fire (%)

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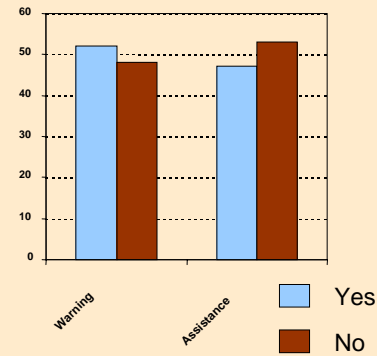
→ **HOW CAN WE EXPLAIN THE DIFFERENT PATTERNS OF RECOGNITION OF THE THREAT?**

Social Structures

Give Rise to Mechanisms

That in Certain Circumstances

Enable or Constrain Particular Choices and Actions

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TWO SPECIFIC CASES SUGGEST DIFFERENT 'CONTEXT-MECHANISM-OUTCOME' PATTERNS

- In Case 1
  Despite the lack of formal warning the family's social network provided access to critical information about fire and its spread. The husband's CFS membership and farming background provided trusted knowledge and skills to recognise the risk, assess danger to family and their neighbours, enabling them to initiate protective action.

- In Case 2
  The lack of formal warning, very limited knowledge of fire in the local environment and social networks that were no better informed or credible resulted in the interviewees tending to disbelieve the threat. Hence they didn't attend to the emerging risk until very late and were forced to take last minute and hazardous action to escape the fire.

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STUDY 2: CONCEPT MAPPING WORKSHOPS

11 Workshops were held across five states

	Community Group	Bushfire Agency
New South Wales	2 workshops – 6, 7 participants	2 workshops – 5, 6 participants
South Australia	1 workshop – 10 participants	1 workshop – 12 participants
Tasmania	1 workshop – 8 participants	1 workshop – 7 participants
Victoria	1 workshop – 10 participants	1 workshop – 9 participants
Western Australia	-	1 workshop – 6 participants

Each individual workshop generated between 34 and 60 unique statements that were finally organised into between 5 and 11 clusters. Participants also rated each statement on a scale from 1 to 5 for its importance and the difficulty of achieving it.

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→ **SYNTHESIS OF RESULTS**

- Results from the individual workshops were combined to yield 14 general concepts

- Concepts described a wide range of desired outcomes at various 'levels' of impact
  - Householder/Neighbourhood/Community
  - Local Bushfire and Other Agencies
  - Policy (Commonwealth/State Government; Central Agency)

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→ **DESIRED OUTCOMES – HOUSEHOLDS AND COMMUNITIES**

- Greater Community Ownership and Responsibility for Bushfire Safety
  The statements in this cluster are about community members taking increased responsibility for their own safety, planning for themselves and the communities they belong to.
- Individuals/Community have a Realistic Understanding of Risk
  The focus of the statements in this cluster is on the importance of community members understanding the range of factors that influence risk.
- Household/Neighbourhood Planning and Preparation
  The formulation of a plan that outlines an appropriate response to a bushfire and preparation that enables the chosen plan to be implemented.
- Deciding and Planning for 'Stay or Go'
  Understanding of the issues surrounding the 'Stay or Go' message as well as making decisions about what individuals or households will do when threatened by bushfire, based on accurate information.

→ DESIRED OUTCOMES, BUSHFIRE AND OTHER AGENCIES LARGELY AT THE LOCAL LEVEL

- Agency/Community Interaction

  The flow of information between agencies and the public, before an incident occurs, with the aim of increasing resident awareness of the risks posed by bushfire as well as encouraging preparation to mitigate those risks.

- Agency/Inter-Agency Responsibilities and Co-ordination

  Two related, yet distinct concepts were identified within this cluster. The first relates to agency responsibilities for the community. The second relates to the intra-agency relationship between the operational branches of an agency and those concerned with community safety initiatives.

- Effective Communication of Information during Bushfire

  The majority of statements in this cluster are concerned with the way in which fire agencies deliver information to community members during a bushfire. Another element is to improve community safety from bushfire, systems need to be implemented that enable community members to communicate information to fire agencies, making use of local knowledge.

→ DESIRED OUTCOMES, BUSHFIRE AND OTHER AGENCIES – cont.

- Neighbourhood and Community Networks and Partnerships

  The majority of people are, in some way part of community networks. These networks will influence the capacity of communities to self-organise, and to work effectively with fire agencies, and other authorities. The networks will also influence community resilience and sustainability of community safety efforts.

- Community and Agency Responsibilities to Address Specific Needs

  Statements in this cluster are related to very specific, local issues, offering practical solutions to identified problems.

DESIRED OUTCOMES – POLICY LEVEL

- Policy Framework for Agency and Organisational Roles
  Ensuring the fire agencies implement appropriate policies and procedures to support community safety initiatives.
- Use of Incentives to Achieve Preparedness
  The use of incentives to encourage preparedness or, conversely, the use of penalties to discourage inappropriate or risky behaviour.
- Understanding/application of Regulations for Bushfire Safety
  The need for appropriate legislation to be put in place and enforced as well as ensuring community members and local governments understand why those laws are necessary.
- Appropriate Information/Education Activities
  The provision of education, to a range of groups and using a number of different methods.
- Principles Underpinning Program Development and Adult Learning
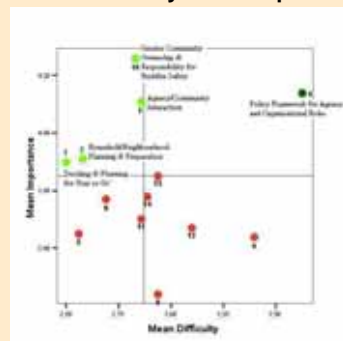 The importance of creating an environment conducive to effective learning by adults.

IMPORTANCE vs DIFFICULTY RATINGS FOR AGENCY AND COMMUNITY GROUPS SEPARATELY
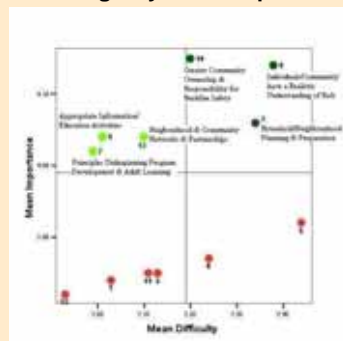
Agency Workshops   Community Workshops

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STUDY 3: EVALUATION OF STREET FIREWISE

- SFW - community education program (Blue Mountains RFS) delivering street corner meetings to communities in targeted high bushfire risk areas
- Aim: to raise awareness of the bushfire risk in local area and the need to prepare for the eventuality of a fire
- Delivered by volunteer community education facilitators from the local brigades (with support from Community Education Group)
- The evaluation used a case study approach including
  - Interviews with members of the Community Education Group and members attendees of SFW
  - Analysis of documents related to SFW (meeting scripts, previously collected raw data and yearly reports on the program)
  - Development of a program logic in the form of an outcomes hierarchy

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EVALUATION OF STREET FIREWISE
Program Logic (Hierarchy of Outcomes)

Ultimate Outcomes	*A reduced impact from bushfires on communities in the Blue Mountains (fewer houses and lives lost).*
	Formation of neighbourhood networks.
Intermediate Outcomes	*Residents use awareness and understanding to develop a realistic survival plan, decide whether to stay and actively defend or leave early, and adopt appropriate preparations around their property. i.e. they become more self-reliant.*
	Residents gain an increased awareness and understanding of bushfire risk and how it applies to their own specific context.
Initial Outcomes	*SFW meetings are positively received by residents.*
	Targeted residents hear about meeting, are motivated to attend and do so.
	Brigades must actively participate in SFW by targeting high-risk communities and running meetings.

→ **RESULTS AND CONCLUSIONS**

- Contexts identified as being successful for SFW meetings
  - "Middle" Blue Mountains region with small / medium sized settlements
  - Local brigades with active community education personnel or individual
  - Residents in high risk areas with some basic awareness
  - Individuals / communities with some capacity to change
  - Communities with strong local social ties
- Mechanisms identified as leading to intended outcomes
  - Recent experience
  - Peer influence
  - Inspiration of new ides
  - Positive reinforcement
- Contexts where SFW meetings not successful
  - Isolated settlements in "Upper" Blue Mountains
  - Larger suburban towns in "Lower" Blue Mountains
  - Residents with little or no awareness
  - Communities with little social interaction amongst neighbours
  - Local brigades with limited focus on community education
  - Individuals with minimal capacity to change

→ **CONCLUSION**

- In the appropriate contexts, Street FireWise is successful in achieving initial and intermediate outcomes
- Success is more likely where residents have attended two or more SFW meetings, or been exposed to other forms of bushfire community education activity as well
- In contexts in which SFW has not worked it has either led to program abandonment or program adaptation
- Some of the adaptations have proved successful but succession and sustainability issues do arise
- SFW is more likely to lead to higher level outcomes when used in conjunction with other community engagement programs and strategies
- The evaluation was a successful first trial of the 'Collaborative' and 'Theory-based' approach in the EM context

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WHAT'S NEXT?
Some On-going and Future Work

- On-going
  - Review of major recent bushfire reports for discussion and recommendations about community safety programs
  - Collection, analysis and classification of present community safety initiatives according to 'realist' principles (what works, and how, for different folk in different contexts)
- Commenced
  - Development of a standardised but flexible evaluation questionnaire for community safety programs
  - Collaborative inquiry with the Country Fire Service (SA) into appropriate evaluation frameworks for a community development approach to community safety
- Proposed
  - Presentation of a workshop on how to develop and apply program logic and theory models for community safety programs and other initiatives
  - Exploration of possible approaches to evaluating regulatory community safety initiatives
  - Cost effectiveness analysis of bushfire community education programs based on achievement of outcomes identified in the concept mapping project
  - Cost-benefit analysis of householder planning and preparation for bushfire (with Project C5)