Chapter 13

# What should community safety initiatives for bushfire achieve?

*Gerald Elsworth, Karl Anthony-Harvey-Beavis and Alan Rhodes*

## Chapter summary

Programs to increase community preparedness and self-reliance are an increasing feature of risk management for bushfire in Australia. As part of the developing community safety approach, these programs represent a significant shift in emergency management thinking. Yet at present there is little understanding of how effective the programs are, for which communities and in what particular settings they work best, or how desired outcomes are generated.

Structured concept-mapping was used in 11 workshops across five Australian states to identify clusters of ideas that describe the changes or improvements community members and fire agency personnel believe are needed to make households and neighbourhoods safer from bushfire. Synthesis of the individual workshop results yielded 14 general concepts which provided the basis for a program logic model and program theory for community safety initiatives. The logic model represents the concepts as a hierarchy of desired outcomes across a three-level view of the context within which these initiatives are developed and implemented. Concepts were also joined by linking phrases to yield a more elaborated program theory for community safety.

The results revealed how detailed and complex the notion of community safety was for our agency and community participants. Individual and household-level outcomes were seen to be underpinned and supported by a network of principles, processes and outcomes operating at the community/agency and policy/organisational levels. We argue that, to be successful, programs and policies that aim to achieve bushfire self-reliance and preparedness for individuals and households must take into account these intermediate and higher-level contextual factors that define the idea of community safety.

Insightful program design and evaluation are necessary to address a central challenge of the community safety approach – the need to develop and maintain a consistent and coherent safety message while encouraging community self-reliance, empowerment and ownership.

## Introduction

In recent years major bushfires have taken a heavy toll on communities around Australia. Inquiries into these fires and recent reviews of fire prevention have addressed a common set of themes relating to improved community safety. Agencies across Australia have generally recognised that when a major bushfire occurs they do not have the resources to defend every home that may be in danger. In the past decade or so emergency management organisations have increasingly acknowledged that reducing the risk from natural hazards such as fire will be aided by the level of community preparedness and the ability of residents to respond effectively. Many emergency management organisations, including fire services, have adopted a risk management approach

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with a greater emphasis on prevention, mitigation and community preparedness (Smith et al. 1996). In the US, a shift in emphasis towards building partnerships with diverse communities was explicitly advocated by presenters at a national symposium of risk management practitioners and researchers in 1994 (Chess et al. 1995).

This shift in thinking from response to preparedness can be seen as a particular example of a more general policy transformation in service fields such as emergency management, criminal justice and public health towards what has been characterised as the 'community safety paradigm' (community safety approach). Defining characteristics include the general theme of protecting those at risk, securing sustainable reductions in the source of the danger and the fear of it, and an approach based on multi-agency and community partnerships (Squires 1997). Community-level engagement, responsibility and empowerment are also emphasised, and community groups are encouraged to take co-ordinated action in their own localities in association with statutory agencies and the voluntary sector.

The community safety paradigm represents a critical transformation from the approaches characterised as relying principally on the 'professionalisation of risk' and the consequent vesting of 'accountability for community safety with a professional bureaucracy' (Barnes 2002). Professionalised and expert-centred approaches include, for example, the full range of paradigms for emergency management outlined by McEntire et al. (2002). Extending from 'comprehensive emergency management' advocated by the US National Governors Association in 1979 through to the 'comprehensive vulnerability management' conception, all approaches to reducing the risk from hazards described by McEntire et al. seemingly emphasise top-down decision-making, deployment of professional expertise, and agency responsibility and control. In contrast, a central component of the community safety approach is active engagement with and empowerment of the community to investigate its own risks and develop its own solutions. In this sense the community safety approach in emergency management parallels the approach in public health that aims to realise the ideals of community empowerment and ownership of problems and possible solutions in the context of national, state and local government planning and provision of professional services (Laverack & Labonte 2000).

Reflecting this new approach to the management of bushfire risk in Australia, a safe community has been defined as 'locally organised and resourced, well-informed about local risks, proactive in prevention, risk-averse, motivated and able to manage the majority of local issues through effective planning and action' (Hodges 1999). The notion of community self-reliance is often cited. Increasingly, organisations are seeking ways to engage more effectively with communities to promote greater understanding by providing information, but also to increase community involvement through consultation and enabling communities to share in decision-making. Fire services and land management agencies now frequently advocate the importance of partnerships with other organisations, and with the community, to achieve common goals.

At present, however, there is little understanding of the effectiveness of the community safety approach to natural hazards and the specific programs designed to enhance it. If, indeed, the approach is effective it is also important to know for which households and communities and in what particular settings the programs work best, and how. This chapter describes an initial step in the development of a comprehensive framework and methodology for evaluating the broad range of community safety policy and programs from a theory and evidence-based perspective (Pawson & Tilley 1997; Pawson 2006). We describe how a workshop technique called structured concept-mapping was used to generate ideas about the wide range of outcomes that might result from the community safety approach to bushfire, and how these outcomes were arranged into a program theory about the ways in which the community safety approach might work.

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## Program logic models and program theories

> Program logic models and program theories increasingly form the basis for designing program evaluations in diverse service fields. Typically, a program logic model is defined as 'a picture of how your organisation does its work – the theory and assumptions underlying the program. A program logic model links outcomes (both short- and long-term) with program activities/processes and the theoretical assumptions/principles of the program' (W.K. Kellogg Foundation 2004).

The idea of a logic model grew out of an early recognition in the evaluation and public health literature that a program could be represented by an ordered series of objectives, from the idealised (long-term) objective to lower-level administrative tasks and their immediate products (Suchman 1967). From this perspective, program evaluation was seen as a process that worked up the hierarchy of objectives, determining whether each, in sequence, had been met. An evaluation of the entire program was accomplished by addressing the final long-term objective. Program logic models of this form are often represented as a diagram in which boxes in a linear sequence representing the hierarchy of objectives (or anticipated program outcomes) are linked by single-directional arrows.

More recently, it has been proposed that a program itself is a theory of social change and that, in addition to establishing that a hierarchy of desired outcomes has been achieved, an evaluation should seek understanding about the way a program operates to bring about these outcomes. Thus a program theory might be seen as an elaborated logic model with ideas about the strategies and underlying causal processes through which a program generates its outcomes, together with the contexts that best facilitate their operation. From this viewpoint, developing a theory of how the program is expected to operate is a necessary first step in any program evaluation:

> Social programmes are theories incarnate … Programmes are only as good as the theories built in to them. Programme evaluations comprise tests of programme theories. The theories that constitute programmes are, however, often unstated … Before programme evaluation is possible, therefore, it is necessary to bring these theories to the surface and to articulate them (Tilley 2004).

One general way to surface and articulate (reconstruct) program theories is to select from a variety of approaches to generating mental models or cognitive maps of program processes and outcomes working with program staff and/or recipients (Leeuw 2003). Rhodes and Gilbert (Ch. 12 this volume) describe how structured workshops and individual interviews can be used to develop mental models and program theories of existing or planned community safety programs. A small number of recent studies discuss the possible use of structured concept-mapping (see below) as another source of mental models. For example, Yampolskaya et al. (2004) gave an extensive account of the method used in generating a program logic model from a concept map in their study of a (US) state-wide community-based agency providing mental health services for children with multiple needs. They described an iterative three-step process:

- the evaluation team filled out a pro forma logic model diagram using the results of a structured concept-mapping workshop with program staff
- this model diagram was reviewed in a discussion with the staff and minor modifications were made
- the evaluation team undertook a final review and the result was checked with program staff.

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A central element of the resulting logic model was a set of four categories of service and lists of associated activities that were directly based on the results of the brainstorming and clustering activities conducted in the concept-mapping workshop.

One evident strength of the mental models approach to program logic development, shown in the Yampolskavo et al. study, is that the activities and implicit theories of practitioners are a potentially rich source of ideas and hypotheses about program processes and the ways these might usefully be classified and linked. As the present study yielded multiple concept maps that were subsequently consolidated into a single list of constructs by the project team, an approach to program logic development was evolved that did not (at this stage) necessitate further work with the community and agency groups that provided the initial concept-mapping data. Additionally, an attempt was made to represent the nature of the causal processes implicit in the arrows linking the concepts in the logic model by seeking to identify the most appropriate linking word (or phrase) for selected pairs of concepts. In this way we were able to move beyond a simple hierarchy of objectives logic model towards a more elaborated program theory. Linking words are a critical feature of the freehand concept maps generated in one-on-one interviews with school students, for example, to reveal individual understandings of complex concepts (Novak & Gowin 1984) but they appear to be rarely used in program logic models in the evaluation literature. For a very interesting example, see McClintock (1990).

## Structured concept-mapping

The term 'concept-mapping' can be applied to any process that results in a diagrammatic representation of the way an individual or group thinks about the content and relationships associated with a specific object, idea or issue. The method of structured concept-mapping used for the current research is based on the work of William M.K. Trochim and was assisted by Trochim's computer program, the Concept System. This methodology is particularly suited to work with groups of participants developing a conceptual framework as a guide for program planning and/or evaluation.[1]

**Table 13.1** Distribution of participants across the 11 concept-mapping workshops

| State | Community group | Bushfire agency |
|---|---|---|
| New South Wales | 2 workshops: 6 or 7 participants | 2 workshops: 5 or 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 |

Fire agency personnel and community members who were part of local bushfire safety groups took part in 11 concept-mapping workshops. Table 13.1 shows the location and the nature and number of participants in each group.

At the start of the workshop, participants were asked to brainstorm ideas in response to the statement:

> Thinking as broadly as possible, generate statements that describe specific changes or improvements you think need to be achieved to make households and neighbourhoods safer from bushfires.

The brainstormed statements were printed onto individual paper slips and returned to participants, who were asked to sort them any way they chose into piles that 'made sense to you'. Participants were also asked to rate each statement on two five-point scales according

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to the importance of achieving the change or improvement and the perceived difficulty in implementing it.

During a break in workshop proceedings, statistical analysis of the results of the sorting was conducted. This analysis mapped the statements onto a two-dimensional array (the point map) – each statement was represented as a single point and points that were closer together were perceived by the group as closer in meaning. Clusters of statements similar in meaning were then identified statistically (the cluster map). The resulting number of clusters was typically about one-fifth the number of statements. Participants were given copies of the point map and the cluster map, as well as a list showing the statements that made up each cluster. As a group, they then named each cluster, suggested any alterations they felt would be appropriate, and were encouraged to add their interpretations to the map and to note anything that they felt was missing from the final representation.

In order to achieve a more precise representation of the workshop results than that available from the Concept System program, data were re-analysed using more specialised computer software (Clustan Graphics: Wishart 2004). The Clustan Graphics analysis resulted in a three-dimensional cluster map for each workshop. Each member of the research team independently examined all the cluster maps, naming both the dimensions and the clusters. A consensus on the best representation of the results of each workshop was reached in a series of group meetings after the individual work.

A final meeting of the research team achieved a synthesis of the concepts developed in the workshops. Cluster names were written on sheets of paper and displayed on the meeting-room walls. The group started by pairing the cluster names that were most similar in meaning, justifying each pairing as it was suggested, and referring back to the detailed content of the clusters where necessary. After a small number of pairs was established the group worked in a hierarchical fashion, adding cluster names to established pairs or forming a new pair where appropriate. When all individual cluster names had been included in a synthesised group, each was named and a final revision was undertaken.

## Results

Table 13.2 shows a typical list of concepts developed by one of the community groups and Figure 13.1 shows a cluster map from the same workshop generated by the Concept System program with additions made by the group during subsequent discussion. Seven clusters of statements were identified and named by participants. The group subsequently identified two broad regions of their concept map (Education, information and advice; Preparation of your household and neighbouring households), suggested that Clusters 5, 7 and 6 were causally related to Clusters 2, 3 and 4, and noted that the workshop process had not suggested any specific implementation strategies that might be used to achieve the outcomes identified in the map.

**Table 13.2** A typical list of statements generated by a workshop group

| | |
|---|---|
| 1 | Effective communication at times of a fire or a high fire risk (e.g. radio) |
| 2 | Local groups that can check individual household preparation and encourage proper preparation (e.g. at a street level) |
| 3 | Local resource people who can provide advice to others on practical things they can do to be better prepared |
| 4 | Community are educated to understand the benefits of being fire-safe |
| 5 | People understand the impact that not being fire-safe can have on them and the community |
| 6 | People at local (e.g. street) level receive advice and support from fire services about how to make their properties as safe as possible |

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**Table 13.2** continued

| | |
|---|---|
| 7 | People need to be clear about whether they will 'stay or go' based on a realistic understanding of their own circumstances and capacity |
| 8 | People are provided with clear information about things they need to consider in deciding to stay or go |
| 9 | Households have appropriate fire and evacuation plans |
| 10 | Households that have decided to stay need a readily available list of things they need to do in case of a fire |
| 11 | People need to know safe places to go to in case they need to evacuate |
| 12 | People need to see how quickly things they do wrong can lead to devastating results (e.g. through graphic television ads) |
| 13 | People need to understand the circumstances under which they can be directed to leave their property and by whom |
| 14 | People have an independent water supply and means of pumping water if there is a power failure |
| 15 | People clear rubbish and leaves etc. from their property |
| 16 | Where guidelines are issued to households, they need to be appropriately specific about exactly what they need to do (e.g. pumps) |
| 17 | People should be able to get an assessment of their property and situation, and get recommendations specific to them |
| 18 | Councils provide information about importance of cleaning up when they inform residents of their collection services |
| 19 | Local brigades and planning bodies can help residents access the tradespeople and services they need in order to be properly prepared (a one-stop-shop) |
| 20 | There needs to be a register of people with special needs in case of a fire (e.g. elderly, disabled) |
| 21 | Residents know about people with special needs in their street/locality (e.g. elderly, disabled) |
| 22 | Adequate fuel reduction in all properties in a street |
| 23 | People know about the rural fire service website and are able to use it (and the website is kept active and up-to-date) |
| 24 | Communication during a crisis needs to be less haphazard and more locally precise (e.g. using local radio) |
| 25 | Need to have efficient ways for communities to provide information about fire behaviour to the fire services |
| 26 | Better two-way communication during a fire |
| 27 | In the case of a fire residents need to feel that lines of communication within the fire services are effective (and not blocked by internal squabbles) |
| 28 | Need means of contacting owners of holiday properties to notify them of needs regarding clean-up and preparation |
| 29 | People are provided with education in their own setting (e.g. street meetings) |
| 30 | Better understanding of what neighbours have for fighting fires |
| 31 | People maintain all the equipment that they need for fire protection |
| 32 | People maintain all the equipment that they need for fire protection |
| 33 | Agencies provide positive education (benefits of being fire-safe) rather than negative education (don't do this) |
| 34 | Information/education needs to focus on practical issues that people may not know |

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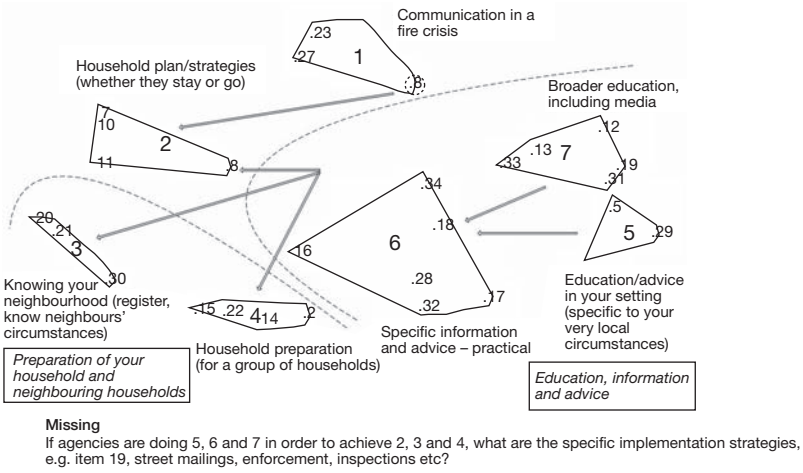


**Figure 13.1** Cluster map generated during a concept-mapping workshop with a community group.

Reanalysis of the card-sort results for this particular workshop using Clustan Graphics also yielded seven clusters but suggested a slightly different grouping, with a new cluster involving residents with special needs. As well, two clusters relating to educational activities (5 and 7, Fig. 13.1) essentially merged into one named 'Community education to improve individuals' understanding and knowledge'. This process of reanalysis and comparison with the original cluster solution was followed for all workshops.

Synthesis of the results from the 11 workshops yielded 14 general concepts. Twelve were derived from the results of both community and agency workshops, two were derived from community workshops only and one from agency workshops only. Thirteen of the 14 general concepts were derived from the results of more than one workshop. The 14 concepts together with a summary of their content are listed in Table 13.3.

The ratings of 'importance' and 'difficulty' that each participant assigned to each statement

**Table 13.3** A general logic model for bushfire safety programs

| Concept number | Concept name | Concept description |
|---|---|---|
| 1 | 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 |
| 2 | 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 |
| 3 | Deciding and planning for 'stay or go' | Understanding 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 |
| 4 | 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 |
| 5 | Understanding/ application of regulations for bushfire safety | The need for appropriate legislation to be in place and enforced as well as ensuring community members and local governments understand why those laws are necessary |

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**Table 13.2** continued

| | | |
|---|---|---|
| 6 | Policy framework for agency and organisational roles | Ensuring that fire agencies implement appropriate policies and procedures to support community safety initiatives |
| 7 | Principles underpinning program development and adult learning | The importance of creating an environment conducive to effective learning by adults |
| 8 | 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 |
| 9 | Appropriate information/ education activities | The provision of education to a range of groups using a number of different methods |
| 10 | 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 |
| 11 | Agency/inter-agency responsibilities and co-ordination | Researchers identified two related yet distinct concepts. 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 |
| 12 | Effective communication of information during bushfire | Most statements are concerned with the way in which fire agencies deliver information to community members during a bushfire. Another element expressed in cluster 12 is that, to improve community safety, there must be systems that enable community members to communicate information to fire agencies, making use of local knowledge |
| 13 | Neighbourhood and community networks and partnerships | Most people belong in some way to community networks. These networks influence the capacity of communities to self-organise and to work effectively with fire agencies and other authorities. The networks also influence community resilience and sustainability of community safety efforts |
| 14 | Community and agency responsibilities to address specific needs | Statements are related to very specific local issues, offering practical solutions to identified problems |

their workshop generated were averaged within each relevant concept. Scatterplots of these average ratings for the community and agency workshops separately are shown in Figure 13.2. There are notable similarities but also some marked differences in the ratings of the two groups of workshop participants. Concepts rated as having above-average importance in either group are located in the two upper quadrants in the plots in Figure 13.2. Concepts in the upper left quadrant are those accorded lower-than-average difficulty ratings. These concepts might be thought of as representing areas of action where more immediate achievements might be possible, while those located in the upper right quadrant might be regarded as requiring more detailed and longer-term planning.

Both groups appeared to view the concept named 'greater community ownership and responsibility for bushfire safety' as the most necessary change. The workshops with agency personnel also viewed elements of the concept 'individuals/community have a realistic understanding of risk' as highly important, but rather more difficult to achieve. In contrast, the community workshops accorded understanding of risk relatively low importance. The agency

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workshops also rated elements of the concepts 'household/neighbourhood planning and preparation' and 'neighbourhood and community networks and partnerships' as relatively important. 'Household/neighbourhood planning and preparation' was rated quite difficult to achieve. In comparison, the community workshops rated elements of the concepts 'policy framework for agency and organisational roles' and 'agency/community interaction' of high importance. The community workshops saw a 'policy framework for agency and organisational roles' as particularly difficult to achieve. Interestingly, agency groups did not appear to place a high level of importance on the concept 'deciding and planning for "stay or go"' while, on average, the community groups ranked this cluster of ideas fifth in importance.

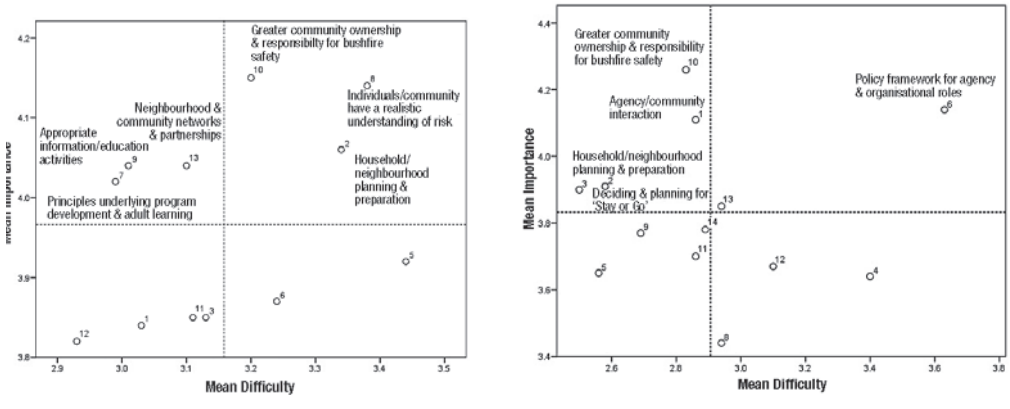


**Figure 13.2** Average importance and difficulty ratings of the 14 community safety concepts.

Other concepts accorded above-average importance by the agency workshops were 'appropriate information/education activities' and 'principles underpinning program development and adult learning'. This appears to indicate a specific agency concern with the tasks involved in the planning and delivery of community safety programs.

An important feature of the 14 generic community safety concept clusters that became evident during their synthesis from the results of the individual workshops was that the concepts extended across at least three levels of desired change: individual and household; locality, community and local bushfire agency; and central agency and policy institution. These three levels, together with the time-ordered elements of an extended program logic model (context, strategies and outputs, short-term to longer-term outcomes) were used to form a two-dimensional matrix and the 14 generic concepts were sorted into the matrix cells. Next, pairs of concepts that potentially represented strong immediate (and more distant) causal links were selected (the causal arrows added by some of the workshop groups to their concept map were a useful guide). Searching the content of the statements that were encompassed by the two generic concepts for which the link was hypothesised then suggested possible linking words or phrases that best represented the nature of the causal relationship. The precise meaning of the linking words was checked against the definitions and synonyms provided by the on-line lexical reference system WordNet (Fellbaum 1998). If necessary, the most appropriate synonym provided by this system was chosen to represent the link. Finally, all members of the project team reviewed the resulting logic model (Fig. 13.3).

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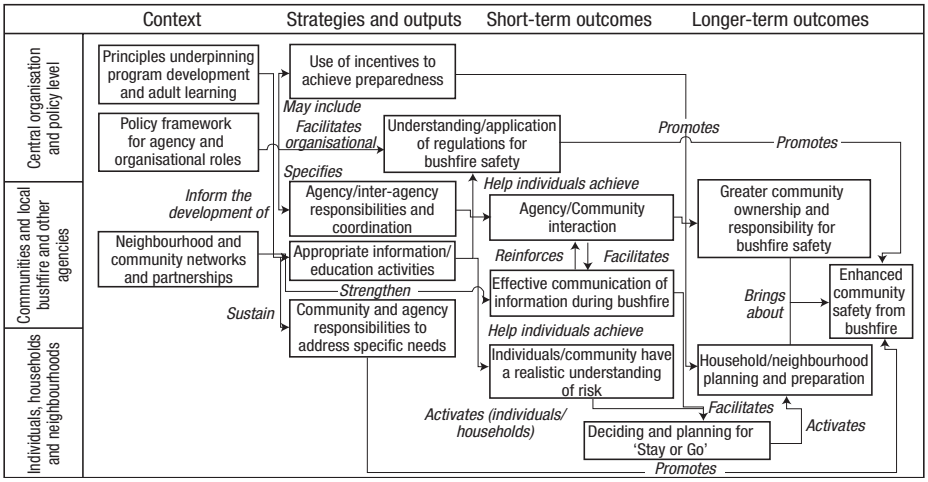


**Figure 13.3** A general logic model for bushfire safety programs.

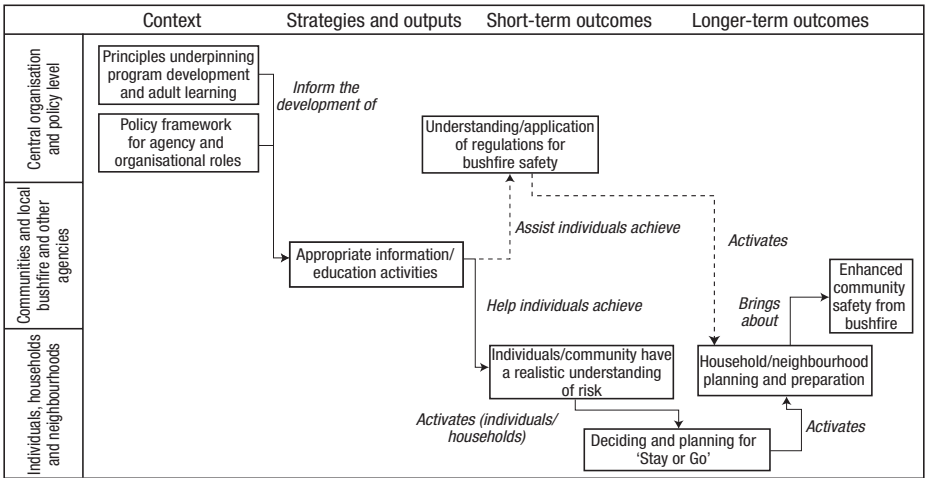


**Figure 13.4** A more specific logic model for bushfire community education programs.

## Implications for community safety program planning and evaluation

Fourteen generic clusters of desired outcomes resulted from the synthesis of 11 concept maps created during workshops held with bushfire agency personnel and community groups. Mapping the clusters across three organisational levels and arranging them into a provisional causal sequence with linking words and phrases provided the outline of a general program theory model that clearly reflects the community safety perspective on bushfire. In interpreting these results, it is important to appreciate that the 14 concepts are the product of a structured process that elicited then combined the ideas of 86 agency personnel and community members from five Australian states. All participants, in different ways, were closely engaged in promoting bushfire community safety.

At present, the project team is working on the application of a theory-based approach to evaluating community safety for bushfire in relation to five broad kinds of initiative:

- community education programs

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- community development programs that might utilise, or seek to develop, existing community infrastructure and strengths
- media-based community safety campaigns
- regulatory initiatives, frequently requiring inter-agency partnerships
- more specific initiatives for people with special needs.

A generic program theory model such as that shown in Figure 13.3 can be used as a starting-point for more detailed theories that might underpin each of these types of initiative.

Figure 13.4, for example, shows a portion of the generic model that might usefully form a starting-point in the development of a theory of community education programs for bushfire. Using the language developed by Tilley (2004) to distinguish the intended (STD – 'supposed to do') from the alternative, possibly unintended (OAD – 'otherwise/also does') causal chains activated, the STD pathway for a community education program might be represented by the following links: 'principles underpinning program development and adult learning' and a 'policy framework for agency and organisational roles' together inform the development of 'appropriate education/information activities' which, in turn, help individuals achieve 'a realistic understanding of risk'. Realistic risk understanding subsequently activates 'deciding and planning for stay or go' which in turn activates 'household/neighbourhood planning and preparation', finally bringing about 'enhanced community safety from bushfire', the idealised long-term objective of the community safety approach. Use of the linking term 'activate' later in the list suggests that risk understanding and deciding and planning for 'stay or go' might be critical causal processes in the success of community education programs.

Possible OAD pathways can also be identified. For example, another result of the provision of 'appropriate education/information activities' might be that individual participants achieve better 'understanding/application of regulations for bushfire safety' which may, in turn, activate 'household/neighbourhood planning and preparation' leading to enhanced bushfire safety. Finally, while the (mostly) one-way arrows in Figure 13.4 suggest simple linear chains of activities and outcomes, it is important to acknowledge that a fully developed theoretical model for community safety approaches would almost certainly involve a dynamic system with many feedback loops. For example, while the concept 'neighbourhood and community networks and partnerships' is represented as a predetermining context factor in Figure 13.4, active involvement by residents in extended community education activities may also strengthen these networks and partnerships, leading to further positive community safety outcomes for that locality.

When asked to rate the 'importance' of achieving the specific outcomes identified in their workshop, participants valued changes at all levels across the spectrum of individuals and households in localities vulnerable to fire; their communities and local organisations; and central agency and government instrumentalities responsible for both bushfire response and broad policy initiatives. Both agency and community participants, on average, gave their highest ratings to elements of the concept 'greater community ownership and responsibility for bushfire safety'. Thus, both groups emphasised the importance of a central idea of the community safety approach. Agency participants generally also highlighted achievement at the individual, household and community levels related to appropriate risk perception, planning, preparation and partnerships. Community groups valued changes in relevant agencies and organisations and their interface with the community. An exception was the relatively low level of importance accorded by agency workshops to the specific concept 'deciding and planning for stay or go'.

The concept-mapping revealed the rich detail and complexity of the notion of community safety held by our agency and community participants. We believe that it is particularly important to appreciate that individual and household-level outcomes are underpinned and supported by a network of principles and processes operating at the community/agency and policy/organisational

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levels (see Fig. 13.3). To be successful, programs and policies that aim to achieve individual and household level self-reliance and preparedness must take these intermediate and higher-level contextual factors that define the idea of community safety into account. An ever-present and critical risk in focusing on the household level alone is that the problem becomes individualised and responsibility for action is shifted completely to householders and landowners.

The concept-mapping also revealed clear support for another central idea identified with the community safety approach – the development of partnerships across the levels of householders, communities and agencies. Further, while the specific 'stay and defend or leave early' message does not appear to have been accorded high importance by the agency groups who participated in our workshops, the more general idea of householder and neighbourhood planning and preparation was clearly supported.

These results highlight a significant challenge in implementing the community safety approach. From an agency perspective, it is clearly important that a consistent and coherent message of planning and preparation for bushfire is disseminated to householders and communities. The community safety approach, however, entails acknowledgment that communities will adapt and perhaps re-invent this message both to fit it to their own setting and to achieve ownership of it. While not denying the potential value of other approaches to community safety education, this analysis suggests that community education programs based on agency support of continuing bushfire safety community groups should represent one potentially successful model for achieving both message consistency and community ownership. Current programs of this kind include the NSW Rural Fire Service's Community FireWise groups, the Community FireSafe groups in South Australia, the Community Fireguard program in Victoria and the WA Bushfire Ready Action Groups.

More generally, the results suggest there is an urgent need for communities and fire agencies, working in partnership, to seek appropriate ways to bring about greater community engagement with and responsibility for bushfire safety in particular localities. At the same time, expert professional support and guidance will still be necessary to devise safety messages and strategies that are supported by the best available evaluation and research evidence.

## Acknowledgments

The research described in this chapter was carried out by members of the Community Safety Evaluation Frameworks project team within Program C (Community Self-sufficiency for Fire Safety) of the Bushfire CRC. The authors wish to thank the other members of the Evaluation Frameworks team who contributed to the various workshops and group discussions: John Gilbert, Helen Goodman, Sandra Nolte and Sonia Whiteley. We also wish to acknowledge the essential support provided by the Collaborative Institute for Research, Consulting and Learning in Evaluation (CIRCLE) at RMIT University and the Institute Director, Associate Professor Patricia Rogers.

The concept-mapping workshops described in this chapter were facilitated and the results initially analysed by Roy Batterham, Plexus Consulting, Melbourne. The research team was greatly assisted by Roy's unique expertise. Version 1 of the Concept System program was used for the concept-mapping workshops.

## Endnote

1 A detailed description of the method is given in Trochim (1989). This and many other papers describing the Trochim approach to structured concept-mapping are available on-line at http://www.socialresearchmethods.net/mapping/mapping.htm.

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