Loss of Home - the human impacts of bush fire

Suggestions for improved responses by government and fire agencies during post fire recovery

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DANIELLE MEGGOS
3025023

An undergraduate thesis carried out in partial completion of the Bachelor of Town Planning Degree

Planning and Urban Development Program
Faculty of the Built Environment
University of New South Wales
June 2006

ACKNOWLEDGEMENTS

I would like to pass on my deepest thanks to the following people who have helped me along throughout my studies and particularly in the completion of this thesis.

- First and foremost, my husband John, my parents Anne and Brett and my brother Glen without whose love and support I wouldn't have been able to get this far.

- Susan Thompson who provided me with information and was willing to give up some of her time to assist in this thesis.

- My friends (particularly Tanya Hollis), and work colleagues for putting up with my 'thesis talk'.

- Danny Wiggins, my thesis advisor, for his guidance, advice and time.

ABSTRACT

Australia has suffered numerous major bush fires over the past decade, causing extensive property loss and loss of life. Over time there has been an increased awareness by government and authorities of the impacts of bush fire on people and property and opportunities are explored to improve building survival in an attempt to reduce the number of lives and buildings lost. The past decade has seen much research undertaken in this area, which has resulted in a better understanding of how buildings are ignited and destroyed. However the least considered aspect of bush fire is the human impacts as a result of losing a house. This thesis investigates the implications of losing a house, as a result of bush fire, on residents and home owners. The outcome of this will provide further justification for the application of development controls in bush fire prone areas that attempt to minimise the implications of bush fire loss.

The challenge is to take our current knowledge of bush fires and understanding of the social implications from past fires and apply them to disaster recovery. This thesis will discuss the practical responses by government and policy makers to the impacts of bush fire loss during post fire recovery. This will assist in identifying how government and fire agencies can more effectively integrate social impact assessment into the disaster recovery process for bush fire.

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And

'The Quote Garden' Viewed 9 June 2006
http://www.quotegarden.com/home.html

ABBREVIATIONS

ALGA   Australian Local Government Association

COAG   Council of Australian Governments

EMA   Emergency Management Australia

GIS   Geographical Information System

HLG   High Level Group

IPAA   Institute of Public Administration Australia

NSW   New South Wales

PBP   *Planning for Bushfire Protection 2001*

PPRR   Prevention, Preparedness, Response and Recovery

RFEALA   *Rural Fires and Environmental Assessment Legislation Amendment Act 2002*

RFS   New South Wales Rural Fire Service

CHAPTER 1: INTRODUCTION

"Fire is a good servant but a bad master"
Anon

1   INTRODUCTION

1.1 Introduction

Australia has suffered numerous major bush fires over the past decade, causing extensive property loss and loss of life. The NSW bushfires of December 2001 to January 2002 destroyed 109 houses with another 40 damaged (RFS, 2006, 2006a, 1998). In NSW, over the summer of 2002-2003, bush fires burnt over 1 million hectares with a total of 86 houses lost (RFS, 2006,). On a single day in Canberra (18 January 2003), 488 homes were destroyed and 4 people tragically died (RFS, 2006a).

Public and media attention has been drawn to the intensity and extremity of these major bush fires. Fire events, such as the ones outlined above raise the question as to how the risk of life and property can be reduced through better preventative measures and how the economic, social and environmental impacts can be reduced through improved disaster recovery. Planning for the mitigation and relief of bush fires has received considerable attention over the past decade as a result of major bush fire campaigns and various inquiries that have resulted.

Nothing we can do will avoid the possibility of bush fires occurring and no matter what precautions are put in place prior to a bush fire occurring, such as land use planning and development controls, we will still lose urban and rural properties under extreme bush fire conditions.

Many people are affected directly and indirectly by bush fire and to assess the personal damage that results from bushfire is difficult. The physical injuries and structural damage from bush fire are relatively easy to account for, but the emotional trauma is harder to document and can affect peoples lives for weeks, months and even years to come. The implications that the communities devastated by bush fire are faced with are as varied as the people themselves.

The challenge is to take our current knowledge of bush fires and understanding of the social implications from past fires and apply them to disaster recovery.

1.2 Purpose of this thesis

This study discusses the meanings of the concept of home. It explains how the loss of or damage to a home from bush fire significantly impacts on each individual's meaning of home. For the purposes of this study, home in the context of a house or dwelling, has been used.

This thesis investigates the implications of losing a house, as a result of bush fire, on residents and home owners. The outcome of this will be to provide further justification for the application of development controls in bush fire prone areas that attempt to minimise the implications of bush fire loss. Over time there has been an increased awareness by government and authorities of the impacts of bush fire on people and property and opportunities are being explored to improve building survival in an attempt to reduce the number of lives and buildings lost. The past decade has seen much research undertaken in this area, which has resulted in a better understanding of how buildings are ignited and destroyed.

More specifically, this thesis will focus on the concept of home and belonging and the many implications that this has on an individual's response to bush fire. This will assist in gaining a better understanding of the impact that losing a house to bush fire has on residents and communities. In many cases it is not just the loss of the structure itself that the resident experiences but numerous other aspects including: a loss of privacy, a loss of memories and a loss of equality (and creation of a segregated community). These losses are intertwined and can have significant impacts on the well-being of people.

As a second aim this thesis will discuss the practical responses by government and policy makers to the impacts of bush fire loss during post fire recovery. This will assist in identifying how government and fire agencies can more effectively integrate social impact assessment into the disaster recovery process for bush fire.

1.3 Research objectives

The specific objectives of this thesis to:

- establish a history of bush fire in Australia
- undertake a detailed overview of the concept of home and the implications of losing home within the context of bush fire
- critically assess and examine the social impacts associated with notions of home as they relate specifically to loss or damage of home from bush fire
- suggest measures for a more effective integration of social impact consideration into the disaster recovery process for bush fire; and
- suggest measures to improve social impact consideration by the relevant government and agencies

1.4 Structure

The objectives of the thesis are explored through the thesis structure outlined below:

1. **Introduction and Research Objectives:** provides an introduction to the topic and gives a broad overview of the work. It will also outline the objectives, aims, methodology and scope of the study.

2. **Historical and Contextual Background:** establishes the contextual framework for the thesis. It looks at the occurrence of bush fire within Australia

3. **Loss of Home:** examines the theory behind the loss of home, and considers how these ideas have been explored in relation to bush fire.

4. **Impacts Explored:** explores the implications of losing a house to bush fire and confirms the results of the discourse analysis in the previous chapter.

5. **Technical Options for Post Fire Recovery:** examines the theory behind disaster recovery and how current policy applies for bush fire.

6. **The Preferred Approach for Post Fire Recovery:** suggests practical measures that can be incorporated into the disaster recovery process to better deal with the impacts explored in previous chapters.

7. **Recommendations and Conclusions:** expands the results of the previous chapter and outlines specific improvements that can be made in respect to disaster recovery to account for social impacts.

1.5 The role of environmental psychology and qualitative research

Environmental psychology focuses on the simple effects of the physical environment on observed human behaviour and studies within this sphere involve a number of different techniques for interpreting meaning. This includes hermeneutics which is the task of interpreting the meaning of language, texts and visual representations (Waitt in Hay 2005). This can include the study of a single dominant meaning or multiplicity of meanings and has been the main technique used in this study.

Qualitative research allows planners to apply meaning and understanding to the world around them. It provides an opportunity to get to know the community they are dealing with in a humanistic and subjective way by actively listening to multiple, and often conflicting, personal stories. It allows the planner to get close to the people being studied and to learn and interpret the needs, wants, thoughts and opinions of individuals and to experience the many emotions and reactions that they may have to certain issues. It is of particular value to the built environment disciplines as it provides an opportunity to understand the complex people-place relationships that exist in today's society (Thompson 2005). It is also critical in enabling an understanding of the complex social and culturally diverse contemporary societies that exist across the world.

The main weakness of qualitative research is that, unlike quantitative research, it is difficult to convert the data into a numeric format and analysis of the many words, sounds and body language which are quite complex. Quantitative methods on the other hand, employ statistical and mathematical modelling approaches to understand social and physical relationships (Hay 2005).

1.6 Research methodology

This thesis includes a mix of qualitative and quantitative methods relating to distinctive, but related components of the proposed research into the implications of loss of a home as a result of bush fire. The research methodology underpinning this thesis is as follows:

1.6.1   Appreciation of issues and thesis context

Following submission of a detailed proposal in June 2005, the initial stage of the work was to establish an understanding of issues involved and the context of the thesis. This involved researching the loss of home as a result of bush fire within Australia and to gain a better understanding of what 'home' means to people, based on secondary sources.

The concept of home was examined through a literature review conducted in August-September 2005, and augmented by further secondary research throughout March-April 2006.

1.6.2 Quantitative and qualitative analysis of bush fire

The next phase of the process involved a quantitative analysis of the occurrences of bush fires in NSW and the extent of damage and destruction caused. This work used data from the RFS, GIS mapping and graphs generated from statistics to analyse the distribution of house loss across NSW and over time. A brief literature review into bush fire behaviour and current bush fire protection measures that are employed to minimise the effects of bush fire on development was undertaken in May 2005.

1.6.3 Primary data collection

The author's personal experiences as a volunteer fire fighter and RFS staff member responsible for interviewing and talking to residents who have suffered loss from bush fire, and the responses of friends and acquaintances who experienced the devastation of the Christmas 2001 bush fires on the south coast of NSW, have also been utilised.

The May 2006 Australasian Education and Fire Awareness Conference 2006 held by the RFS was attended, where representatives from fire agencies across Australia and New Zealand made presentations on various advances in Community Safety in their respective areas.

1.6.4 Ethics requirements

Ethics approval for the qualitative research component of the thesis was granted in August 2005 as a group approval through the Faculty of the Built Environment (Planning and Urban Development Program) for Qualitative Methods (PLAN3052).

1.6.5   Qualitative interview

During October 2005 a semi structured interview was conducted with Ron Anderson, Senior Chaplain of the RFS, who has supported residents impacted upon by bush fire over a number of years. The interview was tape recorded and transcribed, and the interview data analysed using interpretative methods. A list of interview questions is attached at **Appendix 1**. This interview was undertaken to assist in discovering how individuals come to create and apply meaning to the devastation of bush fire and how they subscribe values to assets that are impacted upon.

1.6.6   Data synthesis and analysis

During April-May 2006 a detailed analysis of the research was undertaken. Data collected from interviews and presentations was collated and critically reviewed. The implications of these findings as they related to the social impacts of bushfire were then analysed. Current approaches to disaster recovery were then discussed and critically evaluated, resulting in a series of suggested measures to improve upon current policy and practice.

1.6.7   Establishment of research findings

During May 2006, overall findings and conclusions were established based on the research undertaken and critical analyses as outlined above. The recommendations made are related to the broader principles of disaster recovery, as well as the importance of considering the social impacts of bushfire throughout the recovery process.

1.6.8   Thesis production

The production of the final thesis, including graphic material, formatting, and final presentation and editing was undertaken throughout May and early June 2006, immediately prior to the presentation of the thesis.

1.7 Research limitations

A disaster situation is a highly dynamic and dramatic event. Ideally research should be carried out the moment that the disaster occurs. As time passes evidence is lost, behavioural patterns cannot be observed directly, and true ideas and beliefs can often be concealed. This research relied partly on interviews undertaken months after the event occurred.

The study is carried out as a component of a planning degree and not a psychology degree so will not delve too deeply into individual psychological issues, but will briefly explore the environmental psychology sphere.

As this thesis is being undertaken as part of an undergraduate degree the resources available are limited, particularly the funds that would be required to employ other people to assist in the carrying out of extensive interviews with home owners who had experienced the devastation of bush fire that would assist in getting a better understanding of the topic. It was also not possible to gain access to or obtain details of residents who had recently experienced a major bush fire event. As a result of this, interviews with RFS staff directly exposed to residents who have experienced loss as a result of bush fire were chosen.

CHAPTER 2: CONTEXTUAL BACKGROUND

" . . . But enough!
Where are the words to paint the million shapes
And unimaginable freaks of Fire,
when holding thus its monster carnival
In the primeval Forest all night long?"
Charles Harpur, "The Bush Fire" (1853)

2   CONTEXTUAL BACKGROUND

This chapter explores the occurrence of bush fire within Australia and the level of awareness the Australian community has of the risk posed by major bush fires. A review of literature and existing planning controls relating to bush fire, and a quantitative analysis of losses from bush fire was undertaken.

2.1 Bush fire: the natural hazard

Bush fires are seen as an inevitable and essential component of the native Australian landscape. Bush fires in Australia are unique because of their regular occurrence and the highly flammable nature of the Australian bush land. The bush is designed by nature to burn and mostly needs fire to survive (Bryant 1991). Pyne (1991) explores the role of fire in Australia as a catalyst for the growth and development of a unique ecosystem which is the Australian bush land. The dynamics of fire made it one of the most powerful environmental determinants that shaped Australia. Over time fire in Australia became more frequent, more intense, more pervasive, more domineering a presence (Pyne 1991). Pyne (1991) and Webster (2000) both recognise that many Australian flora species thrive on fire and require it to reproduce and flourish. Cunningham (2003) also acknowledges that a substantial change in the fire regime of Australia would mean a very dramatic change in the ecosystem. Australians have drawn on extensive Indigenous, local and scientific knowledge in learning to live with bush fires (Ellis et al 2004).

Despite this, bush fires are probably the most known and feared of all the natural hazard events that occur in Australia. The worst fires in Australian history are well documented, with many Australian residents familiar with the devastating fires of Ash Wednesday, Black Friday, Black Thursday and more recently the Black Christmas and Canberra fires (Photos 1, 2 and 3).

The potential for a major bush fire depends upon the characteristics of the fuel, climate (weather), and fire behaviour and ignition source. Within Australia, fuel characteristics play an important role in the spread and control of fires. Grassfires are relatively short-lived and have a lower intensity (Ramsey and Rudolph 2003). Forest fires often crown (burn in the canopy of the trees) and the fire can burn for a long time as it is carried through surface and elevated fuels by wind (Ramsey and Rudolph 2003). Forest fires are the fires that have a history of causing the most destruction and devastation within NSW.

2.2 The devastation caused

The devastation caused by fires is evident in the graph shown in Figure 1 which identifies total dwelling losses over time across Australia as a result of bush fire and Figure 2 which outlines the extent of losses of dwellings and lives during recent campaign fires within Australia.

Bush fires can have significant impacts on individuals, communities, and on public and private assets, by threatening to damage or destroy human life and property, agricultural and forest production, animals, biodiversity, air and water quality, cultural heritage and infrastructure (Ellis et al 2004). While it is acknowledged that it is impossible to totally remove the threat and likelihood of bush fires and subsequent property loss, measures can be put in place to minimise the impact on life, property and the environment and should be implemented early in the planning process (Cunningham 2003).

Despite the existence of fire management agencies who aim to protect life and property from bush fires (such as the RFS), it cannot be guaranteed that adequate resources will be available to protect every single property across the nation.

As a result of this no-one living on the urban-bush land fringe can consider themselves immune from a potential major bush fire and the devastating effects it can have on their lives

The choice to live close to bush land carries with it the inherent danger of fire and the potential impingement of fire on the urban/bush land edge is well documented (Bradstock and Gill, 2001). It is therefore not surprising that bush fires in Australia have the potential for being the major cause of property damage and loss of life.
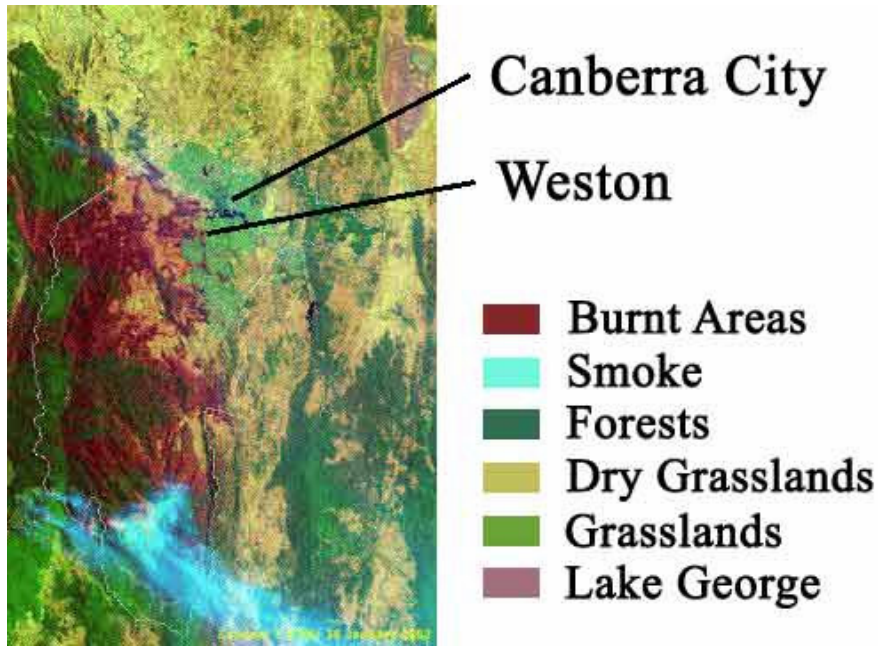
Photo 1: Canberra bush fires 2003
Source: Australian Government - Geoscience Australia, 2004

Photo 2: Ash Wednesday fires in Vic and SA
Source: NSW Rural Fire Service, 2006
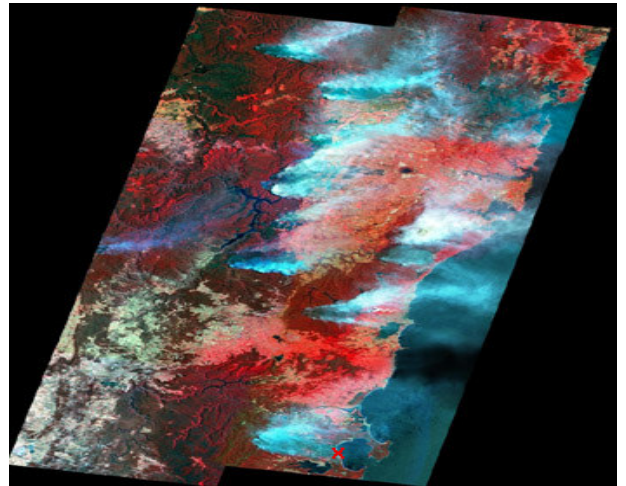
Photo 3: Sydney Christmas fires, 2001
Source: NSW Rural Fire Service, 2006

Total House Losses Over Time From Bush Fire
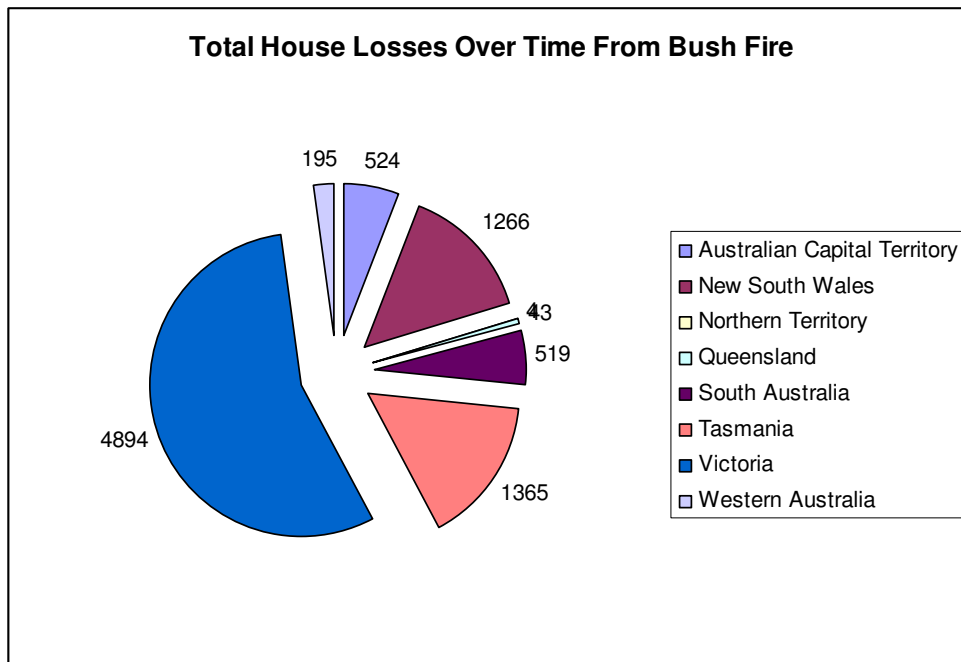
Figure 1: Total house losses over time from bush fire

Source: Leonard, 2006

Recent Bush Fire Statistics
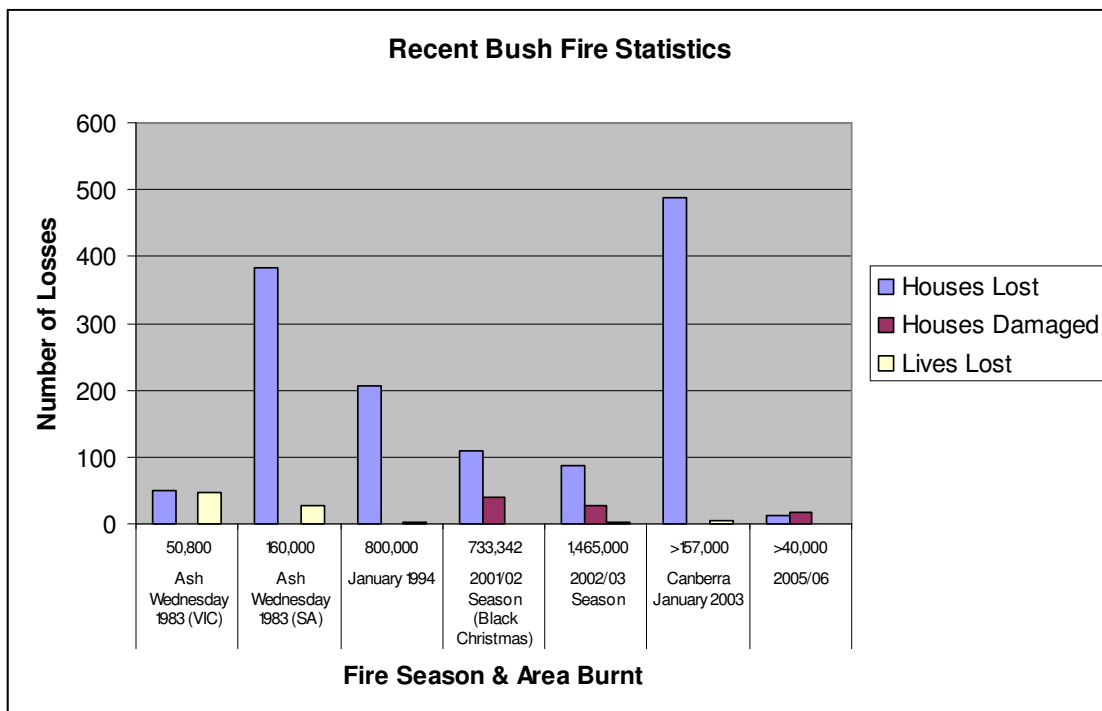
Figure 2: Recent bush fire statistics

Source: NSW Rural Fire Service, 2006, 2006a, 1998)

2.3 The role of planning and development controls

Over time there has been an increased awareness of the impacts of bush fire on people and property and opportunities are being explored to improve building survival and reduce the number of lives lost. The past decade has seen much research undertaken in this area, which has resulted in a better understanding of how buildings are ignited and destroyed. The results of this research are incorporated into the design of buildings and can be used to identify ways that the surrounding landscape can be modified to increase the chances of building survival (Ramsey and Rudolph 2003).

In NSW, *Planning for Bushfire Protection* (PBP) provides the design requirements for residential and special protection developments in bush fire prone areas of NSW. The planning and development controls outlined in PBP can be incorporated at the subdivision and development stage and aim to protect assets before they are placed in proximity to a hazard. Figure 3 identifies the extent of bush fire prone land within NSW and the mapping of bush fire prone land is used as a trigger for new development to consider the requirements of PBP. The benefits of these legislative controls and the impact they can have, if applied correctly, on minimising the loss of property and life from bush fire have been explored in various research and studies.

However it is also necessary to consider the impact that these development controls have on those home owners who have made the choice to live in a bush land environment. Homeowners may not want to build to the prescriptive controls imposed on them or they may not have an adequate understanding of the threat of bush fire that the authorities are trying to protect them from. Unfortunately it may not be until they have had their home destroyed by bush fire that residents will begin to understand the impact of losing a home.

> *A lot of them don't realize…what fire can really do and they're a little bit*
> *blasé about it especially when they want to build a house…right on the*
> *edge of a mountaintop or something and…someone from the Rural Fire*
> *Service turns up and tells them well I'm sorry you're going to have to have*
> *gold plated fly screen… but that's because…they don't understand…until*
> *it happens to them (Anderson 2005, pers. comm., 11 Oct).*

The application of bush fire measures at the development stage is a risk management approach that attempts to lessen the consequences of bush fire.

2.4 Community awareness

The presence of a large proportion of the Australian population on the bush land fringe would suggest that many Australians choose to live close to the natural environment and are passionate about the aesthetics of being surrounded by bush land. They often go to great lengths to immerse themselves in the natural bush land environment that surrounds their home. Unfortunately the homes that are the most unusually designed and made of materials that complement the surrounding natural environment, but are often highly combustible, are also situated within the most densely vegetated bush land areas. These factors combine to create developments that are extremely vulnerable to bush fire attack.

Despite the frequency of bush fires and the level of media attention that is afforded to such events, many Australians have not had direct exposure to bush fire. It has been a few years now since a major bush fire has occurred in NSW. The most recent, memorable bush fire for many NSW residents is the 2001-2002 campaign that impacted upon numerous communities within the Greater Sydney Region, South Coast and Central Coast. The Gosford and Junee Fires of 2005-2006, although devastating to the communities, impacted on a small part of the population, and as a result have not had a significant influence on the majority of Australians. Although not technically within NSW, the Canberra fires of 2003 had an enormous impact on many NSW residents due to the extreme devastation and disruption they caused.

Anderson (2005) points out that 'the next generation is coming through that doesn't remember them and…doesn't have a comprehension of it' (Anderson 2005, pers. comm. 11 Oct). This makes it difficult for authorities such as the RFS to convey their message of community safety and for the residents to comprehend why they have to consider bush fire protection measures when they have never experienced the ferocity of a major bush fire themselves.
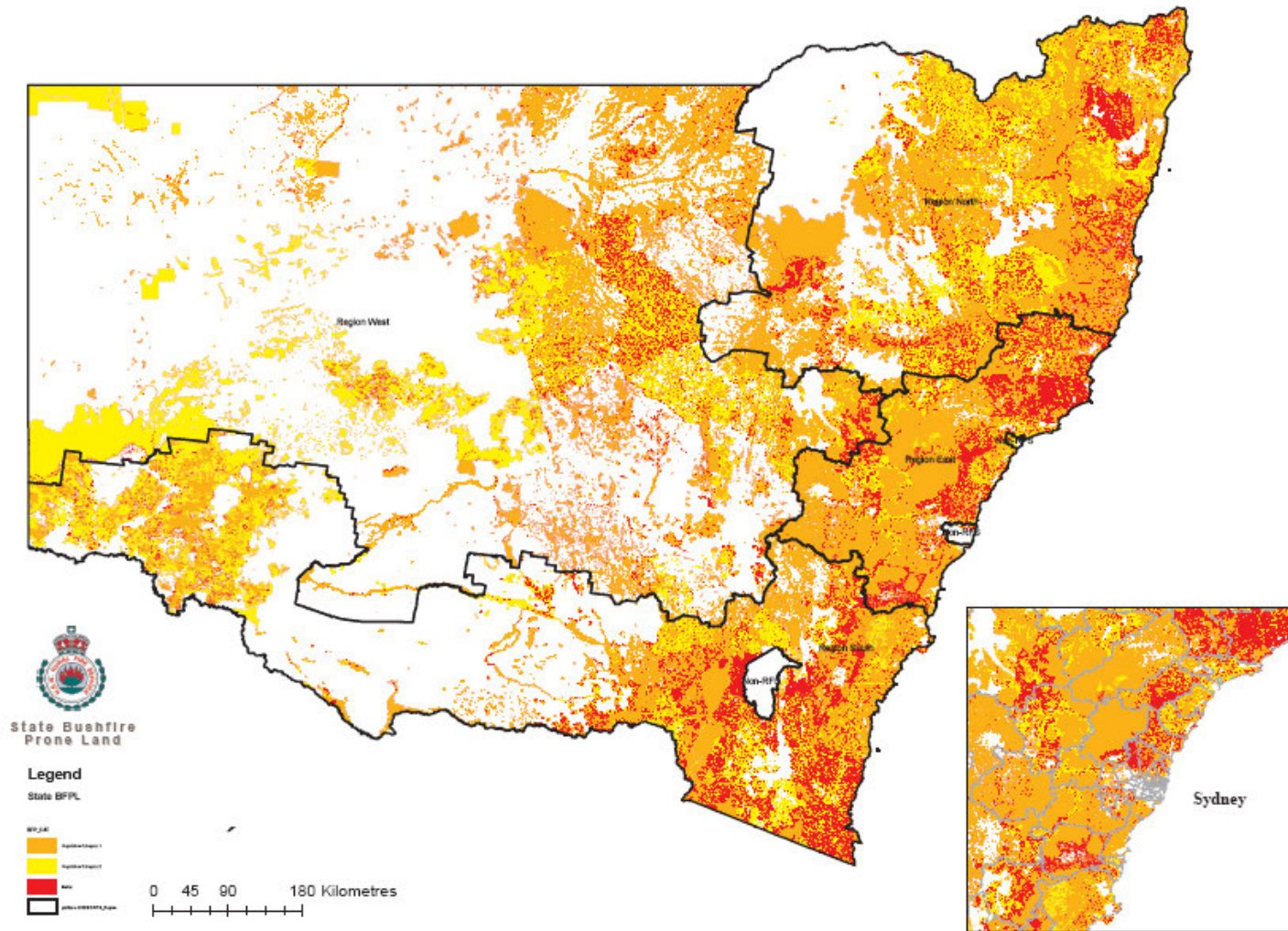
Figure 3: NSW State Bush Fire Prone Land Map

Source: NSW Rural Fire Service.

CHAPTER 3: THE CONCEPT OF HOME

"Home is a name, a word, it is a strong one; stronger than magician ever spoke, or spirit ever answered to, in the strongest conjuration."

Charles Dickens

3   THE CONCEPT OF HOME

To gain a better understanding of the impact that losing a house to bush fire has on residents and communities, it is necessary to first understand the concept of home and belonging. This chapter seeks to describe the meaning of home and reflect the significance and value of a persons dwelling place.

A review of the pertinent literature was undertaken to assist in thinking about the question of the meaning of home before engaging in interviews with the respondents. This involved reading widely and across disciplines as the question of the meaning of home is addressed in many different arenas. The study of place and region is known as 'chorology'. By reading widely it is possible to understand how concepts such as place, community and home are dealt with by non-planning disciplines that also consider these concepts at the centre of their analyses.

3.1 The meaning of place

Place carries with it the resonance of home, location and open space within the city, as well as a position in a social hierarchy (Hayden, 1995). Interestingly, the Oxford English Dictionary refers to the 'geographical' meaning of 'place' as "a portion of space in which people dwell together." However, the meaning of place will vary for each individual person and amongst other things is dependent on age, class, gender, status and point of view (McDowell 1997). Place tends to be exclusive and the boundaries that define a place are essential characteristics of place formation (McDowell 1997). People make attachments to certain places that impact on their well-being and identity. An individual's sense of place is a combination of a biological response to the surrounding physical environment, a cultural creation and an emotional response as a result of social relationships and attachments that have been formed (Hayden 1995).

Casey (1987) suggests that a persons 'place memory' can be an important component in determining their identity and accounting for their past:

> *It is the stabilizing persistence of place as a container of experiences that contributes so powerfully to its intrinsic memorability. An alert and alive memory connects spontaneously with place, finding in it features that favour and parallels its activities. We might even say that memory is naturally place-oriented or at least place-supported* (Casey, 1987, 186-187).

Place can thus be viewed from different scales including the scale of home, the locality or the community, the region and the nation state. For this study place at the scale of the home has been focused on.

Therefore to have these places disrupted by bushfire, can have far reaching implications and severely damage the well-being and identity of individuals.

3.2 The meaning of community

The concept of home is often crucially tied to the idea of community and both terms can be used at a variety of scales (McDowell 1997). We often use the term home to refer to not only the house we live in but also the local area we associate with, the town or city in which we live, even a region or country and in some cases our home country or 'homeland' (McDowell 1997). Communities can take many different forms, and to define and measure them is fraught with difficulty (Pain et al 2001). In the context of this study community tends to focus on a smaller spatial scale

Communities can be defined as spatially fixed or grounded places or non-place based associations (i.e. a neighbourhood, interest groups, community of like minded people). They are often formed or strengthened by external processes and threats such as bush fire.

3.3 The meaning of home

The term home is for many an extremely evocative word that is filled with meaning and association. Home can be associated with 'safety, with familiar and protective boundaries, with the family, the exclusion of unwanted others, with privacy, a haven in a heartless world (McDowell 1997, 13). Thompson (2005a) suggests that home is 'the familiar, taken-for-granted world where we are nurtured, comforted and loved'. It is where 'we can dream and hope and relax and be ourselves, laugh and cry' (Thompson, 2005a:257).

There are numerous writers from a range of disciplines who explore the meaning of home through phenomenological studies. The meaning of home reflects the significance and value of one's dwelling place and may be symbolised in a variety of ways (Swenson 1991). Swenson (1991) identifies that Sixsmith, 1986, Cooper 1974, Giuliani, 1987, and Rapport, 1982 believe that home is a concept that is central to the identity of many and that it is a psychologically meaningful place. She states that there is a 'context specific set of ideas and values that endow homes with meaning' (Swenson 1991, 11). Rullo (1987, 256) goes a step further and describes home as 'the most meaningful place in everyday life and the centre of emotional significance'. For many home is seen as the place 'where all that truly mattered in life took place – the warmth and comfort of shelter, the feeding of our bodies, and nurturing of our souls' (Hooks in McDowell, 1997, 33).

The notions 'house', 'residence', 'housing' and 'dwelling' tend to focus more on the built and architectural aspects of a person's place of residence, rather than the non-tangible and emotional meaning of home and attachment to place. This focus on the built environment aspect is influenced by the high value people place on their property, which is impacted by the value placed on home ownership in Australia (Reinholdt et al 1999). An individual's house can be viewed as an important signifier of social status, segregation and inequality as it closely reflects income, class, culture and aspirations as well as social power relations (Pain et al 2001).

The construct "home" 'combines meanings of the physical building, the family and affections, of dwelling in time and space, of ownership and responsibility' (Swenson 1991, 48). The home is often viewed as being a safe and comfortable place that is both a haven from the troubles of the outside world and a place where individuals can find fulfilment in relationships with those who live with them (Pain et al 2001). This theory of home has also been proposed by Cooper (cited in Swenson, 1991) who views home as a study of self, and a symbol of aspirations and status passage. Wilmott and Young (cited in Swenson, 1991) suggest that people often represent home as a social and kinship unit while Horowitz and Tangle (cited in Swenson, 1991) found that the concept of home has varying environmental and psychological dimensions to an individual. Thompson (2005a) has identified a number of elements that contribute to a persons meaning of home which are shown in Table 1.

Element of meaning of home	Meaning
Symbolic	Refuge from the outside world
	Reflection of who I am
	Indicator of personal status
	Embodies my values – individual, cultural, religious
	Embodies dreams and hopes
	Financial security now and into the future
Social	Relationships with family and friends
	Relationships within the neighbourhood – social, cultural, educational and economic connections
Psychological	Sense of permanence and continuity over time
	Feelings of security and control
	Perception of familiarity
Physical	Physical structure of the dwelling provides warmth and security
	Ownership – financial investment
	Design and building of the dwelling
	Decoration and renovation
	Centre of daily activities – both in the dwelling and the neighbourhood beyond

Table 1: Multi- dimensional meanings of home

Source: Thompson, 2005a

Relph (1976) suggests that a persons experience will help them to belong to, and identify with, a place and that the concept of home is much more than just recognising the house itself. He writes that:

> *…home is the foundation of our identity as individuals and as members of a community, the dwelling-place of being. Home is not just the house you happen to live in, it is not something that can be anywhere, that can be exchanged, but an irreplaceable centre of significant. (Relph 1976, 39)*

For many the home is important in expressing their own identify. The concept of what and where 'home' is differs for each individual person and is mentally constructed (Read 1996). Home to one person will be in a completely different location and will occupy a different space to another person (Read 1996). People do not just identify home as a space or location but also by the functions that are performed (Read, 1996).

In other words, for some people it is not necessarily the structural formation of a house that people relate to but rather what takes place inside that house (i.e. the bonds between the family members, a special space in the backyard). For others the structural form of the house symbolises everything that they hold dear and to have it destroyed by bush fire, tears at their heart strings. The home is the place to which an individual is bound by being the base for departure and the return to an unconscious familiarity (Cox and Holmes 2000). Porteous and Smith (2001) acknowledge that the dwelling and its immediate surroundings are often the chief focus of an individual's spatial concept of home.

Although there have been extensive phenomological studies into the meaning of place, community and home, there is limited research that is specifically relevant to the destruction of home from bush fire and its associated implications. Porteous and Smith (2001) indicate that following a bush fire, reactions are immediate and as a result commentators have had to rely on observations made soon after the event, in order to gather data. This would contribute to the limited data that is available in this area, as accounts from residents and communities affected would be distorted by the stress of the situation and the delay in discussing their experiences with commentators.

3.4 Disruption to home as a result of bush fire

Disruption to an individual's home can occur in countless ways, but is usually connected to the influence of other people or uncontrollable events (Cox and Holmes 2000).The deep connection that some people feel towards their home can be severely damaged as a result of the loss of their home from bush fire. Read (1996) interviewed a number of residents whose homes were impacted by the Ash Wednesday fires of 1983 in Mount Macedon. One couple who had lost their house identified the deep emotional impact the bush fires had by stating that 'their home, never very secure in their affections, was emotionally lost to them' (Read 1996, 106). Fried (1963) speaks of the disruption that a severe loss may cause to an individual's relationships, routines and expectations and that it cause a change in a 'potentially significant component of the experience of continuity" (Fried in Duhl, 1963, 153). This is particularly relevant for bush fire where entire houses are lost or severely damaged.

Thompson (2005a) identified the possible impact of a relationship breakdown on the meaning of home for individuals (see Table 2). The same principles are likely to apply to those who loss a house as a result of bush fire as they are faced with not only losing the structure itself but also the many memories and possessions that are contained within it.

Element of meaning of home	Possible impact on meaning of home
Symbolic	Loss of the shared dream of a life together
	Loss of family life and domesticity
	Loss of financial security now and into the future
	Loss of self identity
	Loss of personal status – linked to the changes in physical meanings of home
Social	Loss of relationships with family and friends
	Disconnection with neighbourhood services, activities and relationships
Psychological	Severing of connection with memories of a loved space and the activities that happened there
	Loss of security and control
	Loss of familiar intimate relationships, domestic life and a neighbourly community
Physical	Loss of shelter – temporary homelessness
	Loss of a base for routine & comforting daily activities
	Loss of a dwelling which embodies a major building, renovation or decoration project
	Forced relocation to a less appropriate dwelling
	Change of tenure – going from ownership to rental
	Possible loss of ever being able to attain home ownership

Table 2: Impacts of relationship loss on meanings of home

Source: Thompson, 2005a

3.5 Losing home: is it more than bricks and mortar?

The emotions that the communities devastated by bush fire feel are as varied as the people themselves. In many cases, it is not just the loss of the structure itself that the resident experiences, but many other aspects as well. An important aspect to consider is people's experiences of their dwelling place, both in terms of its everyday taken-for-grantedness and then coming into sharp relief when major disruption occurs as a result of an uncontrolled event such as bush fire (Cox and Holmes 2000). The impact of bushfire on affected individuals demonstrates the centrality of home and the devastation that results when it is destroyed (Thompson 2005a: 259).

Cox and Holmes (2000) explore the implications of losing a home from bush fire and suggest that there is much more at risk than just the destruction of the dwelling itself.

Something has occurred which prevents the maintenance of personal cohesiveness and undermines the meanings that were essential to the sense of place and self identity. Suffering is inevitably connected to the disruption of meaning, and whilst the bushfire itself did not create suffering – a bushfire simply is – it was the cascade of human events that arose from the bushfire, and the meaning they had for individuals, that created suffering. Since meanings are idiosyncratic, so is the importance attached to what is lost. For some people, meaning was embedded in the possessions that gave them a past, a sense of their own history. For these people, loss of photographs and other memorabilia created great and continuing suffering (Cox and Holmes, 2000: 69).

The results of this literature review suggest that the implications of losing a home from bush fire go beyond the distress of losing a dwelling and can have profound effects on both the emotional and psychological well being of people. These implications are explored further in the following chapter which presents the findings from interviews and personal reflections.

CHAPTER 4: THE IMPACTS

EXPLORED

"Fire does not produce more fire, it produces ashes."

African proverb

4   THE IMPACTS EXPLORED

As indicated previously, there has been much research undertaken into the impact of bush fire on buildings and infrastructure and their survivability as a result of appropriate development and planning controls, but the vulnerability of humans in the community is the least known and often forgotten element of bush fire.

Following a major bush fire, many feel that their lives have changed forever, whether it is in a good or a bad way. They have learnt from the experience and will never be the same as before the fire. This is evident in the following two accounts from Sutherland Shire residents who experienced the 1994 Como bush fires:

> *'The direction of our lives has changed forever, because so much of ourselves has gone up in flames* (Belshaw in Sutherland Shire Council, 1994: 13).

> *'To witness the approach of a holocaust is indeed a good warning to appraise our way of life and perhaps alter for the better, our future'* (Fisher in Sutherland Shire Council, 1994: 34).

If not addressed adequately the impacts of a bush fire can affect people for many years after the event has occurred, and can be triggered by other events. Esme Gale survived a bush fire as a child in 1914 and the memories where triggered 80 years later during the 1994 Warringah Pittwater fires:

> *'The trauma stays with you for a very long time…It is important people understand what bush fire victims are going through. Even after 80 years a fire affects me greatly. I used to have nightmares as a child and during the week of the bush fires I could not eat or sleep.*

All the memories came back and my legs turned to jelly from the shock. I was numb for week. It is important that people who have experienced a bush fire don't blot it out of their minds, but try to get on with the business of living'(Macleod, 1996:51).

The implications of bush fire are many and varied and it is troubling to discover that human reactions are the least studied. Detailed within this chapter are the results of an in depth interview with Ron Anderson on 11 October 2005. Ron is employed as the Senior Chaplain of the RFS and has been involved in numerous major fire campaigns. The findings of this interview have been further supported by anecdotes and interviews with victims of the 1994 Warringah and Pittwater and Como fires. Personal reflections and experiences of the author have also been included in some sections.

4.1 Loss of privacy

Following the passing of a bush fire through residential areas, both the public and media seem to take a keen interest in those houses that have been lost or damaged. However, more often than not they do not consider the implications that their interest has those who have experienced the loss.

It is important to remember that the process of grieving for lost homes is personal and often lonely (Read 1996). During a study of a community impacted by a bush fire Cox and Holmes (2000) discovered that residents wanted to deal with their loss in private. They wanted to 'put a zone between themselves and the rest of the world, to narrow their boundaries so that they could manage their healing together quietly, gently and with as little visibility as possible. They sought to make their dwelling place a place of hibernation and healing' (Cox and Holmes 2000, 71). Unfortunately, in most circumstances, people who have lost their homes are thrown into the public arena and are forced to interact with other people, including complete strangers, at a time when they would much rather be left alone. Read (1996) identified that two of the families involved in the Mount Macedon fires found the public exposure very painful.

Apart from having their personal belongings blowing around and exposed to all the elements, people would deliberately drive past and stare at their charred houses. One family had to erect a screen to protect themselves from sightseers as hundreds of cars would stream past the ruins. This left the owners feeling 'humiliation, anger and victimisation' as the passers by complained about the lack of ruins to look at (Read 1996, 107).

This scenario occurred during the Christmas 2001 fires that destroyed a number of homes in Sussex Inlet. For weeks people would stream past the houses impacted upon by the bushfire and peer at them and cause a great deal of stress to the occupants. This was affirmed by Ron Anderson (2005) where he identified this sense of an invasion of privacy that was felt by some of the victims of bush fire he had spoken to 'because everyone was just walking around their sacred ground.' (Anderson 2005, pers. comm., 11 Oct). Patricia McKenzie had her entire home and contents destroyed by the 1994 Warringah and Pittwater fires and she too felt this invasion of privacy:

> *'When I saw groups of people standing on the ashes, despite the unit being roped off, I felt violated as though they were standing on my grave, because that was my whole past, my being and I didn't care for that at all'* (Macleod 1996, 31).

4.2 Loss of assets and livelihood

After the fright of the bush fire event, many residents return home to find that their house is not what it used to be, often undistinguishable and merely a pile of rubble and ash. One resident of Como who experienced the 1994 bush fires presented a grave and graphic picture of the destruction caused by the bush fire:

> *'…much of their loved suburbs resemble a battlefield…the devastated terrain, piles of rubble being cleared, people scratching in the ruins, trying to restore a semblance of normalcy'* (Fisher in Sutherland Shire Council, 1994: 34).

In addition to the destruction of their home, residents are also faced with the loss of all 'their possessions, their past, and everything except life, memories and a changed future' (Fisher in Sutherland Shire Council, 1994: 34). In many of rural areas there is less emphasis on the house because more often than not it is insured. Instead the focus turns towards the assets that most impact on the running of their business and source of income:

> *'Even while our firies are saving the house, the farmer saying 'forget the house I couldn't care less about me house, that's insured. It's me cattle, me stock…me grazing, me fencing. None of that's insured. Save that! …Don't worry about me house. I can build another one'* (Anderson 2005, pers. comm., 11 Oct)

For many people in rural areas, there is a sense that their livelihood is being destroyed and the protection of valuable infrastructure and livestock is more important than a house, which can be easily rebuilt. The destruction of infrastructure and livestock that is the core of their business can lead to many years of financial hardship and is often not insured. The author experienced a similar situation during the Shoalhaven fires where a family's house was saved but their shed with all the machinery they needed to run their business was destroyed. They were quite upset and angry that the shed had been lost and turned on members of the local fire brigade and blamed them for the loss.

The importance of infrastructure and livestock in the affected rural areas is recognised by the RFS and other research and emergency organisations who now record the loss of fencing, livestock and ancillary structures.

4.3 Loss of memories

Suffering is inevitably connected to the disruption of meaning, and whilst a bush fire itself does not necessarily create the suffering it is the cascade of human events that occur as a result of the fire that have the most meaning and impact (Cox and Holmes 2000). For some people, a sense of meaning and belonging is embedded in the possessions that reflect their past and give them a sense of their own history. For these people, it is the loss of photographs and other memorabilia from the bush fire that creates the greatest and continuing suffering (Cox and Holmes 2000). They find it extremely difficult to comprehend that all that remains of their special dwelling place, filled with a lifetime of memories, is the ash from the fire.

This was evident in the interview with Ron Anderson where he reflected on the Canberra fires of 2003 during which he spent many weeks with the residents who had houses destroyed or damaged:

> *'We actually provided plastic buckets for them to put little things that they found as they searched through the ashes… because they were keen to look for anything that may have survived'* (Anderson 2005, pers. comm., 11 Oct).

As well as the grief over the loss of possessions and the memories that these items conjure up, there are also the emotions and feelings that are attached to the house itself and the lifetime of important events that may have occurred within its walls:

> *'A grief because someone's husband may have died in the house, it may have been 12 years before but the wife had now lost that house… its memories, emotional feelings'* (Anderson 2005, pers. comm., 11 Oct)

In this case it is the reminder of a loved one who lived and possibly died within the house that has now been destroyed by bush fire and all memory of their life has been destroyed.

4.4 Community division

Often, following a major bush fire that has resulted in substantial damage to property, there is a sense of inequality and unfairness that is generated between those who have lost their homes and possessions and those who haven't. Many would assume that those whose homes had been saved would be grateful that they did not lose all their possessions and have to rebuild again.

However, it is often the opposite, particularly once the devastation of the bush fire has been forgotten and people are beginning to rebuild.

> *'Initially…they do…my house has been saved. But then 6 or 8 months down the track the lady or the people next door are getting a brand new two storey home…they say to themselves well I'm still having my house painted I'm still having new tiles put on the roof…little bit of upset starts to come in'* (Anderson 2005, pers. comm., 11 Oct)

This feeling of resentment from those whose houses have been saved is evident in the following story about a woman's reactions to her house being saved during the Como fires of 1994:

> *'Like I remember one family…. What happened was the fire came out of the valley…straight up over his house and burnt the house on the other side of the road. All the houses around them were burnt to the ground and nothing happened to their little 2 bedroom fibro house and she was screaming and yelling at him saying everyone else in the street is going to get a new house and we're…left with our little 2 bedroom fibro* (Anderson 2005, pers. comm., 11 Oct).

These negative feelings between different sections of the affected communities create tension and can divide the community and if not addressed, these reactions will continue to occur long after the fire front has passed:

> *'The remaining houses have an air of limbo about them. Some inhabitants wish their houses too, had been taken; it all would have been easier to bear. Instead they have bulging walls, smoke damage, buckled roofing, ruined contents, insurance problems, but worst of all their neighbours' and friends' anxieties to contend with'* (Fisher in Sutherland Shire Council, 1994: 34).

As a result of the 1994 Como bush fires, Paula Flannery-Kendall and her family lost their home and everything in it, apart from the few items of clothing they had managed to gather before leaving as the fire impacted on the area. During a personal reflection on the fires she spoke of the division that was beginning to form in her neighbourhood and also her own feelings as a result of getting a new house:

> *'I must confess to some feelings of guilt. We will have a lovely new house, much better than our old one. Just occasionally there have been a few disgruntled mutterings from those whose houses survived intact. In many ways we will be better off but if someone had the power to bring back my old house with all my photos, kid's mementoes, garden, books and memories I would not hesitate in swapping the extra room and ensuite'* (Flannery-Kendall in Sutherland Shire Council, 1994: 39).

She presented a contrary view to the perception that those who didn't get a house were missing out on all the good things and wrote of the guilt she felt at receiving new things from other people and a sense that she did not really deserve it, despite the fact that she could not have prevented the bush fire occurring:

> *'I feel a bit uneasy to have a new house. Once you accept things from people you sort of feel that you shouldn't have anything good. That it's somehow immoral to benefit from adversity in any way'* (Flannery-Kendall in Sutherland Shire Council, 1994: 40).

The sense of inequality generated by a bush fire was further instilled in the author's mind during an interview with Ron Anderson (2005) when he spoke of the creation of a 'haves and have nots' class system between the children who were impacted by the Como fires:

> *'That's what happened at Como…all the kids turned up for school…most of the children had new lunch boxes, new school bags, new school uniforms, new everything. All the ones that lost everything, but the ones that didn't lose anything they still turned up with all their old school bags and it used to be a very poor area back in those days. So therefore there was an instant class…within the school and I know the headmistress…had a tremendous problem with uniting the two cultures back together again because you had all these kids with everything…and then you had the people on the other side of Como…coming out of the…public housing area and they didn't have anything'* (Anderson 2005, pers. comm., 11 Oct).

Businesses also play an important role in preventing this sense of inequality, and separation between different sections of the affected communities. After a bush fire it is quite common for some residents to receive more care and understanding than others. During the fires of 2001-2002 in the Shoalhaven Region and the 1994 Como fires there were a number of home owners who lost everything in the fire who did not get the support or attention they required from the big insurance companies. This is reflected in the following example from the interview with Ron Anderson (2005):

'The insurance company were coming and saying well it's not covered for this it's not covered for that. And then we had the NRMA insurance come out and they just brought their cheque book with them…and they just lent on the front fence that was all that was left of their houses, wrote the cheques for the full insurance and handed it to the people. Now the person next door might have been with…Jack Frost insurance company and…3 months later they were still like waiting so there was anger between those two families' (Anderson 2005, pers. comm., 11 Oct).

It is situations like this that increase the anger and hostility between neighbours and contribute to segregated communities following a bush fire.

4.5 Different reactions

In analysing the impact that losing a house has on people, Read (1996) identified that men and women grieve for those lost places that are most familiar to them. He suggests men and women grieve differently, and in general, women will mourn lost houses more frequently than men (Read 1996, 118).

This view that men and women react different is also supported by Ron Anderson (2005), but he suggests that the process of mourning for men and women is dynamic and that the emotions of both sexes change over the course of the bush fire event (before, during and after the onset). For example, in many cases women will in fact have a more stabilising influence immediately after a bush fire. The man will be 'great under the pressure' during the actual fire but as soon as it has passed through and is all over he will be crying while the 'wife will be standing beside him starting to kick into a motherly protection mode' (Anderson 2005 Line 264). Then after about 6 weeks the roles will change again and the husband will again take over control (Anderson 2005, pers. comm., 11 Oct).

Paula Flannery-Kendall wrote of her reactions to the loss of her house as a result of the 1994 Bushfires and that it was not only the wretchedness of losing a house but also the stresses associated with rebuilding:

> *'My reaction was one of numbness. I felt inadequate that I couldn't feel anything, later I felt like a pressure cooker and just longed to cry... Another concern was not knowing whether we could afford to rebuild'* (Flannery-Kendall in Sutherland Shire Council, 1994: 39).

An interesting observation by Ron Anderson (2005) was the emotional responses that the men impacted upon by bush fire sometimes have. He indicated that in his experience the man will be the one crying while the woman is looking after everyone. This is likely to be a reflection on how society perceives the role of men and women with men seen as the strong, protecting one and women are generally seen as the weaker and more fragile sex. The comments made by Ron Anderson (2005) suggest a more emotional and softer side to the men who are victims of fire.

The impact of bush fires on children can also vary and may continue long after the memory of the fire has disappeared from even their parent's memories. Paula Flannery-Kendall spoke of the distress her daughter experienced following the 1994 Como fires:

> *'My daughter has rejected all her new things and has turned from a happy seven year old with such joy-de vie to a withdrawn, introspective child who worries about everything'* (Flannery-Kendall in Sutherland Shire Council, 1994: 39).

The impacts of losing a house to bush fire are often far reaching and can affect other extended family and friends who are not necessarily the ones that lost a house, as is evident from the following anecdote from Paul Flannery-Kendall following the Como fires:.

'The reaction of my elderly parents was also very worrying. My mother had lost nearly all her family in Europe during the Second World War and had no family photos or keepsakes from her childhood. The loss of sentimental items, my own things and the things she had given me were very hard for her to bear' (Flannery-Kendall in Sutherland Shire Council, 1994: 38).

4.6 Separation of families

The emotions that are generated during a bush fire are quite intense and under a 'normal' situation may never arise. This is most commonly expressed when families are separated during a fire, with the mother and children going to an evacuation centre while the husband stays to defend the house.

'I was able to give one guy there a phone and say 'where's your wife mate?' and he said I don't know…she left here at 8 o clock this morning with the kids…and I haven't spoken to her since. I said…here ring her now and I could hear the emotion on the other end of the phone because she didn't know if he was dead or alive or where he was' (Anderson 2005, pers. comm., 11 Oct).

Paula Flannery-Kendall had a friend of her son's visiting when they where forced to leave their home ahead of the fire and go to a relocation centre. She was not able to get in contact with his parents during and immediately after the bush fire. Despite losing her house as a result of the bush fire, the thought that most distressed her was that her son's friend would never see his parents again:

'The worst thing about this whole experience was not the loss of all our family mementoes but the thought that this child could have lost his parents' (Flannery-Kendall in Sutherland Shire Council, 1994: 38)

This also applies to the many fire fighters who work tirelessly to defend their community while their own homes and family may be under attack from the bush fire. During the Christmas fires of 2001-2002, the author was helping fight the fires on the south coast and on one particular occasion was protecting properties within the township of Wandandian while her mother was being evacuated from their house. After arriving back from a 14 hour shift fighting the fires she was distraught because she couldn't get in contact with her mother. Despite knowing that she would be safe, the intensity of the situation caused irrational and irregular behaviour.

4.7 Sense of vulnerability

A sense of vulnerability and a lack of understanding of what a bush fire entailed are often generated by those who are directly exposed to the ravages of bush fire. In many cases the residents and general public experience the terror of a bushfire with no understanding or training in bush fire behaviour. They are generally totally unprepared for what they are going to experience:

> *'The fright of that steam train coming at them, you know the heat, the feeling'* (Anderson 2005, pers. comm., 11 Oct)

> *'The final scene, a stomach-churning spectacle of unbelievable terror and trauma'* (Kavanagh in Sutherland Shire Council, 1994: 15).

As a result of the terror of the fire, many choose to escape and head to relocation centres or the homes of family and friends who are not in the line of fire:

> *'So many of the people chose to stay with their house and send their wife and children… to the RSL club… and many of them said to me if I'd of known that it was going to be this bad I wouldn't have stayed'* (Anderson 2005, pers. comm., 11 Oct)

However in many cases the experience of escaping can be just as traumatic as staying at home:

> *'It was an unholy experience trying to escape – there seemed to be flames whichever way one drove* (Flannery-Kendall in Sutherland Shire Council, 1994: 36).

4.8 Creating a sense of community

During and after a major bush fire campaign, communities will often band together and help one another out. Many residents will have the view that bush fire is part of the Australia environment and even though their house is destroyed they will do what they can to help other members of the community to either save their house or help them to comprehend the event and to feel motivated to move forward with the healing process.

> *'There was fire impacting everywhere and we were running like madmen…a mother in about her mid thirties… she was helping the lady next door with her house and I though that was her house and I said 'how are things going with you with your house' and she said… 'this isn't my house…I'm actually helping these people to try and save theirs, I lost my house next door' and there's her house in a bundle of ashes but…she focused straight from her house straight into the people next door…I've lost mine but I've got to help these people'* (Anderson 2005, pers. comm., 11 Oct).

This sense of a community banding together is even more evident once the fire has been extinguished and residents are faced with the difficult task of restoring order or starting all over again:

'However the generosity of the wider community but especially the people of Como-Jannali touched me to the core. I will forever be grateful for all the kindness shown to us by so many people. The feelings of goodwill in the community was such a positive thing to come out of the disaster' (Flannery-Kendall in Sutherland Shire Council, 1994: 39).

During the 1994 Como fires it was not just the residents of Como-Jannali who helped out but also many people from across Australia '…but they were all there for their fellow Como-Jannalians and Australians when they were needed' (Flannery-Kendall in Sutherland Shire Council, 1994: 40). Molly McGee from the St Vincent de Paul Society noted that during the Como fires a young man and his father drove from Goondiwindi to Sydney to assist with the relief effort (McGee in Sutherland Shire Council, 1994: 23).

This community spirit following the Como fires was also observed by Jean Belshaw who'…experienced a great deal of assistance and warmth from family, friends, and the community' (Belshaw in Sutherland Shire Council, 1994: 13). During the 2001-2002 Shoalhaven fires, the residents of Sussex Inlet not affected by the fire participated in fundraising events to help those who lost everything. In addition to this a community in Victoria undertook massive fundraising and donated the money to the Sussex Inlet Rotary Club for distribution to those who suffered loss from the fires.

4.9 More than bricks and mortar: the importance of social impacts

The above findings have demonstrated that the impacts of the loss of a house to bush fire extend well beyond the 'bricks and mortar' of the structure, and can have deep and far reaching influences on the emotional and psychological well being of fire victims. The trauma of the bushfires gives many people the opportunity to reflect on what truly matters to them and in many cases the loss of material items (i.e. structures, possessions) is not necessarily the most important as is evident in the following remarks from .

'*Such a terrifying experience gives us all a second chance to get back to basics, to truly appreciate family, friends, the touch of a caring hand, the warmth of concerns from strangers, the ability to give and contribute, even simple tokens of love and thoughtfulness'*(Fisher in Sutherland Shire Council, 1994: 34).

From the stories outlined in this chapter, it is evident that people react differently to bush fire and it is important that agencies and organisations interacting with affected residents and communities during post fire recovery are careful not to let their own opinions as to get in the way. They may not agree with the reactions from residents but they must accept that everyone reacts differently and realise that there may be underlying emotional and psychological issues that need to be addressed.

The implications raised in the previous literature review and confirmed by these findings are intertwined and need to be carefully considered in any post disaster responses and investigations. Considering the social implications of losing a house to bush fire remains a relevant planning consideration.

CANBERRA FIRES 2003

Source: Cassidy, 2003

SYDNEY FIRES 2002

Source: NSW Rural Fire Service, 2002

CHAPTER 5: TECHNICAL OPTIONS FOR POST FIRE RECOVERY

"Clouds do not always indicate rain, but smoke is always a sign of fire."
African proverb

5   TECHNICAL OPTIONS FOR POST FIRE RECOVERY

Bush fires and other disasters are a natural part of society and will continue to occur within Australia. The challenge is to minimise the negative impacts on individuals and communities who are affected by disasters such as bush fire through effective disaster recovery. This chapter examines the theory behind disaster recovery and discusses the appropriateness of current approaches to post fire recovery.

Disasters are described by EMA as the 'conditions or situations of significant destruction, disruption and/or distress to a community' (EMA, 1998: 29). A natural disaster is more narrowly defined as 'a serious disruption to a community or region caused by the impact of a naturally occurring rapid onset event that threatens or causes death, injury or damage to property or the environment and which requires significant and coordinated multi-agency and community response' (Department of Transport and Regional Services 2002: 11). Such disruption can be caused by any one, or a combination of the following natural hazards; bush fire, cyclones, earthquakes, floods and storms including hail, storm surge, landslide, tsunami, meteorite strike or tornado (EMA, 1998 and Department of Transport and Regional Services 2002).

Regardless of arrangements that are put in place to mitigate the occurrence and impacts of natural disasters (such as planning and development control measures), it is not possible to prevent hazards from occurring and impinging on communities and consequently there is a need for recovery processes to be put in place for physical, social, emotional, psychological, economic and financial restoration.

5.1 What is disaster recovery??

EMA defines disaster recovery as 'the coordinated process of supporting disaster affected communities in reconstruction of the physical infrastructure and restoration of emotional, social, economic and physical well-being (EMA 1998: 28). The processes for recovery from major bush fires parallel those relevant to other natural disasters and should therefore be considered from an all-hazards perspective. This differs from disaster response which is defined by EMA as the 'actions taken in anticipation of, and immediately after an emergency to ensure that its effects are minimised, and that people affected are given immediate relief and support' (EMA, 1998: 28).

Disaster recovery programs can include contingency measures that seek to restore essential services, and provide counselling and financial support and assistance for residents. In many instances, the aim of recovery programs is to reduce the consequences of the disaster and to reduce community vulnerability (Hill 1996).

Recovery is often the most overlooked aspect of a bush fire, particularly from an emotional standpoint. Research into, and the reporting of, the support given to individuals following a disaster, and in particular their response to the event in terms of lifestyle changes and personal reaction, is minimal (Juratowitch et al, 2002). Recovery is much more than a remedial process of replacing what has been destroyed and the rehabilitation of disaster victims. Rather, it is a complex social and developmental process and the manner in which recovery processes are undertaken is critical to their success (EMA, 2002).

5.1.1 Impacts of a disaster on the community

A community impacted by a disaster such as bush fire is likely to reduce in function for a period of time as they deal with the many social implications outlined previously. The extent and timing of these social impacts will depend on the resources available to the community following the disaster. If the disaster recovery process is enacted when a disaster is imminent or immediately after it has occurred, there is greater potential to minimise impacts. However it is also necessary that measures be put in place to ensure continuing support for however long it takes for the affected community to return to a sense of normalcy. Unfortunately it is a common feature of counter-disaster activity to concentrate on the immediate response to the emergency and then hand over the problems of the disaster affected community to the community service personnel who may not have the necessary skills or resources to best deal with the needs of the community.

The aftershock experienced by fire victims can cause them to weep, shake, feel depressed, and suffer nightmares and sleepless nights, sweating and flashbacks for days, weeks or even years after the bushfire event (Macleod 1996). All these symptoms are a common and natural reaction to an unnatural and highly stressful situation. For many of these victims there is a need to talk to someone about their circumstances whether it is via formalised counselling services or other informal methods. The reactions identified by Macleod and the outcomes of the literature review (detailed in Chapter Three), and the findings of Chapter Four of this study, demonstrate that the emotional and physical reactions of people to bushfire are many and varied. The value and character of support offered to a community impacted by bush fire should therefore aim to reflect the characteristics of the community affected.

A quick response and restoration of services is essential to minimise the impacts on the community. However, the reactive approach often taken by emergency services delays the response and restoration. Emergency Services must take a proactive approach to disaster recovery and have systems and processes in place that can be activated at a moments notice when a disaster occurs and impacts on communities.

5.2 The concept of risk

The term risk is used frequently in the field of emergency management and disaster recovery. It is defined by Standards Australia (2004) as 'the chance of something happening that will have an impact on objectives'. Risk is separate and quite distinct from the term hazard which is described as 'a source of potential harm or a situation with a potential to cause loss' (EMA 1998: 59). In disaster recovery, hazards are the primary sources of risk, but they need to interact with elements at risk in the community and its environment in order to lead to emergencies or disasters (EMA 2004).

To minimise or prevent the impacts of a disaster on the community and environment that are at risk it is necessary to apply a risk management process (see Figure 4). Standards Australia (2004) defines risk management as the 'culture, processes and structures that are directed towards realizing potential opportunities whilst managing adverse effects' (Australian Standards, 2004:4). In the emergency management and disaster recovery context this involves a range of measures that contribute to the emotional, psychological, physical and economic well-being of communities and the environment, by minimising, as much as s possible, adverse impacts from the source of the risk (i.e. a bush fire). Detailed in this chapter are approaches to bush fire recovery that fit within the risk management framework.
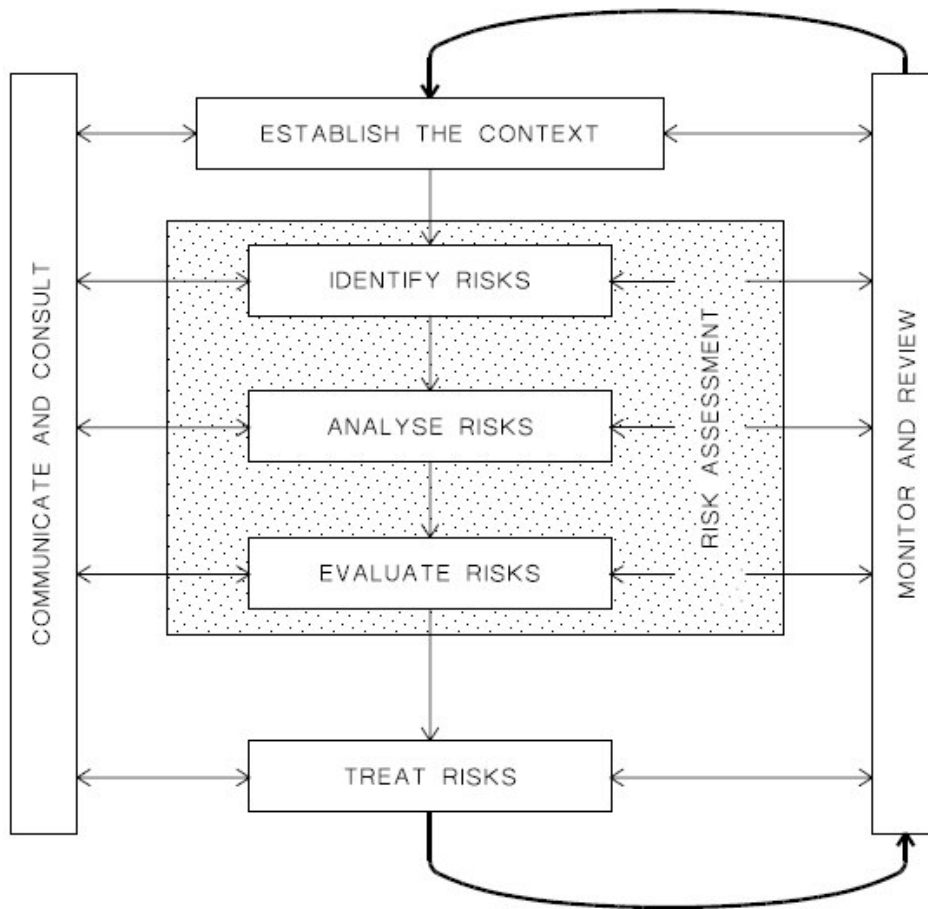
Figure 4: Risk Management Process
Source: Standards Australia, 2004

5.3 The current approach to bush fire recovery

In 2001 a HLG of senior officials representing Commonwealth, State/Territory and Local Governments was established to undertake a review of natural disaster relief, recovery and mitigation. The HLG found that, although Australia's natural disaster relief measures provided immediate and urgent assistance to individuals and families and rebuilding infrastructure is sound and effective, the current arrangements do not deal effectively with helping communities as a whole to recover from the effects (Department of Transport and Regional Services, 2002).

Within Australia there is a comprehensive, nationally agreed framework that exists for recovery following a variety of disasters. This document, the *Australian Emergency Manual—disaster recovery*, aims to provide disaster managers and practitioners with a nationally agreed framework for recovery at all levels. First published in 1996, an updated version of the document was published in September 2004.

The *National Inquiry on Bushfire Mitigation and Management* (2005) indicates that the Manual was to be further reviewed to address the issues raised in the following documents: Community Services Ministers' Advisory Council's Review of community support and recovery arrangements, *Natural Disasters in Australia: Reforming mitigation, relief and recovery arrangements* (2002) and COAG *National Inquiry on Bushfire Mitigation and Management*. These documents noted that although the existence of this document represents a positive approach by government, it drastically requires updating to incorporate lessons learnt from the recovery programs following recent major bush fires.

The update should highlight the importance of adopting a whole-of-government approach to disaster recovery. This approach should include the quick implementation of arrangements that are relevant to a particular bush fire but still ensure that there is an effective transition back to normal arrangements for the affected communities. Included in this are measures that will help affected people navigate the maze of support structures and that the insurance industry is encouraged to provide consistent and clear advice to policy holders on what to do following a bush fire (Ellis et al, 2004). Applying a holistic approach to service delivery by government and stakeholders and the refining the referral and coordination process for assistance given by community agencies is also reflected in the study undertaken by Juratowitch et al, (2002).

A recent article from the ALGA states that during an Augmented Australasian Police Ministers' Council, Emergency and Police Ministers from across Australia agreed that 'a national emergency management plan (catastrophic disasters) that would include provision of fundamental necessities such as food, shelter, medical and financial services to the Australian community' should be provided (ALGA, 2006). This reiterates the concentration by many government departments and senior officials on the provision of material items and financial restoration, rather than an integrated approach that considers both the short term and long term social implications of disaster recovery.

Unfortunately many disaster recovery plans tend to focus on the essential items such as 'catering, accommodation, clothing, financial and welfare centres' but fail to adequately address other community needs such as transportation, restorations of services and community lifelines such as schools, hospitals and commerce (Dixon, 2005: 35). A focus on the 'whole situation' including the social, emotional and psychological implications, rather than merely the restitution of material goods and services will provide a useful starting point in the initiation of a successful community disaster (Juratowitch et al, 2002: 53).

5.3.1 The PPRR Model

EMA has adopted the risk management approach and has developed the Prevention, Preparedness, Response and Recovery (PPRR) model. The PPRR model recognises that there are four types of activities that contribute to minimising hazards and reducing the implications for affected communities and the environment:

- Prevention (mitigation): activities which seek to eliminate or reduce the impact of hazards and/or increase the resilience of affected communities

- Preparedness: involves the education of communities to prepare them to deal effectively with emergencies and disasters

- Response: activities involve putting in place effective measures to deal with emergencies and disasters if and when they do occur

- Recovery: activities which assist an affected community in reconstruction of the physical infrastructure and restoration of emotional, social, economic and physical well-being (EMA 2004).

The PPRR model has been adopted by most emergency management policy makers across Australia and incorporated into many high level documents dealing with emergency management.

Unfortunately, in many cases, this model has facilitated the development of a notion that there is a linear relationship between the four elements rather than an interrelated relationship (Salter, 1997-98). This is supported by Crondstedt (2002) who suggests that the PPRR model constrains broad and innovative thinking about the treatment of risk by confining and channelling one's approach to investigating and selecting the most productive treatment path. The four elements of PPRR appear equal in importance and it is implied that it is necessary to have strategies or programs that fall under each of them (Crondstedt 2002). This approach does not reflect the fact that it may not be possible to have strategies that fit neatly under either one or all of the elements and that this is part of the risk management process.

PPRR tends to focus more on 'action-based' treatments that relate to the activity and physical actions related to the hazard and ignore the social dimensions that deal with community vulnerability (Crondstedt 2002).

The PPRR approach has been in use across Australia for over a decade and has become the focus of emergency management agencies and incorporated into many local and national plans. However, much has changed since it was first adopted and fire and other emergency services have become more community minded and business focused.

This is reflected in the COAG Inquiry which details the importance of applying a structured risk management process that is consistent with the Australian Risk Management Standard, as it offers the best framework for making strategic and operational decisions about bush fire mitigation and management (Ellis et al, 2004).

5.4 Alternative approaches

Hill (1996) suggests that fire and other emergency services must move from a 'reactive paradigm' to a 'proactive integrated approach' using a risk management approach. To achieve this shift, key stakeholders including government, the insurance industry and the community itself must join with the fire and emergency services in order to 'develop shared understanding of the benefits and implications of such reform at national, state and local levels'(Hill, 1996: 3).

5.4.1 The 5R's Framework

As a result of the COAG Inquiry the PPRR model has been further developed and adapted to form the 5Rs framework. This updated framework concentrates on the following 5 areas with an aim to provide a more integrated approach to bushfire mitigation and management:

- Research, information and analysis: to improve the effectiveness of bush fire mitigation and management it is essential that consistent data gathering and collation about bushfires occurs across Australia is ongoing and that research is sustainable and adequately funded.

- Risk modification: land use planning and development controls have a central role in minimising the risk posed to life and property from bush fire. These controls, combined with modification of the landscape (i.e. hazard reduction) and reducing the frequency of ignitions from arson through education, are the principles means of risk modification

- Readiness: describes everything that can be done prior to a bush fire and includes relevant and effective community education and public information programs that aim to increase the bush fire readiness of a community, a comprehensive and well prepared incident management team and a coordinated approach and good communication by agencies involved

- Response: includes an all hazards approach to the control and coordination of bush fire response based on a standardized system, an emphasis on safety and training of personnel (including volunteers), well informed residents who are able to make the decision to stay or go well ahead of time and not be prevented from staying and defending well prepared properties.

- Recovery: an all hazards approach to disaster recovery that is consistent with a comprehensive, nationally agreed framework. Lessons from previous fires and other disasters should be continually analysed and incorporated into the recovery process (Department of Transport and Regional Services, 2005).

Each of the 5R's identifies particular actions that are to be taken in order to achieve a more comprehensive approach to bush fire mitigation and management in Australia. This includes minimising the risk that is posed to communities in bush fire prone areas through preventative measures (such as planning and development controls) and modification of the physical environment (i.e. hazard reduction) and human behaviour (through community education). The 5R's model also attempts to incorporate adequate measures to treat the social impacts that result from bush fire by applying best practice principles for post fire recovery and considering the lessons that can be learnt from previous bush fires so that the same mistakes are not continually made.

5.4.2 An Integrated Planning Model

Hill (1996) has developed an Integrated Planning Model which outlines the various roles and responsibilities that the three tiers of government within Australia should take to achieve the proactive paradigm. The most important aspect of this model (shown in Figure 5) is increased interagency planning and cooperation and the collaboration of government and emergency service agencies.

Integrated Planning Model

Community Empowerment
Interagency Collaboration
Planning for Outcomes
Risk Based Approaches
LOCAL

NATIONAL
National Codes
Service Delivery Standards
Best Practice
Statistics

STATE
Legislation
Industry Collaboration
Integrated Planning Framework
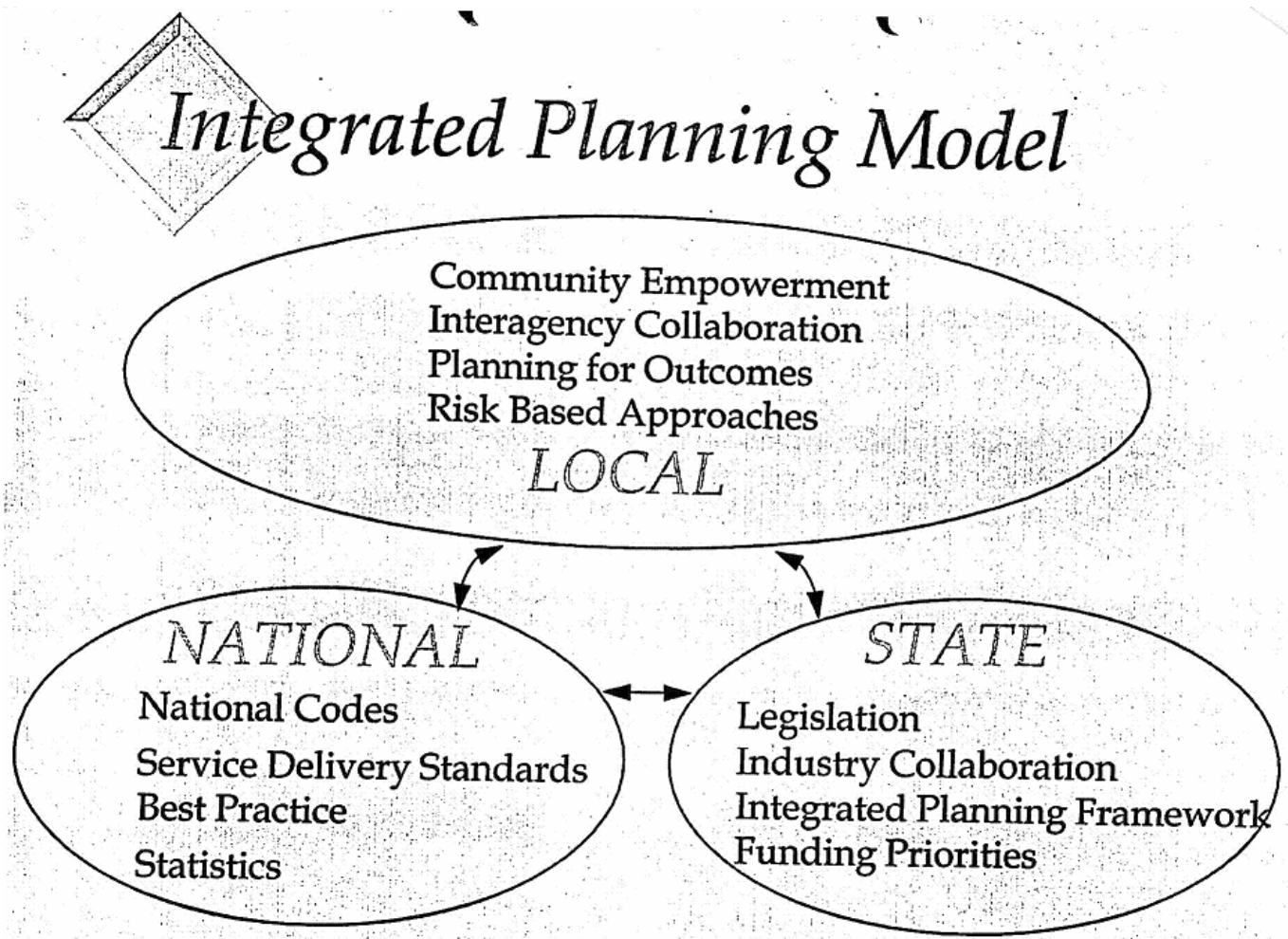Funding Priorities

Figure 5: An Integrated Planning Model
Source: Hill, 1996

Integrated governance is described by the IPAA as 'the structure of formal and informal relations to manage affairs through collaborative approaches which may be between government agencies, or across the levels of government (local, State and Commonwealth), and/or the non-government sector' (IPAA, 2002:1). The concept of integrated governance is important in the disaster recovery context in order to allow the three tiers of government and emergency services to move away from a command and control mode of governance to shared governance through multiple stakeholders.

5.5 An integrated government approach

It is evident from the above discourse analysis that the common theme throughout the literature on disaster recovery is that there is a need for a coordinated approach following a disaster. So what does this mean for each of the three tiers of government?

Like most other disasters, bush fires recognise neither local government boundaries nor state borders. Consequently cross boundary relations must occur and processes must be developed to ensure a coordinated approach. As a bush fire increases in size and impacts upon more areas, the roles and responsibilities of local, State and Territory governments and the Australian Government also increase. It is not surprising then that the efficiency and effectiveness of bush fire mitigation and management will be determined by how well the three levels of government interact and the ways in which responsibilities are upheld and authority is used (Ellis et al 2004).

5.5.1 Federal Government

The *Natural Disasters in Australia (2002)* report describes the Australian Government's role in relation to natural disaster management as to:

- provide national leadership in disaster research, information management and mitigation policy and practice
- reduce the risks and costs of disasters to the nation
- mobilise resources when State and Territory disaster response resources are insufficient
- Provide national support for disaster relief and community recovery (Department of Transport and Regional Services, 2002).

The Federal Government must recognize that it has a broad responsibility to support the States and Territories in developing their emergency management capabilities and ensure that the principles of an all-hazards, comprehensive, all-agencies approach is applied and upheld (Ellis et al 2004).

5.5.2 State Government

In Australia, the constitutional responsibility for protecting lives, property and the environment predominantly falls to the States and Territories and in NSW this is the responsibility of the RFS as defined by the *Rural Fires Act 1997*. The *Natural Disasters in Australia (2002)* report identified that the state and territory responsibilities include the following:

- Developing, implementing and ensuring compliance with comprehensive disaster mitigation policies and strategies in all relevant areas of government activity. NSW is the only state or territory that has legislation in place to ensure the implementation and compliance of planning and development controls

- Strengthening partnerships with and encouraging and supporting local governments and communities in undertaking disaster risk assessments and mitigation measures.
- Ensuring the provision of appropriate disaster awareness and education programs and warning systems
- Ensuring that the community and emergency management agencies are prepared for and able to respond to natural disasters and other emergencies
- Maintaining adequate levels of well-equipped and trained career and volunteer disaster response personnel. Personnel must be trained in and aware of the many emotional and psychological reactions that victims of bushfire will have.
- Ensuring that appropriate disaster relief and recovery measures are available
- Ensuring that post-disaster assessment and analyses are undertaken (Department of Transport and Regional Services, 2002).

The RFS is attempting to undertake bush fire risk assessments and mitigation measures through the preparation of risk management plans. Other States and Territories are attempting to mitigate the impacts of bush fire in various ways, including the application of various community education programs which are discussed later. Partnerships between the various States and Territories should be developed so that they can work together to share ideas and learn from one another.

5.5.3 Local Government

The Productivity Commission's *Report on Government Services 2003* notes that 'Local Governments in most States and Territories are involved to varying degrees in emergency management' (Productivity Commission, 2004: 8.4).

The Natural Disasters in Australia report (2002) summarised the role of Local Government in disaster mitigation and management from an all-hazards perspective:

> '*Where Local Government powers exist, Local Governments also have responsibilities, in partnership with States and Territories, to contribute to the safety and well being of their communities, which means they have an important role participating in local natural disaster management* (Department of Transport and Regional Services 2002:14)

Local Governments are often the first level of government that will be affected by the disaster recovery process for incidents that occur within their boundaries, as affected residents approach them for the services and support that they require. In most circumstances, the principal roles and responsibilities of Local Governments are undertaken prior to a disaster occurring and Local Government tends to play more of a behind the scenes, but equally important role which includes:

- hazard identification and management
- systematically taking proper account of risk assessments in land use planning to reduce hazards by incorporating planning controls to limit development in high-risk areas and supervising building standards in bushfire-prone areas
- facilitating local fire-prevention committees and community awareness and policing non-adherence to prevention measures
- encouraging and supporting volunteers
- coordinating local recovery and ensuring that local resources and arrangements exist to provide disaster relief and recovery services to communities
- ensuring that all requisite local disaster planning and preparedness measures are undertaken
- taking cost-effective measures to mitigate the effects of natural disasters on local communities, including routinely conducting disaster risk assessments (Department of Transport and Regional Services, 2002)

From the above, it is evident that Local Government has a significant influence on ensuring that the emotional and psychological impacts of bush fire loss are addressed. As identified above local government is responsible for identifying and coordinating resources and services that can play a critical role in the recovery of affected individuals and communities. They must ensure that up to date information is available to prevent the existing problem of an agency (or service provider) no longer providing a specific service and this not being known until the recovery phase has begun (Dixon, 2005) which slows down the process.

To ensure that each tier of government is able to achieve their roles and responsibilities, it is important that those coordinating disaster recovery are aware of what is required by each level of government.

In addition to this, information identifying the requirements of government should be easily accessed by the public so that they can contact the correct agency for assistance. To achieve this, local and state disaster plans should identify the various government roles, be updated regularly and most importantly the community should be made aware of them. This will assist in a quick restoration of services and facilities to the affected community.

5.6 A preferred approach

The approach to disaster recovery continues to evolve over time as it has for the past decade. Australia has an extensive urban-bush land interface where the majority of bush fire impacts occur and disaster recovery in these areas requires extensive resources and planning to ensure that the communities affected are adequately catered for.

It is promising to see that fire agencies across Australia are adapting either the PPRR or 5R's framework. This was evident during the Australasian Education and Fire Awareness Conference 2006 where Dennis Stunden (2006) from the Queensland Fire and Rescue Service identified the application of a risk management framework to community education in bush fire prone areas of Queensland. He identified the importance of risk

reduction (mitigation) through community governance and applying an all hazards approach to the situation, well before the fire season begins. The importance of a coordinated approach to community education was reiterated by Gawen and Dunstan (2006) of the South Australian Country Fire Services who also acknowledged the importance of endorsement by all relevant stakeholders and a program that clearly identifies the various roles and responsibilities of those involved.

To apply a risk management approach to disaster recovery it is necessary to shift from 'responding to events' to embracing a broader set of issues that are associated with risk and attempting to analyse, evaluate and treat them to prevent or minimise the effects (Salter, 1997-98: 22). As indicated, the risk management approach takes the position that the impact of risks should be minimised as much as is reasonably practicable. When determining what is as 'low as reasonably practicable' it is important that planners and policy makers consider factors such as 'feasibility, costs and benefits and levels of risk' (Salter 1997-98: 25).

Fire and other emergency services should continue to move away from the physical action and activity based treatments of the current PPRR model and move towards the 5R's framework which includes softer options that involve social dimensions. The 5R's model focuses on the interaction between the community, hazard and the agencies responsible for coordinating the process.

 It is imperative that consideration goes beyond the hazard itself and include the many socioeconomic and psychological vulnerability factors of affected communities

This chapter has examined the differing approaches to disaster recovery, with a particular emphasis on bush fire. The literature examined in this chapter has highlighted some willingness from government and emergency services to acknowledge and respond to the social impacts of losing a home to bush fire in disaster recovery. This chapter highlights the necessity of having plans and processes in place, well in advance of any bush fire, that can be applied at a moments notice regardless of where it occurs or who is responsible for the coordination of the event.

The question that arises from this is: are government and emergency services doing enough to incorporate social impact assessment into the bush fire recovery process and can they do more? While we continue to build houses on the bush land fringe, the loss of home to bush fire remains prevalent and appropriate measures to deal with the social implications must be put in place.

CHAPTER 6: THE

PREFERRED APPROACH

FOR POST FIRE RECOVERY

"Drought, dry seasons, and, more than all - that deadliest weapon of the tyrant - the bush-fire, reduces and selects the life of the country."

W.H.L. Ranken, "The Dominion of Australia" (1874)

6   THE PREFERRED APPROACH FOR POST FIRE RECOVERY

In order to limit the negative impacts on affected communities, an integrated government approach to risk management should be adopted by all levels of government as detailed in the previous chapter. Depending on the scale of the event, a coordinated recovery response must begin when the fire event is imminent to ensure a rapid and coordinated deployment of services. Recovery from bush fire will be most successful when a single agency coordinates the process with input from the various stakeholders involved, including the affected community. Most importantly the recovery arrangements must be fully integrated into the overall emergency management planning and response process and should not be treated in isolation (Ellis et al 2004).

The importance of considering the social implications of bush fire, are detailed in the previous chapters. The implications of these findings as they relate to post fire recovery and improvements that government and emergency services can make to better address the impacts are discussed in this chapter. Detailed below is an outline of the areas that will be discussed:

    I. Post Fire Recovery that minimises social impacts
        a. Involving the community
        b. Training recovery workers
        c. Utilising local resources
    II. Development Controls and Community Education
    III. Develop a plan
        a. Agreed/Generic Objectives
        b. Specific Actions
    IV. Ongoing surveys and research
    V. The Success of Post Fire Recovery

Bush fire recovery plans must be reviewed on a regular basis to ensure that they incorporate best practice and the most up to date information. They should be updated with lessons learnt from fires within the area covered by the plan, and also outcomes from fires that reflect similar situations to the area covered.

6.1 Post fire recovery that minimises social impacts

Despite the best intentions of fire agencies (and other emergency services), the steps taken during the research, risk mitigation, readiness and response stages, cannot guarantee that a community will not be impacted upon by bush fire. Activities that are conducted without consulting the affected communities and recognising their various needs and priorities will severely hinder and disrupt the disaster recovery process (EMA 2002). All agencies that will play a role in the recovery process must be involved in the planning stages. This will allow for networks and partnerships to be established and representatives will gain a better understanding of the tasks and responsibilities that other stakeholders are likely to be involved with.

It is therefore important that assistance measures are adapted to ensure that the needs and wants of the affected community are appropriately met. This is possibly the least considered aspect of the 5R's framework in respect to bush fire, at present, particularly the elements required to address the social implications identified in Chapters Three and Four of this study. Outlined below are measures that can be taken to identify and limit these social impacts.

6.1.1 Involving the community

The social implications of bush fire should be identified early on in the recovery process through extensive consultation with the affected individuals and communities, and must be undertaken with the utmost sensitivity. Post fire recovery will be most successful when it is approached from a community development perspective that involves conducting the management of the situation at a local level with active involvement from

the community affected. This process should include reliance upon local capabilities and expertises that are identified well prior to the fire impacting on an area.

An essential part of this process is allowing the affected communities and individuals to participate in the management of their own recovery. While assistance may be required by specialists to help those affected overcome the social implications of bush fire, it is important that this assistance does not prevent the communities from participating in the management of their own recovery.

Support services and assistance measures should be made available to the affected communities, which can be accessed when each person feels that they are ready. This will assist in each individual and community maintaining their own identity and not be taken over by any one person or organisation.

To empower individuals and communities to participate in the recovery process it is critical that information that provides details on the fire behaviour and services and resources that can be readily accessed, as well as other relevant information, is provided regularly to the affected persons. With such a multicultural society, it is essential that this information be provided in a range of languages and formats so that the minority groups within the affected communities are also reached. These groups may find it harder to combat the emotional and psychological impacts identified previously, due to language and cultural barriers and these groups should be identified early on in the planning process.

Overall, the recovery process should be a developmental process that does not have set timeframes to be met and encourages the community to develop beyond its previous capacity with improvements made to infrastructure and functioning (EMA 2002).

6.1.2 Training of recovery workers

Integral to the recovery process is the training of disaster recovery workers to ensure they are well prepared for the task and are able to provide adequate support to the disaster victims. Quite often the consideration of these issues falls to them once a bush fire has occurred without adequate training having been provided. For them to continue in this role it is essential that they be appropriately trained in how to consider the complex social processes involved and the range of reactions that individuals and communities will experience. One important aspect for both disaster recovery workers and policy makers to consider is that although many victims are focussed on the disaster and its after-effects, some consider it to be just one more difficulty in their life with which they have to contend (Juratowitch et al, 2002: 53).

For some victims of disasters, positive psychological lifestyle benefits are generated and can outweigh the negative benefits (Juratowitch et al, 2002). An example of this is the sense of community togetherness and neighbourliness and faith in people that is identified in Chapter Three of this study. These positive attributes should be incorporated into the recovery process and where appropriate encouraged in disaster affected communities.

6.1.3: Utilising local resources

Recovery services and resources should be readily available for communities to access as soon as a bush fire has occurred. Where possible, local resources and services should be utilised and a detailed account of the various options available should be provided to ensure that the needs of the affected community are met. If external recovery services and resources are required to supplement the local supplies they should be identified early on in the recovery process and should fall under the control of the existing local service providers.

6.2 Development controls and community education

Recovery plans should include a community education component that will raise awareness about the recovery from fire, including applying development controls for those rebuilding and how the negative impacts outlined in the previous chapters can be minimised. Community education is not just about informing the community and increasing their awareness; it is about empowering them to change their behaviour and incorporate risk mitigation measures into their lifestyle.

This is reflected in the COAG Inquiry which recognises that the benefits of community education are better informed attitudes and actions which include an appreciation of an integrated approach to sharing risk and responsibility for fire mitigation and management by individuals, the community, and fire and land management agencies (Ellis et al, 2004).

Communities are not homogenous and community education interventions must reflect community diversity. During the recent Australasian Education and Fire Awareness Conference 2006 presented by the NSW RFS, speakers from interstate fire agencies identified the importance of adapting community education to the situation, what resources are available and the needs of the community.

6.3 Develop a plan

The current approach to disaster recovery traditionally treats the victims and recipients of services as 'dependent' and of a limited 'functioning ability' and reliant on external 'specialist' service providers who are deemed to be experts in determining what is best for the recipient (Juratowitch et al, 2002). The local community should be consulted in the preparation of any post fire recovery plan, as well as following a bush fire to ensure that their needs and wants are adequately addressed.

It is unlikely that there is one treatment that can have all its elements applied across the board as a complete solution for a particular problem. It is more feasible for a framework to be established that identifies generic objectives to be incorporated into all recovery plans and then specific measures that can be adapted and applied depending on the situation. Detailed below is a suggested outline of agreed objectives and specific tasks to be carried out by government and post fire recovery agencies.

6.3.1 Generic disaster response tasks

To achieve a coordinated approach to bush fire recovery, procedures that focus on "generic" tasks most likely to be faced during any bush fire event, and that can be applied across local government areas and state borders, should be addressed. The broad goal of any bush fire recovery plan should be to facilitate the recovery of affected individuals, communities and infrastructure as quickly and practicably as possible in an effective and efficient way.

This can be achieved by incorporating the following objectives in a bush fire recovery plan:

- Outline the recovery management structure and process.
- Identify the tasks that each organisation will carry out and their responsibilities. This should include details of inter-agency coordination as well as specific responsibilities in relation to the overall management process and also specific services that will be provided.
- Detail logistics such as supplies, transportation, food, shelter, and communication networks to support the disaster response.
- Providing mechanisms which ensure community participation in the recovery process. This can include meetings held between communities, fire agencies and disaster recovery workers.
- Setting out of adequate resource arrangements. It is imperative that resources are identified, prior to an event occurring that can be accessed rapidly once a bushfire has impacted.

6.3.2 Specific disaster response tasks

The ability off individuals, families and communities to recover from bush fire will vary considerably depending on their own capacity to cope with the situation, the specific circumstances of the event and the emotional and psychological impacts that the event has upon them. Assistance measures need to be adapted to most appropriately meet the needs of those affected.

It is quite likely that response arrangements that are put in place following a bush fire will differ from what is detailed in the written plan. Plans must be flexible enough to reflect the needs of the affected people and community as they are identified through extensive consultation during and after the event.

Detailed below are some specific actions to be incorporated in a bush fire recovery plan to mitigate the impacts and provide a more efficient and effective recovery from bush fire:

- Identify vulnerable communities by applying a risk management approach (i.e. the likelihood of fire occurring and the associated consequences)
- Identify minority groups within the community
- Consult with the community to determine areas that should be addressed in a recovery plans. Residents who have experienced previous bush fires will be able to provide valuable information.
- Identify the likely impacts from bush fire in the area covered by the plan and appropriate mitigation measures. This should incorporate lessons learnt from bush fires situations that are similar to those identified. The circumstances of the likely impacts that need to be addressed include the type of fire and the expected extent of damage or destruction (grass fires often result in less structural damage than forest fires but more impacts on loss of infrastructure and livestock that can destroy farming businesses).
- Include details of suppliers for services and resources within the local community and update this regularly to reflect any changes (contact details, management, etc)

- Organise meetings with vulnerable communities and minority groups well before the bush fire season to advise them of recovery processes and measures.
- Carry out community education interventions that are reflective of the community diversity

6.4 Ongoing surveys and research

Following a major bush fire that results in loss or damage of property, various agencies undertake investigations to determine the fire origin and behaviour, building behaviour (of materials), and human behaviour. The human behaviour element and the associated responses to the devastation of fire is the least known aspect, as is evident from the findings identified earlier in this study.

Post fire investigations can be used to gather valuable information on occupant behaviour and responses, during and after a bush fire. The information gathered can then be used to assist other post fire recovery efforts. Unfortunately, the lessons learnt from past bush fires are often not incorporated into the disaster recovery process, and as other communities experience similar catastrophes, the same mistakes are allowed to occur again (Auf der Heide, 1989). In addition to this, many post disaster critiques are defences or justifications of what was done, rather than objective assessments of problems and mistakes, and published accounts may delete material that can cause political embarrassment or increase the liability of those responsible (Auf der Heide, 1989). Finally, many disaster critiques are prepared with the aim of correcting internal shortcomings of the government, organisation or agency responsible for the coordination and are not meant for others to benefit from (Auf der Heide, 1989). This can lead to a collapse in the risk management framework and more importantly inhibit the process of addressing the needs and wants of the communities affected.

It is unlikely that surveys that aim to ascertain people's attitudes and behaviour can be carried out for every bush fire that occurs across the nation (King and MacGregor 2000). In the same respect, to gain any meaningful data that can be used for comparison, a standardised survey would be required. It is important that information continues to be gathered on these matters in order to understand the relationship between community vulnerability and awareness and preparedness, based on social and built structure indicators (King and MacGregor 2000).

Residents are often faced with the difficult task of returning and trying to salvage what they can and at the same time answer the many questions asked during post fire investigations. As identified in Chapters Three and Four, the emotional and physical reactions of people to bush fire are many and varied. No matter how qualified the person gathering the information, it is impossible to judge exactly how people will react to being interviewed and the support services that they will require as part of the recovery process. It is imperative that care be taken when gathering this information to ensure that the victims themselves are not further distressed at this already difficult time.

6.5 The success of post fire recovery

In conclusion, post fire recovery will be most successful when it is based on valid assumptions about human behaviour, incorporates an integrated government and organisation perspective, is tied to resources, and is known and accepted by the affected individuals and communities (Auf der Heide, 1989).

The fundamental aspect to remember about disaster recovery is that it is a multifaceted, dynamic and prolonged process. The prerequisites for a community's successful recovery from a disaster, such as bush fire, are as varied as the reactions that each individual has to the event.

CHAPTER 7:

RECOMMENDATIONS AND

CONCLUSIONS

"The significant problems we face today - can not be solved by the same level of thinking that created them."

Albert Einstein

7   RECOMMENDATIONS AND CONCLUSIONS

As is evident from the previous chapters, community and government concerns regarding bush fires are becoming increasingly relevant as the population continues to grow and expands more rapidly into the urban-bush land fringe. Changing weather and climate conditions also contribute to making it likely that bush fires will be encountered more frequently and the impacts will be more severe.

In NSW the RFEALA has seen a vast improvement in relation to planning and development in bush fire prone areas in an attempt to minimise the loss of dwellings and the protection of life from bush fire. However, no place is immune to bush fire and existing and new dwellings will still be susceptible to fire and appropriate measures must be put in place to mitigate this.

People's expectations and responses to bush fire are far from uniform as is evident from the previous chapters. Further improvements to the disaster recovery process and adoption of an integrated, coordinated risk management approach that recognises all the implications of bush fire and allows for appropriate mitigation methods to be applied will minimise the negative affects.

Based on the findings of this thesis, a series of recommendations have been suggested to raise awareness amongst fire agencies of the emotional and psychological well-being of victims of bush fires and measures that can be applied to minimise the negative impacts on individuals and communities.

7.1 Future directions for disaster recovery

The following recommendations acknowledge the key role of social impact assessment in the disaster recovery process and suggest a number of directions to better cater for the needs of affected individuals and communities.

Recommendation 1: That a standardised survey be prepared that assesses people's attitudes, reactions and behaviour, during and after a bush fire.

Recommendation 2: That a coordinated approach to the gathering of data on human behaviour and response be promoted and ensures that those undertaking surveys minimise their interactions with the residents at this difficult time and leave the area as quickly as possible.

Recommendation 3: That a central database/collection point be established that details the results of findings from major bush fires (i.e. human behaviour during a bush fire and social implications) so that government and agencies can learn from past mistakes and incorporate them into the disaster recovery process. This must include objective assessments of problems and mistakes that are experienced during bush fire events.

Recommendation 4: That a structured risk management approach is essential to making appropriate strategic and operational decisions for bush fire recovery. Any bush fire recovery should be consistent with the Australian Risk Management Standard and apply best practice that has been learnt from previous bush fires (and other disasters).

Recommendation 5: That community service and reconstruction agencies are involved in the planning and decision making process for bush fire recovery plans. This will ensure awareness of the emotional and psychological impacts of a bush fire on communities and the successful incorporation of preventative and response measures into the integrated recovery process,

Recommendation 6: That the Integrated Planning Model developed by Hill (1996) should be adopted by the three tiers of government and the associated emergency agencies to ensure that the responsibilities and roles for bush fire (disaster) recovery are distributed appropriately and are reflective of the various powers and jurisdictions that governments have.

Recommendation 7: That Fire Services adopt a proactive approach to disaster recovery and have systems and process in place that can be activated immediately a bush fire has the potential to impact on communities.

Recommendation 8: That a standardised document be prepared that outlines the key objectives in respect to bush fire recovery that are to be incorporated into local bush fire recovery plans. Specific local area provisions can be applied to recovery plans as is deemed necessary by the relevant governments and organisations.

7.2 The social impacts of bush fire: a key consideration for government and emergency services

Although people are often the most important element of disaster recovery, there has been limited research into human responses to disaster. This is particularly relevant for bush fires where there is a significant body of research into the behaviour of buildings impacted by fire, but limited knowledge on the social impacts of losing assets and possessions. This study has demonstrated that the human responses to the disruption of home as a result of bush fire are as diverse as the communities and individuals that experience them and are the consequence of a complex interaction of factors.

Governments and fire agencies need to recognise that people will behave in different ways which will be reflective of the circumstances that they find themselves in and the level of support that they receive during and after a bush fire. They should seek to understand the types of conditions and circumstances that are most likely to elicit negative responses from those people affected by bush fires. A detailed understanding of these factors will equip them with a far greater ability to reduce the social impacts of bush fire and provide appropriate post fire recovery.

7.3 Where to from here: future research?

Detailed below are measures that can be undertaken to address a number of the recommendations of this study:

- Prepare a standard survey

- Update existing recovery plans

- Establish a central database/information collection point

The area of bush fire planning and disaster recovery is an expanding field, and opportunities for research often arise following a major bush fire and resulting inquiries. As a result of this study, other areas requiring further exploration have been identified:

- Impact of community education on reducing bush fire loss and minimising impacts?

- Is the risk management approach of applying land use planning and development controls the best option?

- Should government dictate to home owners how to build in bush fire prone areas?

- What role do the media play in minimising the impacts of affected communities?

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APPENDICES

APPENDIX 1
Interview Questions

Name

Age

Place of Birth

Education level

Religion

Occupation

How long have you been involved with the RFS for?

Have you been involved in any major bushfire campaigns? In what capacity?

Major fires attended?

What are some of your experiences/emotional responses of bushfire?

Have you had any involvement with members of the community who have had their houses damaged or destroyed?

What are some of the emotional responses that the community have to bushfire, particularly those who have lost their homes and possessions?

Did you find that they blamed or held people accountable for their loss (i.e. RFS)?

Did you find residents open to discussing their thoughts and feelings after a bushfire?

Where there any instances where residents did not want to talk to you?

Have you had any involvement with fire fighters who have tried defending houses lost from bushfire?

What are some of the emotional responses that fire fighters have to bushfire, particularly those who have tried defending houses lost from bushfire?

From your experiences and interactions with fire fighters, did you find them open to discussing their thoughts and feelings after a bushfire?